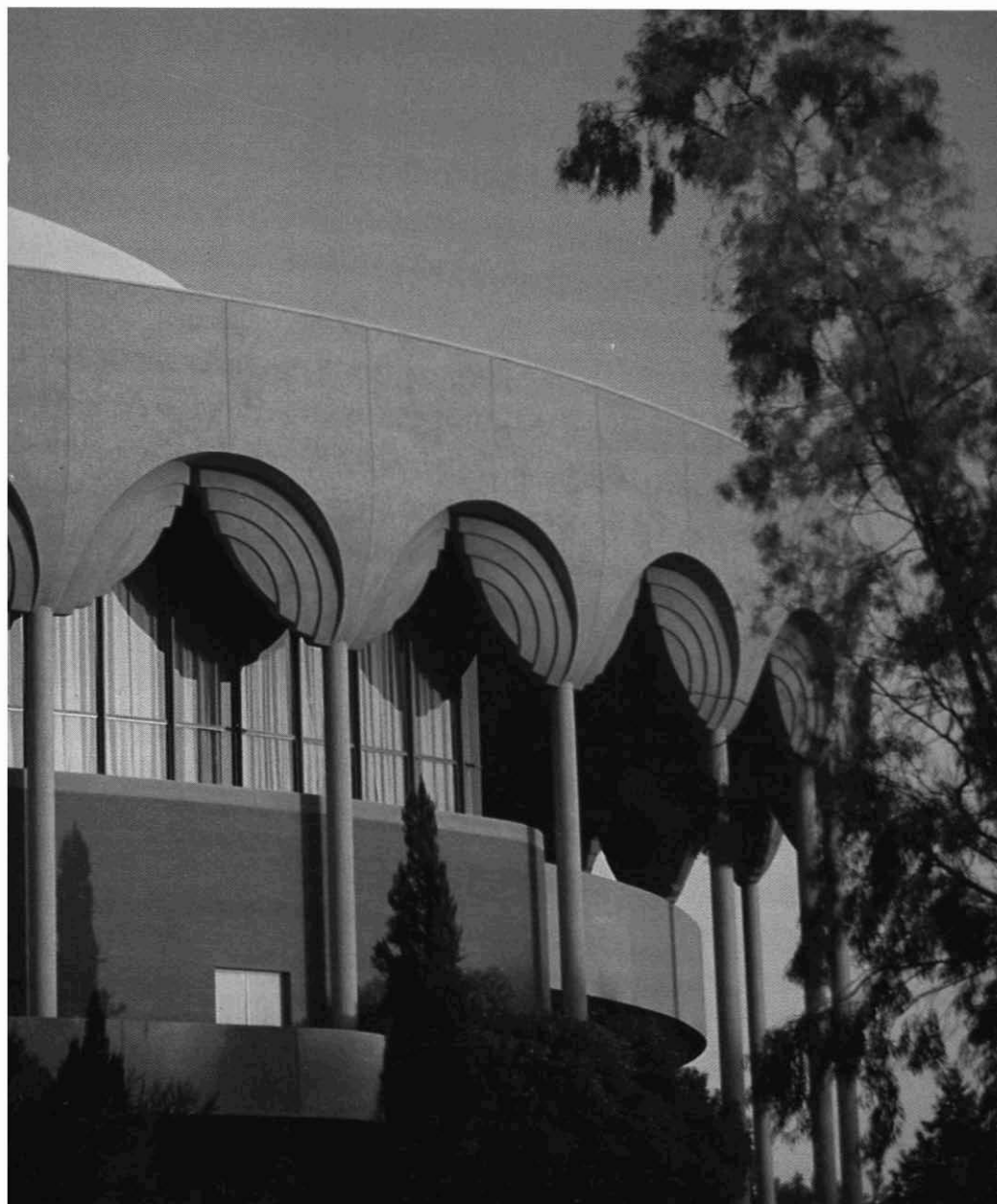


ASU BULLETIN
Arizona State University



General Catalog
1989-1990



Arizona State University

General Catalog 1989-90

All colleges and departments establish certain academic requirements which must be met before a degree is granted. These requirements concern such things as curricula and courses, majors and minors, and campus residence. Advisors, directors, department chairs and deans are available to help the student understand and arrange to meet these requirements but the student is responsible for fulfilling them. At the end of a student's course of study, if requirements for graduation have not been satisfied the degree will not be granted. For this reason it is important for a student to acquaint themselves with all regulations and to remain currently informed throughout their college careers and to be responsible for completing requirements. Courses, programs and requirements described in the catalog may be suspended, deleted, restricted, supplemented or changed in any other manner at any time at the sole discretion of the University and the Arizona Board of Regents. The catalog does not establish a contractual relationship but it summarizes the total requirements which the student must presently meet before qualifying for a faculty recommendation to the Arizona Board of Regents to award a degree.



Address requests for additional information to
DIRECTOR OF UNDERGRADUATE ADMISSIONS
ARIZONA STATE UNIVERSITY
TEMPE, ARIZONA 85287-0705

Arizona State University reserves the right to change without notice any of the material as information requirements, regulations—published in this *Catalog*.

Refer to Appendix A, page 570 for Arizona State University's Statement on Grievances of Discrimination.

No employee, agent or institution under the jurisdiction of the Arizona Board of Regents shall discriminate or retaliate against any student employee or other individual because of such individual's religious belief or practice or any absence thereof. Furthermore, administrators and faculty members are responsible to reasonably accommodate individual religious practices. A refusal to accommodate is justified only when undue hardship would result from each available alternative of reasonable accommodation. Religious holidays are published in the *ASU Insight* and or the *University Bulletin*, official faculty staff publications at the beginning of each semester.

Arizona State University complies with the Family Educational Rights and Privacy Act of 1974 as amended (see page 44).

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Academic Organization

UNIVERSITY HONORS COLLEGE

COLLEGE OF LIBERAL ARTS AND SCIENCES

Departments: Aerospace Studies; Anthropology, Botany, Chemistry, English, Family Resources and Human Development; Foreign Languages, Geography, Geology, Health and Physical Education; History; Mathematics; Microbiology, Military Science, Philosophy; Physics, Political Science; Psychology, Religious Studies, Sociology; Speech and Hearing Science, Women's Studies, Zoology.

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN

School of Architecture.

Departments: Design; Planning

COLLEGE OF BUSINESS

Schools: Accountancy, Health Administration and Policy

Departments: Decision and Information Systems, Economics, Finance, General Business, Management, Marketing, Purchasing, Transportation, Operations

COLLEGE OF EDUCATION

Division of Curriculum and Instruction: Programs: Adult Education Selected Studies, Early Childhood, Elementary Education, Humanities Education; Media Computer Based Education, Multicultural Education, Reading/Library Sciences; Secondary Education; Special Education.

Division of Educational Leadership and Policy Studies: Programs: Educational Administration and Supervision; Higher Education, Educational Policy Studies

Division of Psychology in Education: Programs: Counselor Education; Counseling Psychology; Educational Psychology; Educational Technology

COLLEGE OF ENGINEERING AND APPLIED SCIENCES

School of Agribusiness and Environmental Resources.

School of Construction and Technology: Departments: Aeronautical Technology, Construction; Electronics and Computer Technology, Industrial Technology, Manufacturing Technology.

School of Engineering: Departments: Chemical, Bio and Materials Engineering; Civil Engineering; Computer Science, Electrical and Computer Engineering, Industrial and Management Systems Engineering; Mechanical and Aerospace Engineering.

COLLEGE OF FINE ARTS

Schools: Art; Music.

Departments: Dance, Theatre.

COLLEGE OF LAW

COLLEGE OF NURSING

COLLEGE OF PUBLIC PROGRAMS

Schools: Walter Cronkite School of Journalism and Telecommunication; Justice Studies, Public Affairs.

Departments: Communication; Leisure Studies

SCHOOL OF SOCIAL WORK

ASU WEST CAMPUS

GRADUATE COLLEGE

SUMMER SESSIONS

OFF-CAMPUS ACADEMIC SERVICES



University Calendar

Fall Semester

1989

Priority Date for Receipt of Undergraduate Admissions or Readmission Credentials	July 28, F
Orientation and Advisement for New Students	Aug. 21 25, M F
New Faculty Reception/Dinner	Aug. 23, W
New Faculty Orientation	Aug. 24, Th
Registration and Drop/Add	Consult <i>Schedule of Classes</i>
Instruction Begins	Aug. 28, M
Labor Day—Classes Excused	Sept. 4, M
Unrestricted Withdrawal Deadline	Sept. 22, F
* December Graduation Filing Deadline (no late fee required)	Oct. 20, F
Mid-Semester Scholarship Reports Due in Office of Registrar	Oct. 27, F
Restricted Course Withdrawal Deadline	Nov. 3, F
Veterans Day—Classes Excused	Nov. 13, M
Thanksgiving Recess—Classes Excused	Nov. 23 24, Th F
Restricted Complete Withdrawal Deadline	Dec. 7, Th
Instruction Ends	Dec. 13, W
Reading Day	Dec. 14, Th
Final Examinations	Dec. 15 16, 18 21, F Sa, M Th
Commencement	Dec. 22, F
Mid-Year Recess Begins	Dec. 23, Sa

Spring Semester

1990

Priority Date for Receipt of Undergraduate Admissions or Readmission Credentials	Dec. 15, F
Orientation and Advisement for New Students	Jan. 10 12, W-F
Registration and Drop/Add	Consult <i>Schedule of Classes</i>
Instruction Begins	Jan. 16, T
Unrestricted Withdrawal Deadline	Feb. 9, F
Spring Recess—Classes Excused	Mar. 18 25, Su Su
* May Graduation Filing Deadline (no late fee required)	Mar. 16, F
Mid Semester Scholarship Reports Due in Office of Registrar	Mar. 16, F
Restricted Course Withdrawal Deadline	Mar. 30, F
Restricted Complete Withdrawal Deadline	Apr. 26, Th
Instruction Ends	May 2, W
Reading Day	May 3, Th
Final Examinations	May 4 5, 7 10 F Sa, M Th
Commencement	May 11, F

* To be considered for academic recognition during commencement, the filing deadline must be met.

Summer Sessions**1990**

Instruction Begins (First 5 week Session)	June 4, M
Instruction Begins (8 week Session)	June 4, M
Unrestricted Withdrawal Deadline (First 5 week and 8 week Session)	June 11, M
Restricted Course Withdrawal Deadline (First 5 week and 8 week Session)	June 22, F
Restricted Complete Withdrawal Deadline (First 5 week Session)	June 29, F
* August Graduation Filing Deadline (no late fee required)	July 6, F
Holiday	July 4, W
First Five Week Session Ends	July 6, F
Instruction Begins (Second 5 week Session)	July 9, M
Unrestricted Withdrawal Deadline (Second 5-week Session)	July 16, M
Restricted Complete Withdrawal Deadline (8-week Session)	July 20, F
Eight Week Session Ends	July 27, F
Restricted Course Withdrawal Deadline (Second 5 week Session)	July 27, F
Restricted Complete Withdrawal Deadline (Second 5 week Session)	Aug. 3, F
Second Five Week Session Ends	Aug. 10, F
Commencement	Aug. 10, F

† Supplemental Sessions I and II**1990**

Instruction Begins (First Session)	June 11, M
Unrestricted Withdrawal Deadline (First 5 week Session)	June 18, M
Restricted Course Withdrawal Deadline (First 5-week Session)	June 29, F
Holiday	July 4, W
Restricted Complete Withdrawal Deadline	July 6, F
First Session Ends	July 13, F
Instruction Begins Second Session)	July 16, M
Unrestricted Withdrawal Deadline (Second 5 week Session)	July 23, M
Restricted Course Withdrawal Deadline (Second 5 week Session)	Aug. 3, F
Restricted Complete Withdrawal Deadline	Aug. 10, F
Second Session Ends	Aug. 17, F

* To be considered for academic recognition during commencement, the filing deadline must be met.
 The Supplemental Sessions may not be offered in 1990. For further information, call the Office of Summer Sessions, 965-6611.

General Information

Objectives

Arizona State University provides an opportunity for students to pursue a full range of high quality academic programs, from the baccalaureate through the doctoral degree.

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

The university's teaching and research programs help instill in students a spirit of critical inquiry and challenge them to seek answers to fundamental questions of human concern.

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

Organization

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

The regents select and appoint the president of the university, the chief executive officer and the regular means of communication between the Board of Regents and the institution. The president is aided in the administrative work of the institution by the provost, vice presidents, deans, directors, departmental chairs, faculty, and other officers. Refer to page 6 for academic organization.

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

The faculties and students of the university play an important role in educational policy, with a Faculty Senate, joint university committees and boards, and the Associated Students serving the needs of a large institution. A comprehensive system of joint faculty, student, alumni and staff committees provides an exchange of ideas and collaboration on the part of all members of the university.

History of Arizona State University

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

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

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

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ance. On March 8, 1945, the three state institutions of higher learning came under the authority of one Board of Regents. By vote of the people, on November 4, 1958, the name Arizona State University replaced the previous name, Arizona State College.

Accreditation and Affiliation

Arizona State University is accredited by the North Central Association of Colleges and Secondary Schools. Programs in the various colleges, schools, divisions and departments are accredited by or affiliated with the following national bodies:

Architecture and Environmental Design: The program in architecture leads to the Master of Architecture degree, which is accredited by the National Architecture Accrediting Board. The Bachelor of Science in Design with a major in Interior Design is accredited by the Foundation of Interior Design Education and Research. The following programs maintain affiliations with the following accrediting agencies: Planning American Planning Association; Industrial Design Industrial Design Society of America.

Business: American Assembly of Collegiate Schools of Business; Accrediting Commission on Education for Health Services Administration.

Education: Accredited by the American Psychological Association, National Council for the Accreditation of Teacher Education, approved by the State Board of Education (Arizona) affiliated with the University Council for Educational Administration.

Engineering and Applied Sciences: American Council for Construction Education, Accreditation Board for Engineering and Technology, Inc.

Fine Arts: National Association of Schools of Music.

Law: American Bar Association, Association of American Law Schools.

Liberal Arts and Sciences: American Alliance for Health, P.E., Recreation, and Dance; American Anthropological Association, American Association for Advancement of Science; American Association for State and Local History; American Association of Museums; American Association of Petroleum Geologists; American Association of Plant Physiologists; American Chemical Society; American College of Sports Medicine, American Council on Teaching Foreign Language; American Dietetic Association; American Geophysical Union; American Historical Association,

American Institute of Biological Sciences, American Institute of Professional Geologists, American Mathematical Society, American Medical Association; American Philosophical Association; American Physical Society; American Political Science Association, American Psychological Association; American Society for Advancement of Science, American Society of Clinical Pathologists, American Society of Medical Technology; American Society of Microbiology, American Society of Naturalists; American Society of Zoologists; American Sociological Association; American Speech Language Hearing Association, Anima Behaviorists Society, Arizona Society of Medical Technology, Association for Women in Science, Association of American Geographers, Association of United States Army; Botanical Society of America; Committee on Allied Health Education, Council for Museum Anthropology, Geological Society of America, Institute of Historical Research; Inter University Consortium for Political and Social Research, International Studies Association; Mathematical Association of America, Mineralogical Society of America; Modern Language Association; Mycological Society of America, National Association for Physical Education in Higher Education; National Women's Studies Association; North American Society for Sports Psychology and Physical Activity, North American Society for Sports History; Phycological Society of America; Rocky Mountain Mathematics Consortium; Sigma Psi, Society for Industrial and Applied Mathematics, Society of Economic Paleontologists and Mineralogists.

Nursing: The baccalaureate and master's programs of the College of Nursing are accredited by the Arizona State Board of Nursing and the National League for Nursing. The continuing education program is accredited by the Western Regional Accrediting Committee of the American Nurses' Association as a provider of continuing education for nursing. The college is a member of the Council of Member Agencies for the Baccalaureate and Higher Degree Programs of the National League for Nursing, and the Western Institute of Nursing.

Public Programs: Accrediting Council on Education in Journalism and Mass Communication, National Association of Schools of Public Affairs and Administration.

Social Work: The Council on Social Work Education.

University Campus

Location. Arizona State University is located near the heart of metropolitan Phoenix, in the city of Tempe (population 169,000). Nearby are the municipalities comprising the fast growing Valley of the Sun: Scottsdale, Mesa, Chandler, Glendale and other communities.

Main Campus—Tempe. The main campus comprises nearly 700 acres and offers outstanding physical facilities to support the university's educational programs. Buildings are modern, air conditioned, and designed for function and attractiveness.

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

ASU Research Park. The mission of the research park is to attract to Tempe new research and development firms which will conduct joint research with ASU departments, interact with graduate students, consult with university faculty, co sponsor high level speakers and seminars on research topics and provide employment opportunities for graduates of ASU. Long term excess revenues from ground leases within this 323 acre park will flow back to the ASU Foundation to be used for support of existing and new research programs at ASU. Currently, the research park has several major tenants (ICI America, VLSI and National Association of Purchasing Management) plus a 50,000 square foot speculative building developed by Transamerica Corporation. The research park is also working with a developer to build a modern conference and service facility within the center of the park. The research park is part of ASU's effort to become a major research university by attracting high quality private and public research firms and institutes.

ASU West Campus. ASU West Campus is an upper division branch of Arizona State University located in northwest Phoenix to serve the higher educational needs of residents of western Maricopa County. Construction of the permanent campus began in 1986 on a 300 acre site bounded by Thunderbird and Sweetwater Roads and 43rd and 51st Avenues in Phoenix. The Fletcher Library is open and the first classroom building was opened spring, 1989. Completion of the first phase of the campus, capable of serving 10,000 students, is expected in the 1990s. While the new campus is under construction, classes and services

are also offered at three facilities: ASU West Ahambra, ASU West Montebello and the American Graduate School of International Management. See pages 451-453 for further information.

Arizona State University Computer Institute. The Arizona State University Computer Institute, located at 3883 E Thomas Road in Phoenix, represents a new approach in providing computer education. The first of its kind in the United States, the Institute offers a wide variety of microcomputer training classes.

The Computer Institute offers introductory to advanced level classes from computer awareness, programming, information management, graphics, business applications, word processing, education, technical and special applications. The institute also works closely with business and industry to provide tailored classes developed specifically for a client and his or her employees.

For additional information, contact the ASU Computer Institute.

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

Camp Tontozona. Located in the famed Mogollon Rim country near Kohl's Ranch north east of Payson, this continuing education facility of the university serves the needs of academic departments conducting teaching and research in mountain terrain.

Downtown Center. Located at 410 North 7th Street in Phoenix, ASU's convenient Center is in one of the former Phoenix Union High School buildings. Courses of interest to the business community are offered during evening hours. Information about all ASU curricula and programs are available from the Center.

University Libraries and Collections

The collections of the university's libraries comprise more than 2.3 million volumes, approximately 2.6 million microform units and more than 31,000 periodical and serial subscriptions. Computer access to commercially produced bibliographic data bases and the ability to borrow research materials from other libraries enhance local resources. ASU is a member of the Association of Research Libraries and the Center for Research Libraries.

Charles Trumbull Hayden Library. The main library houses the largest multidisciplinary collection. In addition to the open stack areas, separate collections and service areas include Curriculum,

14 GENERAL INFORMATION

Government Documents, Interlibrary Loan, Microforms, Reference, Reserve, Rare Books and the Arizona Collection, including the papers of several major Arizona political figures.

Specialized collections include comprehensive holdings of the Pre Raphaelite period, a 14th century manuscript on algebra, the child drama collection, the Thomas Mosher collection, and the William S. Burroughs collection.

A 97,000 square foot underground addition was completed in early 1989.

Arizona Historical Foundation Library. Under a cooperative agreement with ASU, the foundation's library of several thousand volumes is housed in the Charles Trumbull Hayden Library

Bimson Library. Located in the College of Business, Bimson Library houses a small collection of ready reference materials and current periodicals. The bulk of the library's holdings in all areas of business and economics is found in Hayden Library

Howe Architecture Library. In addition to books and periodicals, this library, located in the College of Architecture and Environmental Design, contains the Paolo Soleri archives

Law Library. This comprehensive collection of legal materials is located in the John S. Armstrong Law Building.

Music Library. A large collection of music scores, recordings and music reference materials, plus listening facilities for individuals and groups, is located on the third floor of the Music Building. Special collections include the Wayne King Collection, the Pablo Casals International Cello Library and the International Percussion Reference Library.

Daniel E. Noble Science and Engineering Library. This major branch library houses books, journals, and microforms in the sciences and geography, the Solar Energy Collection, the Map Collection, and the U.S. Patent Collection

University Archives. The records of the university, its official publications and publications of its faculty, students and staff are preserved in this collection

University Media Systems. This facility provides nonprint media resources selected to enhance instruction and research. Television services support the development, acquisition, production, scheduling and delivery of courses. Audio, photography and graphics production services are also available. Audiovisual equipment can be scheduled for use by faculty, staff and stu-

dents. Educational films and videotapes can be obtained for classroom use from a variety of sources.

Cultural Arts Resources

Gammage Center for the Performing Arts.

Designed by Frank Lloyd Wright and named for the late President Grady Gammage, this versatile auditorium seats 3,000 and has won wide acclaim for its design and acoustics. In addition to the great hall and related facilities including the Aeolian Skinner organ contributed by Hugh W. and Barbara V. Long, largest pipe organ in the state, the building contains classrooms and workshops for the College of Fine Arts

Sundome Center for the Performing Arts.

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

Paul V. Galvin Playhouse. Built to stage the largest productions of University Theatre, the Galvin Playhouse is a 500 seat proscenium stage theatre set at the east end of the architecturally dramatic Fine Arts Complex. The Department of Theatre's annual season of 12-15 plays also includes productions in the Lyceum and Drama City theatres.

University Dance Laboratory. An integral part of the Fine Arts Complex, this flexible performance space is designed specifically for the modern and experimental dance. Along with the Dance Studio Theatre in the Physical Education Building East, the Dance Laboratory is used by the Department of Dance for its season performances.

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

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

Special showings of historical and contemporary traveling exhibitions are scheduled throughout the year.

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

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

Television Station KAET. KAET, Channel 8, Phoenix, is licensed and owned by the Arizona Board of Regents and operated by Arizona State University. Studios of the award winning station are located in the Stauffer Communication Arts Building. The station is affiliated with Public Broadcasting Service (PBS), and broadcasts daily from 7 a.m. to midnight. Program information is available from the KAET program manager

Alumni Association

Founded in 1894, the Alumni Association involves graduates and former students throughout Arizona and around the world. It communicates with all alumni and provides services to dues-paying members. The Alumni Center (601 E. Apache Blvd.) maintains more than 130,000 files of graduates. The Alumni Association strives to promote effective interest in and loyalty to Arizona State University on the part of alumni and the general public

Computing Facilities and Services

From the personal microcomputer to the powerful supercomputer, computers have become fundamental tools for research, instruction, and learning in every college and department at ASU. Computing Services (CS) provides a variety of equipment and services to meet the computing needs of students, faculty, and staff.

CS computing facilities and services are offered at no charge to the university community for use in academic pursuits. The Computer Accounts Office provides instructional, research, and individual computer accounts which are used to access CS equipment.

CS operates ten computing sites located throughout the Tempe campus, plus one at ASU West Campus. Many academic units maintain their own extensive computing facilities which are networked to CS systems. At many sites both terminals and microcomputers are available. The microcomputers located in CS computing sites are connected to local area networks, providing easy access to shared data, software, printers, and plotters. Site terminals are connected to the main frames and minicomputer through a high speed communications system. These computers can also be accessed by phone, so users with computing accounts can work at home or in the office from a terminal or microcomputer.

Educational services to assist faculty and students include online tutorials, videotaped and written materials, and noncredit short courses.

Instructional and research consulting is available throughout the year. Full time and student consultants help users work with the academic computing systems in microcomputers, and supported software.

COMPASS (the Computing Assistance Center) is the place to go for news publications, manuals, handbooks, "how to" guides, and other information concerning CS systems and software. The latest in microcomputer technology is regularly on display, waiting to be "test driven." Faculty, staff, and students will also find information about discounts for purchases of microcomputer hardware and software.

CS provides the following computing facilities to the academic community.

CRAY X-MP 14se. The CRAY offers ASU researchers a mature library of scientific software, and very fast scalar and vector speed. The CRAY is well suited to numerically intensive work where speed, precision, and exponent ranges are important. The CRAY is networked to the IBM 3090 for data transfers and access to output devices.

IBM 3090-500E VF. A supercomputer class machine, the IBM 3090 mainframe runs the batch oriented MVS operating system. Interactive editing is provided through the Wylbur text editor. As a powerful research computing system, the software on the IBM 3090 features statistical packages, graphics capabilities and several programming languages. Numerous output devices including high speed line printers, laser printers, and electrostatic, ink jet and color pen plotters are connected to the system. Three integrated Vector Facilities (VF) are available for scientific, high

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speed vector processing applications. Appropriate software can run on the VF at supercomputer speeds.

IBM 3081. The IBM 3081 mainframe runs the CMS interactive operating system supporting full-screen editing and interactive program execution. Software on the IBM 3081 features statistical packages, graphics, and several programming languages. The IBM 3081 is networked with the IBM 3090 for data transfers and access to its output devices. This system also serves as the central electronic mail system for ASU's connection to BITNET, a national and international network of over 400 universities and research centers.

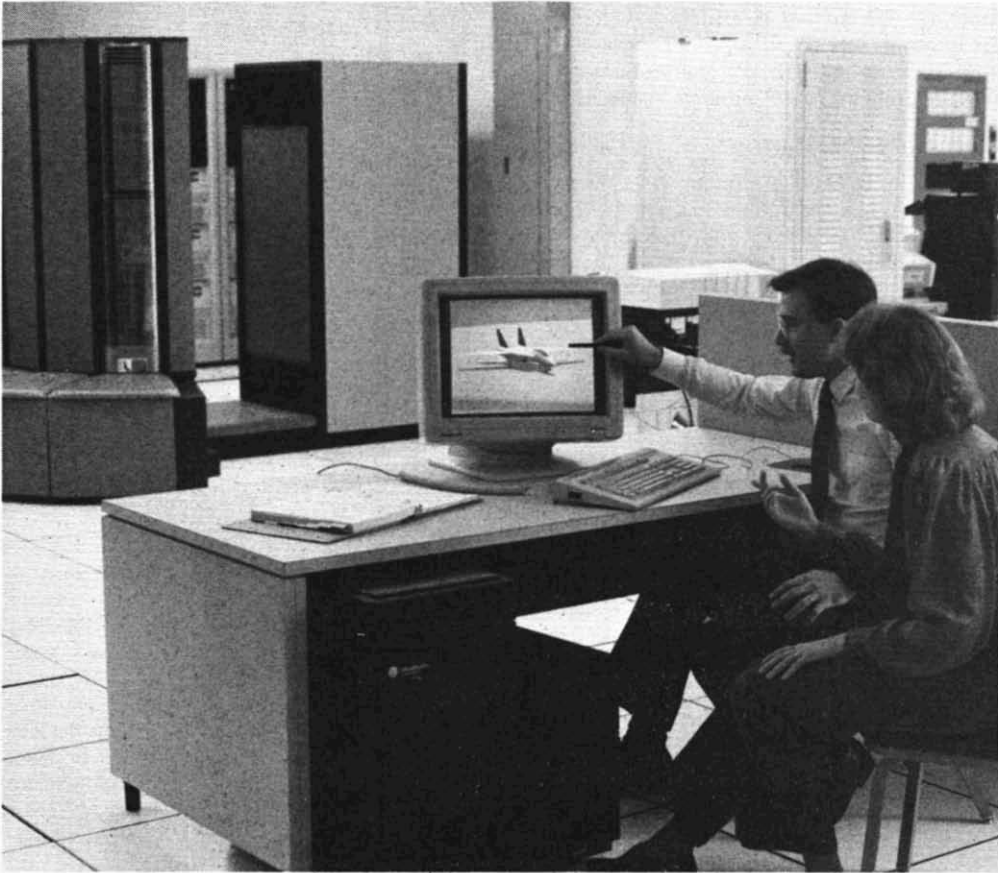
VAX 8650. This Digital Equipment Corp. superminicomputer runs the VMS interactive operating system, known for its ease of use and flexibility. Software on the VAX 8650 consists of several text editors and a wide variety of programming languages, including several for artificial intelligence, graphics, and other applications. The

VAX 8650 is networked with the IBM 3090 for data transfers and access to its output devices.

Microcomputers. ASU has become an educational leader in the scope and quality of microcomputing. CS operates over 350 IBM and IBM-compatible PC/XT/AT microcomputers, which are linked to local area networks. The microcomputers are provided with software, including word processors, spreadsheets, databases, programming languages, and graphics applications, among others.

Four labs housing more than 90 Apple Macintosh II/SE/Plus microcomputers are linked by local area networks. These microcomputers are equipped with software, including word processing, graphics applications, and programming languages.

All of these networks provide draft and letter-quality (laser) printers and centralized software access.



Undergraduate Enrollment: Policies and Procedures

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

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

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

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

Educational programs are available to students regarding alcohol and illegal drug use through the Student Health Center. Students are encouraged to use the health education resource clinic in the Health Center to obtain information about alcohol, illegal drugs or other health related issues.

A Student Assistance Program is also available at Student Health for those individual students who are experiencing problems as a result of use of alcohol or other substances, or who wish to discuss their use of those drugs in a confidential setting.

The university has a strong educational interest in its students' conduct. Students are expected, as part of their obligations of enrollment, to become familiar with the university *Code of Conduct*. Violations of this *Code* are subject to university discipline, whether committed by individuals or groups. This is also true of violations of university regulations with regard to academic dishonesty. The university reserves the right to take necessary and appropriate action to protect the safety and welfare of the campus community. Such action may include taking disciplinary measures under the *Code of Conduct* against students whose behavior off campus indicates that they pose a danger to others.

Student Services at ASU

Arizona State University is a richly diverse academic setting enrolling more than 43,000 students. The ASU student may be a traditional 18 to 24 year old, a recent high school graduate, a community college transfer, an adult returning to college to pursue a degree while having commitments at home and work, or the professional studying for an advanced degree or career change. The ASU student lives in residence halls or sororities or fraternities on campus, or commutes from one of the many communities in metropolitan Phoenix. Each of the 50 states, and more than 100 foreign countries, have students enrolled on this campus.

The campus is organized into six distinct administrative areas. Student Affairs, one of the six areas, is responsible for the delivery of a variety

18 UNDERGRADUATE ENROLLMENT

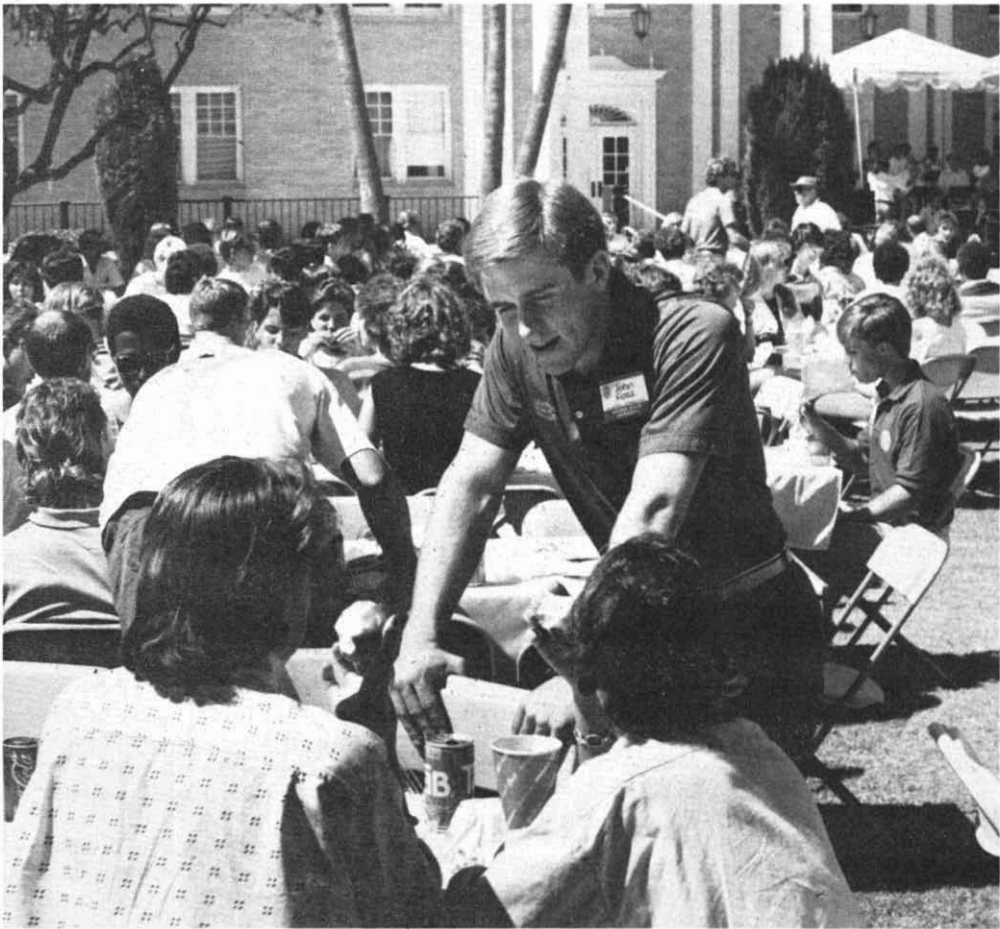
of services and developmental programs in support of students' total university needs and educational pursuits. These programs and services are based upon human development research which advocates that a person develops physically, psychologically, morally, socially, spiritually, emotionally, culturally and intellectually. Student Affairs services are accomplished through effective environmental management and purposeful program planning.

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

Enrollment services to students are begun through recruitment, admissions, student financial assistance, on-campus housing and registration

programs. Once students are on campus they are encouraged to explore the structural facilities, the service offerings, and human resources available. Campus agencies guiding students in this learning process include Career Services, Counseling and Consultation, Student Life, Educational Development, Student Health, Student Publications, Residence Life, and the Memorial Union. Each of these areas provides specialized learning opportunities which contribute to an environment that fosters both personal and academic growth.

ASU's commitment to students does not diminish as a student nears graduation. By promoting career exploration and placement services, students are accompanied through their transition from the university experience to the professional lifestyles and challenges they have chosen to pursue.



Baccalaureate Degrees and Majors Offered

Bachelor of Arts

- Anthropology
- * Art
- Asian Languages: Chinese
- Japanese
- * Broadcasting
- * Chemistry
- * Communication
- * Dance
- * Economics
- English
- * Family Resources and Human Development
- French
- * Geography
- German
- * History
- Humanities
- * Interdisciplinary Studies
- Italian
- * Journalism
- * Mathematics
- * Music
- Philosophy
- * Political Science
- * Psychology
- Religious Studies
- Russian
- * Sociology
- Spanish
- * Theatre
- * Women's Studies

Bachelor of Arts in Education

- Early Childhood Education
- Elementary Education
- Secondary Education
- Selected Studies in Education
- Special Education

Bachelor of Fine Arts

- * Art
- * Dance
- * Theatre

Bachelor of Music

- Choral-General Music
- Instrumental Music
- Music Therapy
- Performance
- Theory and Composition

Bachelor of Science

- Accountancy
- Aeronautical Engineering
- Technology
- Aeronautical Management
- Technology
- Actuarial Business
- Biology
- Botany
- * Broadcasting
- * Chemistry
- Clinical Laboratory Sciences
- Communication
- Computer Information Systems
- Computer Science
- * Construction
- * Economics
- Electronics Engineering
- Technology
- Engineering Interdisciplinary Programs
- Environmental Resources in Agriculture
- * Family Resources and Human Development
- Finance
- * Geography
- Geology
- * History
- Industrial Technology
- * Interdisciplinary Studies
- * Journalism
- Justice Studies
- Management
- Manufacturing Engineering
- Technology

Marketing

- * Mathematics
- Microbiology
- * Music
- Operations Production
- Management
- Physical Education
- Physics
- * Political Science
- * Psychology
- Purchasing/Materials Management
- Real Estate
- Recreation
- * Sociology
- Speech and Hearing Science
- Transportation
- Wildlife Biology
- * Women's Studies
- Zoology

Bachelor of Science in Design

- Architectural Studies
- Design Science
- Housing and Urban Development
- Industrial Design
- Interior Design
- Urban Planning

Bachelor of Science in Engineering

- Aerospace Engineering
- Bioengineering
- Chemical Engineering
- Civil Engineering
- Computer Systems Engineering
- Electrical Engineering
- Energy Systems Engineering
- Engineering Special Programs
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering

Bachelor of Science in Nursing

Bachelor of Social Work

* Major offered toward more than one degree

20 DEGREE PROGRAMS

Graduate Degrees and Majors Offered

Master of Accountancy	Master of Mass Communication	Doctor of Education
Master of Architecture	Master of Music	Counselor Education
Master of Arts	Choral Music	* Educational Administration and Supervision
Anthropology	Instrumental Music	* Educational Technology
* Art	Performance	* Elementary Education
Communication	Theory and Composition	Higher and Adult Education
* Educational Administration and Supervision	Master of Natural Science	Secondary Education
* Educational Psychology	Master of Public Administration	Doctor of Musical Arts
* Educational Technology	Master of Science	Choral Music
* Elementary Education	Agriculture	Instrumental Music
English	Bioengineering	Solo Performance
French	Biological Sciences	Doctor of Philosophy
Geography	Botany	Anthropology
German	Building Design	Bioengineering
History	* Chemical Engineering	Botany
Humanities	Chemistry	Business Administration
Mathematics	* Civil Engineering	Chemical Engineering
Music History and Literature	Communication Disorders	Chemistry
Philosophy	Computer Science	Civil Engineering
Political Science	Decision and Information Systems	Communication
Religious Studies	Economics	Computer Science
* School Library Science	* Electrical Engineering	Counseling Psychology
* Secondary Education	* Engineering Science	Curriculum and Instruction
Social and Philosophical Foundations of Education	Environmental Resources in Agriculture	Economics
Sociology	Family Resources and Human Development	Educational Leadership and Policy Studies
Spanish	Geology	Educational Psychology
* Special Education	* Industrial Engineering	* Educational Technology
* Theatre	Justice Studies	Electrical Engineering
Master of Business Administration	* Mechanical Engineering	* Elementary Education
Master of Computer Science	Microbiology	Engineering Science
Master of Counseling	Nursing	English
Master of Education	Physical Education	Exercise Science
Counselor Education	Physics	Geography
* Educational Administration and Supervision	Recreation	Geology
Educational Media and Computers	Zoology	History
* Educational Psychology	Master of Science in Design	Industrial Engineering
* Educational Technology	Industrial Design	Justice Studies
* Elementary Education	Interior Design	Mathematics
Higher and Adult Education	Master of Science in Engineering	Mechanical Engineering
* School Library Science	* Chemical Engineering	Microbiology
* Secondary Education	* Civil Engineering	Physics
* Special Education	* Electrical Engineering	Political Science
Master of Environmental Planning	* Engineering Science	Psychology
Master of Fine Arts	* Industrial Engineering	Science and Engineering of Materials
* Art	* Mechanical Engineering	Sociology
Creative Writing	Master of Social Work	Spanish
Dance	Master of Taxation	Special Education
* Theatre	Master of Technology	Speech and Hearing Science
Master of Health Services Administration	Education Specialist	Zoology
Master of Laws	* Educational Administration and Supervision	Doctor of Public Administration
		Doctor of Social Work
		Juris Doctor

* Major offered toward more than one degree

Fees, Deposits and Other Charges

The following fees apply to both credit and non credit audit registrations and are subject to change.

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

Academic Year Registration and Tuition

Full-time Students. Students registered for seven or more hours are considered full time for fee payment purposes. The amounts listed below are per academic semester. Information on in state versus out of state residency classification is on page 24.

Registration and Tuition fees are:

In State status	.....\$681.00
Out of State status	
12 hours and over	.....\$2,742.00
11 hours	.....\$2,570.00
10 hours	.....\$2,399.00
9 hours	.....\$2,220.00
8 hours	.....\$2,055.00
hours	.....\$1,883.00

Part-Time Students

Students registered for
6 hours or fewer \$71 per semester hour

Concurrent Enrollment; Nonresident Tuition.

A. It is unlawful for any nonresident student to register concurrently in two or more public institutions of higher education in this state including any university or community college for a combined student credit hour enrollment of more than six semester hours without payment of nonresident tuition at one of such institutions

B. Any nonresident student desiring to enroll concurrently in two or more public institutions of higher education in this state including any university or community college for a combined total of more than six semester hours who is not subject to nonresident tuition at any of such institutions shall pay the nonresident tuition at the institution of his/her choice in an amount equivalent to nonresident tuition at such institution for the combined total of semester hours for which the nonresident student is concurrently enrolled. (A.R.S. Ch 14, par 15-1807)

Summer Sessions, Off-Campus Academic Services and Correspondence

Fees are:

Summer Sessions	.....\$71 per hour
Academic Services	.....\$71 per hour

Correspondence	..... \$33 per hour
Law Courses	..... \$90 per hour

Further information on these services is included in the sections on Summer Sessions (pages 465-466) and Off Campus Academic Services, Correspondence (pages 469-471)

Other Fees, Deposits and Charges

Special Class Fees and Deposits. Certain university classes require payment of fees or deposits for materials, breakage and or rentals. These fees and deposits are listed in the *Schedule of Classes* for each semester

Student Recreation Center Fee. Effective for the fall 1989 semester, all students except University employees) must pay a mandatory Student Recreation Center fee. Full time (seven hours or more) students will be charged \$25 per semester. Part time and summer students will pay a partial amount. See the current semester *Schedule of Classes* for further information.

Private Music Instruction

hour of instruction weekly	.....\$40.00
1 hour of instruction week y	.....\$60.00
More than one hour of instruction weekly in music majors only	.....\$60.00

Musical Instrument Rental Charge

Charge for use of university owned musical instruments\$10.00
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Consult the School of Music for specific information.

Late Registration

Fee assessed on registrations beginning with the first day of each session\$10.00
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Admission Application.....\$25.00

This is a nonrefundable fee paid by undergraduate applicants residing outside the State of Arizona.

Official Transcripts for

Currently Enrolled Students.....\$1.00

Official Transcripts for

Nonenrolled Students.....\$5.00

Request for official transcripts should be made two weeks in advance of time desired

Copies of educational records other than transcripts

Number of Pages	Total Charge
1 to 5	..... Free
6 to 10	..... \$2.00
11 to 15	..... \$3.00

Copies of additional pages cost \$1 per each five pages copied

Graduation Application or Reapplication

Undergraduate	.....\$10.00
Graduate	.....\$15.00

22 FEES, DEPOSITS AND OTHER CHARGES

If the graduation charge is not paid on or before the date specified in the section of this *Catalog* headed Graduation Requirements, a late fee of \$5.00 is added to the charge noted above.

I.D. Card Replacement \$5.00
Replacement because of wear or deterioration is free of charge

Comprehensive

Examination \$7.50 per semester hour
Paid by all students seeking to establish credit by examination

Parking Decals Varies
A parking decal must be purchased for motor vehicles parked on campus. Annual decals run from \$37.00 for perimeter parking to \$90.00 for controlled access parking.

When obtaining an ASU parking decal, it will be necessary to submit verification that each vehicle being registered is in compliance with State of Arizona emission's standards. This verification can be accomplished by providing:

1. A copy of the current vehicle registration, if the vehicle is registered in Maricopa or Pima county, or
2. A copy of the emission's test result obtained from a state authorized emission's testing facility, if the vehicle is registered in another Arizona county or state. The fee for this emission's inspection is \$7.50 per vehicle

If you have any questions regarding this policy or parking at ASU, please call 602 965 7275 for assistance.

Parking Violations. Violations of the parking regulations are subject to citations and fines. Appeals to parking citations may be filed with the Citations Hearing Officer and after payment may be further appealed to the Parking Appeals Board. Unpaid parking citations are delinquent financial obligations subject to provisions of the section on Delinquent Financial Obligations.

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

Students paying registration and tuition with a check or credit card that is subsequently not honored by a bank are subject to involuntary withdrawal from the university if repayment is not made. All students involuntarily withdrawn are

charged tuition and/or registration based upon the percentage of time in attendance during the semester.

On-Campus Housing. For information on student housing, refer to *Catalog* section on Campus Ecology Residence Life

Payment Methods and Deadlines

Check. Checks payable for the exact amount of charges and without a restrictive endorsement are generally acceptable, except for students on check use suspension due to previously returned check(s) from a bank.

Financial Aid. Students receiving financial aid may use their expected aid to pay registration and tuition if these funds have been authorized for this purpose by the Student Financial Assistance Office

Veterans Deferred Payment. The Veterans Readjustment Assistance Act allows veterans to apply for deferred payment of registration fees. A Certificate of Eligibility must be presented. Contact the Veterans Affairs Office for information on meeting the necessary requirements. The university may deny this privilege to students with previous delinquent obligations.

Payment Deadlines. A fee payment deadline is printed on all Schedule/Billing Statements. Fees must be paid by the date and time indicated or the registration will be voided.

Refunds

Academic Year Registration and Tuition. Students withdrawing from school or individual classes receive a refund as follows:

<i>Withdrawal Date</i>	<i>Refund</i>
Before first day of the semester	100% less \$10.00
1 through 14 calendar days	80%
15 through 21 calendar days	60%
22 through 28 calendar days	40%
29 through 35 calendar days	20%
After the 35th calendar day	No refund

Withdrawal occurs on the calendar day that a complete withdrawal form is presented to any one of the Registrar Sites. Students withdrawing for medical or other extenuating circumstances may contact the Comptroller's Office Student Fee Payment Section, Student Services Building, Room B 235 for refunds that may be available under these circumstances.

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

FEES, DEPOSITS AND OTHER CHARGES 23

<i>Withdrawal Date</i>	<i>Refund</i>
Before first day of session	100% less \$10.00
1st and 2nd days of session	80%
3rd day of session	60%
4th day of session	40%
5th day of session	20%
After 5th day of session	No refund

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

Special Class Fees. Refunds, if any, are determined by the department offering the course. Refund determination is based on withdrawal date, type of activity and costs already incurred by the department.

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

Late Registration. Not refundable.

Official Transcripts. Overpayments by mail of \$5.00 or less will only be refunded by specific request.

Graduation Fee. Overpayments by mail of \$5.00 or less will only be refunded by specific request.

Residence Halls. Refunds to students departing from residence halls prior to end of the academic year are computed on the following basis:

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

Board Students are charged for meals through the last day of the week in which formal check out occurs. Students departing during the last two weeks of the semester shall be charged the full semester rate for meals. No refunds are made for meals missed.

Check out A student's check out is based on the date Residence Life is notified on a prescribed check out form, not the last day of occupancy.

Other University Charges. Other university charges are normally not refundable, except for individual circumstances.

Payment of Refunds. Refunds require student identification and are made net of amounts due the university. When the last day of a refund period falls on a weekend or holiday, a complete

withdrawal form must be submitted to one of the Registrar Sites during operating hours on the workday preceding the weekend or holiday. Refunds are normally paid by check and mailed to the student's local address.

Forfeiture of Refunds. Refunds are subject to forfeiture unless obtained on or before June 30 of the year originally paid. When June 30 falls on a day when the Comptroller's Office is closed, the refund must be requested by the last working day preceding June 30.

Delinquent Financial Obligations

Board of Regents' Policy 4-103B states:

1. Each university shall establish procedures to collect outstanding obligations owed by students and former students.
2. Each university shall maintain a system to record all delinquent financial obligations owed to that university by students and former students.
3. Students with delinquent obligations shall not be allowed to register for classes, receive cash refunds or obtain transcripts, diplomas or certificates of degree. The university may allow students to register for classes, obtain transcripts, diplomas or certificate of degree if the delinquent obligation is \$25 or less.
4. Unpaid obligations shall remain a matter of record until students and former students satisfy their financial obligations or until satisfactory arrangements for repayment are made with the university.
5. The university may write off delinquent financial obligations of students according to accepted accounting principles and after appropriate collection efforts. No such write off shall operate to relieve the student of liability for the obligation nor shall such write off entitle the student to release of any transcript, diploma or certificate of degree or to register for further university classes until such obligation is actually paid.
6. Each university shall include this policy in its bulletin or catalog.

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

Residency Classification Procedures and Policies

The Arizona Board of Regents is required by law to establish for the universities under its jurisdiction and control uniform guidelines and criteria for the classification of students for payment of registration fees and tuition. There are several criteria that need to be met. Students interested in becoming an Arizona resident for tuition purposes should contact the Residency Classification Office soon after arrival in the state. Direct inquiries to: Residency Classification Office, Arizona State University, Tempe, AZ 85287-0312 or call 602 965 7712

Financial Aid

The primary responsibility for financing a college education belongs to students and their families. The Student Financial Assistance Office will assist students in meeting this responsibility by evaluating all aid applications through the use of a standard financial needs analysis system to determine the cost of their education, as well as how much students and their families can afford to contribute toward that cost. It is the student's responsibility to complete all applications in an accurate and timely manner and to notify the Student Financial Assistance Office of any changes in circumstances that might affect eligibility (i.e., loss of parent's income, change in residency classification, etc.). Student financial assistance is available in the form of scholarships, grants, loans and employment. This aid has been made available collectively by the university, alumni, private foundations, civic groups, individuals, state and federal governments.

To be considered for financial aid all students must complete an application separate from the admission application. The College Scholarship Service Financial Aid Form is the preferred application, although the American College Testing Family Financial Statement is also acceptable. Either form should be completed between January and March preceding the academic year the student anticipates attending ASU. Students will be notified by mail regarding any additional items or documents needed to complete their applications. These items may include copies of federal tax returns, proof of valid visa, proof of registration with the Selective Service, etc. The deadline for complete applications is April 15. Applications completed by this date will be considered for all federally controlled grant funds. Applications

completed after this date will be processed, however, they will be late applications. Late applications may receive limited grant dollars and a higher proportion of loan or work dollars.

A Determination of Eligibility letter will be sent to all applicants. This letter will estimate their expenses and contribution for the school year and will specify the amount of the applicant's financial need. If students have financial need in excess of \$200, they will receive a separate Financial Aid Notification. This letter will inform them of the types and amounts of aid they are eligible to receive through ASU. Applicants should read carefully all correspondence received from the Student Financial Assistance Office.

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

Types of Financial Aid

Please refer to publications of the Student Financial Assistance Office for detailed information concerning the following programs:

Scholarships

- University funded
- Privately sponsored

Grants

- Pell Grant
- Supplemental Educational Opportunity Grant (SEOG)
- State Student Incentive Grant (SSIG)
- University Grant

Loans

- Perkins Loan (NDSL)
- Robert G. Stafford Loan (GSL)
- Parent Loan for Undergraduate Students (PLUS)
- Supplemental Loans for Students (SLS)
- Short Term Loans

Employment

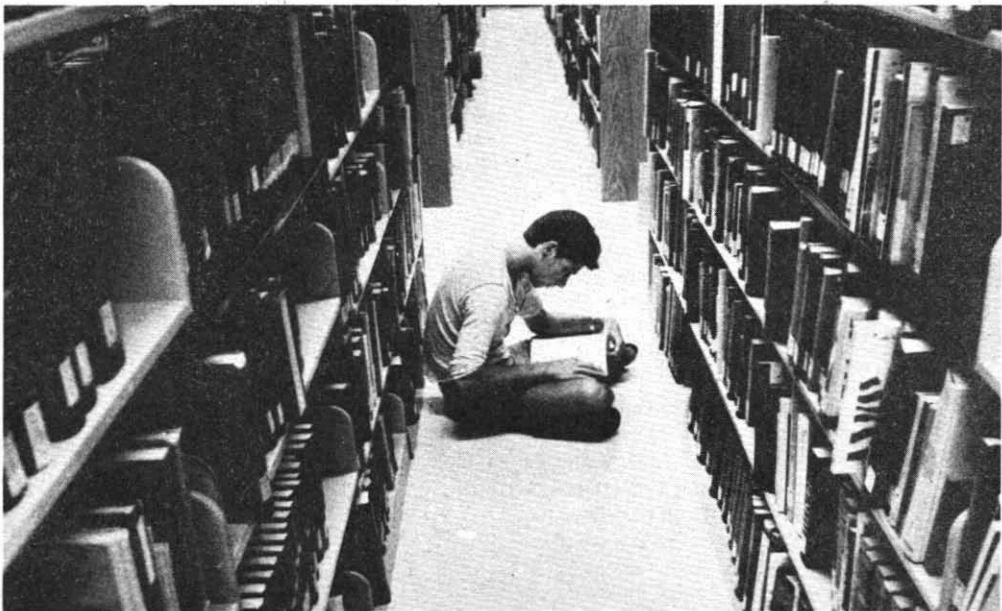
- College Work Study Program (CWSP)
- University hourly
- Part-time off campus

STUDENT BUDGETS FOR 1989-90

Cost/Allowance Category	On-Campus	Living w/ Parents	Off-Campus
Room/Board	\$ 3,520	\$ 1,500	\$ 4,000
Personal (Including Travel)	\$ 1,980	\$ 1,900	\$ 2,200
Living Total	\$ 5,500	\$ 3,400	\$ 6,200
Fees	\$ 1,362	\$ 1,362	\$ 1,362
Books/Supplies (15-hour course load)	\$ 450	\$ 450	\$ 450
In-State Total	\$ 7,312	\$ 5,212	\$ 8,012
Tuition	\$ 4,122	\$ 4,122	\$ 4,122
Out-of-State Total	\$ 11,434	\$ 9,334	\$ 12,134

Note:

1. Living expenses (room, board, personal expenses) are stated for a nine-month period. Limited financial assistance is available for the summer session.
2. Tuition and fees are subject to change without notice.
3. The above allowances are the average amounts spent by students for their educational costs. These allowances are used to calculate eligibility for university "need-based" financial aid awards. Unless a student is typical in all respects, actual costs may vary according to life style. Financial aid awards are intended to assist a student in satisfying this budget.



New Student Checklist

The list below is designed to help new students. It summarizes the steps involved in becoming part of ASU and tells where additional information may be found in the *Catalog*.

Admission to ASU

- **Admission.** Students seeking admission should complete an application and have transcripts sent directly to Undergraduate Admissions. See page 28. Call 602 965 7788 for more information.
- **Certificate of Admission.** After being admitted, students receive a *Certificate of Admission*, a Measles Immunization Verification form, and *The Bridge*, which contains information about orientation programs.
 - Upon receipt, a student should check the *Certificate of Admission* for accuracy and report any errors and changes to Undergraduate Admissions at 602 965 2680.
 - The Measles Immunization Verification form should be completed and returned prior to registration. Call 602 965 3346 for more information.
 - To register for orientation, a student should complete the form provided in *The Bridge*. For more information call 602 965 2677.
- **Honors College.** New students should investigate the challenges and advantages of The University Honors College. See pages 91-93. Call 602 965 2359 for more information.
- **Transfer Students.**
 - A transfer student should note the number of semester hours on his or her *Certificate of Admission*. The grade index determines admission only and is not part of a student's ASU grade point average. When registering, a transfer student should consult his or her department advisor in selecting courses and determining how transfer credits fit into the curriculum. See Academic Advisement on pages 39-40.
 - Transfer students should check with the First Year Composition Office at 965 3853 to determine if they have met the First Year Composition requirement. See pages 81-82.
- A transfer student who has completed 87 or more semester hours should file a program of study with the ASU Graduation Office. See page 81. Call 602 965 3256 for more information.

Financial Assistance

- Students seeking financial assistance should apply early. March 15 is the priority deadline. See pages 24 and 85. Call 602 965 3355 for more information.

Housing

- Students seeking ASU housing are strongly encouraged to apply at least six months in advance. See pages 85-86. Call 602 965 3515 for more information.

Orientation

- Students are encouraged to attend orientation, where questions regarding advisement, registration, student IDs, books, meal tickets, and other pertinent topics are answered. *The Bridge* provides information on orientation. For additional information call 602 965 2677.
- **Measles Immunization.** All ASU students born after December 31, 1956, need to provide documentation of measles immunization. Call 602 965 3346 for more information.
- **Student ID.** A new student should apply for an ASU student ID card. See pages 40 and 85. Call 602 965 3171 for more information.
- **Parking.** Students planning to park on campus should purchase a parking decal. See page 22. Call 602 965-6124 for more information.
- **Handbook.** Students receive a copy of the *Arizona State University Handbook and Calendar* during orientation or by calling Student Publications at 602 965 7572. The handbook provides information about student services and activities.

Placement

- **English Placement.** Students should enroll in the correct First Year Composition course. Placement is determined by an ACT English or SAT Verbal score. Students who have not taken one of these ex-

ams should call University Testing Service at 602 965 7146.

- **Mathematics Placement.** A student planning to enroll in a mathematics course should schedule a math placement exam with University Testing Services at 602 965 7146.
- **Advanced Placement.** Students who have taken advanced placement examinations may receive credit. See pages 34–39. Call 602 965 2622 for more information.
- **Advisement.** A student should call the college of his or her major to schedule an appointment with an academic advisor. Students who have not selected a major should contact the University Academic Advising Center.

Academic Advising Center	602 965-4464
Architecture and	
Environmental Design	602 965 3584
Business	602 965-4227
Education	602 965 387
Engineering and	
Applied Sciences	602 965 5150
Fine Arts	602 965-6536
Law	602 965-6181
Liberal Arts and Sciences	602 965 9607
Nursing	602 965 298
Public Programs	602 965 1058
Social Work	602 965 3304

Students applying to The University Honors College should call 602 965 2359.

Registration

- See page 40.
- **Fee Payment.** Students who register early should be sure to pay their fees on time to guarantee registration for classes. The top portion of the schedule of classes is the billing statement and includes payment deadlines. See the calendar on pages 8–9 for pertinent deadlines.
- **Schedule of Classes.** Students may pick up class schedules and Course Request Forms at registration sites: Payne Education, Social Sciences, Business Administration, and the Engineering Center.
- **Register for Classes.** See the *Schedule of Classes* or *The Bridge* for registration dates and times.
- **Mail Registration.** First semester out of state freshmen may register by mail during a limited period. See the *Schedule of*

Classes and *Summer Session Bulletin*. Call 602 965 3176 for more information.

- **Drop Add.** A student who must change his or her class schedule should consult the *Schedule of Classes* for procedures on dropping and adding courses. See page 46. Call 602 965 3176 for more information.
- **Withdrawal.** A student seeking withdrawal from a course should consult the *Schedule of Classes* for procedures. See page 46. Call 602 965 3176 for more information.
- **Summer School.** Summer sessions schedules are available in February. See pages 465–466.

Change Majors

- See Academic Advisement on pages 39–40.

Grade Appeals

- If a student believes there is a discrepancy between the grade he or she earned and the one received, the student may appeal the grade. See Appendix B, page 571. Call 602/965 7550 for more information.

Study Skills Development

- **LIA 100.** Students are encouraged to consider enrolling in LIA 100, University Adjustment and Survival (ASE 100 for engineering students). LIA 100 is a survival course on study skills that includes notetaking, test taking, time management, writing, reading, listening, and speaking strategies.
- **Self-Evaluation.** Students are encouraged to review and evaluate their academic goals each semester. Students who set specific goals in writing and review them regularly are likely to achieve them. Advisors can help students in reviewing goals.

Involvement

- Students are encouraged to become involved in their university: getting to know professors, joining student organizations, and taking advantage of ASU's myriad cultural and social opportunities to enhance the educational experience. See the *Arizona State University Handbook and Calendar*.

Undergraduate Admission

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

Prospective students may call 965 7788 toll free numbers 1 800-252 ASU1 for out of state applicants and 1 800 325 9371 for in state) or write to the Undergraduate Admissions Office for information including application materials. With reasonable advance notice, the Undergraduate Admissions Office will arrange for a tour of the campus and, if desired, a meeting with an admissions counselor.

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

Orientation

University orientation programs for new students and their parents are provided at numerous times during the year including the beginning of each semester. Each orientation program includes academic advisement, placement testing, campus tours, special events and an introduction to university resources and procedures. Parent programs are also included. Newly admitted students will be sent information preceding each orientation program. Students are strongly encouraged to attend orientation activities.

Admission Procedures for New Freshman and Transfer Applicants

Persons interested in admission to an undergraduate program at Arizona State University will need to have the following items on file in the Undergraduate Admissions Office:

1. Application for Admission (including Domicile Affidavit).
2. Official transcript(s);
3. American College Test (ACT), Scholastic Aptitude Test (SAT) or Test of English as a Foreign Language (TOEFL) scores (as needed), and
4. The \$25 application fee (for applicants residing outside the state of Arizona only).

Applicants are urged to apply and have their materials sent as soon as possible. This will enable the university officials to make an early decision concerning the applicant's admission and permit the student to take part in early registration and

orientation. After all necessary items are received, a minimum of four to six weeks should be allowed for an admission decision to be made.

Priority Deadline

Arizona Applicants. The priority deadline for receipt of undergraduate admission materials is 45 days prior to the first day of classes.

Nonresident Applicants. The priority deadline for receipt of undergraduate materials is April 15 for fall semester and December 15 for spring semester.

Applicants whose files are not complete by the priority deadline may not be admitted in time to register for the desired semester. Admitted students who do not register must submit a new application if they wish to apply for a subsequent semester. All documents are destroyed one year after the semester for which the student has applied if the student is not registered in a degree program.

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

Application. Prospective students must complete and sign the Application for Undergraduate Admission. A \$25 nonrefundable fee is required of all applicants applying as nonresidents or residing outside the State of Arizona.

Domicile Affidavit. Like other state supported colleges and universities, Arizona State University distinguishes between in state and out of state students with regard to tuition. Residents of Arizona are required to file a Domicile Affidavit which is part of the admission application. Any student who does not complete the Domicile Affidavit will be classified an out of state resident for tuition purposes. Students should contact the Residency Classification Office, or call 602 965 7712 for more information.

Transcripts. Transcripts must be requested by the applicant. Official transcripts of academic records from high school, as well as a separate transcript from each institution of higher education the student has attended, must be *mailed directly* to the Undergraduate Admissions Office by the records office of the issuing institution(s). *Transcripts sent or hand carried by the applicants themselves will not be accepted.* High school transcripts must show grade point average, rank in class, and date of graduation. Applicants with less than 36 semester hours of transferable

college or university credit must also have official high school records submitted. An English translation of all transcripts is required.

Entrance Examinations. All new freshman applicants *must* take either the American College Test (ACT) or Scholastic Aptitude Test (SAT) on a national test date in their junior or senior year of high school. Applicants for transfer who have completed less than 36 semester hours of acceptable college or university work must submit either ACT or SAT scores. ACT and SAT scores are used to complete competency requirements and for course placement.

A report of the test scores must be sent to the Undergraduate Admissions Office directly from the American College Testing Program, P. O. Box 168, Iowa City, Iowa 52240, or the College Board Admissions Testing Program, Box 592 R, Princeton, NJ 08540.

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

All applicants whose native language is not English, and who have not attended a high school for their junior and senior years where English is the language of instruction, or graduated from a college or university where English is the language of instruction, are required to take the Test of English as a Foreign Language (TOEFL) in place of the ACT or SAT. A minimum score of 500 is required. Applicants to the School of Engineering, Department of Computer Science and the Division of Construction must score a mini-

mum of 550 to be admitted into professional engineering curricula.

Health History Questionnaire. Every newly admitted student must complete the Arizona State University Health History Questionnaire and must provide a complete immunization history for Student Health. A tuberculin skin test is recommended for international students who come from a high risk environment. Students will not be permitted to register until the immunization history is on file with Student Health. Admission may be denied or cancelled for any applicant who has been shown by the university to have either an uncompensated psychiatric illness or a physical illness which can be hazardous to the safety of other persons.

Undergraduate Admission Standards

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

Admission Requirements

Graduation from Secondary School. In order to be eligible for admission to Arizona State University, an applicant must have graduated from a recognized high school with satisfactory scholarship defined as follows.

Both general aptitude and basic competency requirements must be met

GENERAL APTITUDE REQUIREMENTS

Freshmen						
Class Rank	Composite Score				GPA	
	ACT	SAT		4.00	A)	
Arizona residents						
Top Half	or	21	or	930	or	2.50 high school GPA
Nonresidents*						
Top Quarter	or	23	or	1010	or	3.00 high school GPA

* All freshmen who believe they have had a strong high school background and who rank in the top half of their graduating classes or who have a minimum GPA of 2.50 on a 4.00 A scale are encouraged to apply and will be strongly considered on a case by case basis.

Based on the review, the applicants may be admitted unconditionally, admitted with conditions, deferred until additional course work is completed or denied.

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College Transfers

Transferable Semester Hours	GPA 4 X = A	Materials Required
Arizona residents		
1-35	2.00 college GPA plus freshman requirements	Application, college and high school transcripts, and ACT or SAT scores
36 or more	2.30 college GPA	Application and college transcripts
Nonresidents*		
See above	2.50 college GPA	See above

* All transfers who have earned a 2.00-2.49 cumulative GPA are encouraged to apply and will be strongly considered on a case-by-case basis.

Based on the review, the applicants may be admitted unconditionally, admitted with conditions, deferred until additional course work is completed or denied.

BASIC COMPETENCY REQUIREMENTS

May be met by combinations of high school courses, college courses and test scores. Transfer students with 36 or more transferable semester hours with a 2.00 GPA, and students 22 years of age or older at time of enrollment need only meet the general aptitude requirements described above.

An applicant whose most recent education is outside the United States is exempt from fulfilling the complete requirements.

English

Four years high school English Composition Literature based	OR	Minimum test score ACT English (9 cr) SAT Verbal (45)	OR	Three semester hours of college transferable college level English Composition
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Mathematics

Three years high school One year Algebra I One year Geometry I One year Algebra II	OR	Minimum test score ACT Math (18 or SAT Math Achievement (Level I or II = 500)	OR	Two pre-college level high school courses in Algebra, or one transferable three-hour course in College Algebra
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Laboratory Science

Two years high school or one each from two of the following: Biology Chemistry Physics	OR	One year high school lab science (Biology, Chemistry, Physics) plus minimum test score on one of the following: ATP Chemistry Achievement (575) ATP Biology Achievement (550) ATP Physics Achievement (590) ACT Natural Science (2)	OR	Two transferable full semester hour college lab science courses in different subject areas
		Test score may not be from same subject as high school credit earned		

Social Science (complete both A and B)

A One year high school American History	OR	Minimum test score on ATP American History Social Studies Achievement (510)	OR	One transferable three semester hour college American History course
B One year high school social science (e.g., European History, World History, Sociology, Geography, Government, Anthropology)	OR	Minimum score on one of the following: ATP European History World Cultures Achievement (545) ACT Social Studies (18)	OR	One transferable three semester hour college Social Science course

NOTE:

1. A minimum 2.00 average (4.00 A) must be earned in the courses taken in each of the four competency areas. See page 48, Meeting Admission Competencies.
2. Applicants with a maximum of one deficiency in no more than two competency areas may gain regular admission subject to removing the deficiencies within one calendar year of university enrollment. (See page 48, which explains procedures to meet these competencies.)
3. Competencies may be met by combinations of high school and college courses or test scores

If the applicant is unable to meet these specific admission requirements, it is possible to file a letter of appeal with the University Undergraduate Admissions Board, Arizona State University, Tempe, AZ 85287-0112. The decision of the board is final. The applicant must be able to meet at least one of the following criteria to be considered for appeal:

1. An upward grade trend during the high school career, or an upward grade trend during the senior year.
2. Positive recommendations from secondary school administrators, faculty or counselors based on considerations such as: academic potential, work experience, leadership ability or extracurricular activities.
3. An average score of 50 or greater on the General Education Development (GED)
4. Demonstration of the ability to complete college freshman level academic studies with a grade point average of 2.00 or higher on a 4.00 A scale in courses in English, social science, mathematics, physical or natural science, foreign languages, fine arts or the humanities. The applicant must have earned at least nine semester hours at a community college or summer or evening sessions at a university, or both.

The School of Engineering recommends 3 units in mathematics, including advanced algebra, geometry and trigonometry. Calculus is recommended. The laboratory sciences chosen should include at least one unit in physics and one unit in chemistry. One unit of biology is strongly recommended.

The College of Liberal Arts and Sciences strongly recommends a minimum of two years of a single foreign language.

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

Admission Prior to Graduation from High School.

Admission may be granted to high school seniors who submit a six semester or seven semester transcript which shows academic quality and rank in class in keeping with admission standards and who complete the steps in the undergraduate admission procedures. Admission *will be confirmed* when a verification of the high school graduation showing final grade point average, rank in class, and date of graduation has been received in the mail by the Undergraduate Admissions Office directly from the high school. In addition, students who were admitted with more than two deficiencies must submit, at least 45 days in advance of the semester, official records to verify the completion of competencies such that *no more than* two deficiencies remain. Students with more than two deficiencies who have not been admitted 45 days in advance of the semester may not be eligible for admission. The admission may be cancelled if the final verification shows that the applicant has not met the university requirements for admission or that more than two deficiencies remain.

Admission with Distinction. Admission with Distinction certificates recognizing outstanding scholarship are awarded to entering freshmen who rank in the top 10% of their high school graduating classes. This designation is honorary in nature and does not include a financial award.

Able and Ambitious Program. High school seniors who rank in the top 10% of their class or students who have a ready completed all the available course work in a specific academic area, may be granted *special enrollment* as an unclassified student to enroll for a *maximum of six hours per semester* at the university. To qualify, the following conditions must be met:

1. An application for the Able and Ambitious Program must be submitted to the Undergraduate Admissions Office. Applicants sign an agreement that they will continue in high school while enrolled at Arizona State University and that they will graduate with their high school class.
2. An official transcript of the high school record showing class standing and rank must be sent directly to the Undergraduate Admissions Office by the high school.
3. A letter from the high school counselor or principal specifying the ASU course work in which the student will register.
4. In addition to the points listed above, students not in the top 10% must have the principal or counselor of the high school send a written

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recommendation supporting the enrollment of the student at ASU at the same time the student is completing the high school program.

Admission of Unclassified Applicants

Undergraduate. Any high school graduate is invited to enroll for six semester hours or less per semester of undergraduate course work as an unclassified student. Students admitted as unclassified for a specific year and term must remain as unclassified until the next semester.

No more than 15 hours of completed unclassified work may be applied to a degree program, if the completed courses meet specific requirements within a degree program. An unclassified student who decides to work toward a bachelor's degree will have to *apply for admission to a degree program* with the Undergraduate Admissions Office and meet all the admission requirements.

Once registered in a regular degree program, a student will not be permitted to register again in unclassified status. Unclassified students are not eligible to receive most types of financial aid nor are they eligible to receive certain benefits such as veteran benefits.

Transfer Applicants

Arizona Applicants. An Arizona applicant for transfer admission must have a cumulative grade point average of 2.00 or higher (see specific college requirements listed in Arizona transfer applicant section above) on a 4.00 A scale in all work undertaken at previous institutions of higher learning. A minimum of 12 college or university transferable semester hours must have been earned in order to be considered a transfer applicant.

Arizona transfer applicants to the following areas must have the respective minimum grade point average: Computer Science 2.50, Engineering 2.50, Construction 2.25, Technology 2.25, Speech and Hearing Science 2.50, Education 2.50.

Nonresident Applicants. A non Arizona applicant for transfer admission must have a cumulative grade point average of 2.50 or higher (see specific college requirements listed in Arizona transfer applicant section above) on a 4.00 A scale in all work undertaken at previous institutions of higher learning. Those applicants who have at least a 2.00 on a 4.00 A scale and believe they have a strong academic record are encouraged to apply and will be considered on a case by case basis.

Applicants with less than 36 semester hours of completed transferable college or university work must submit official high school records and meet basic competency requirements. Students who will be 22 years old by the time the semester begins are exempt from the competency requirements.

Transfer Credit

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

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

Certain types of credits cannot be transferred to Arizona State University including:

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

Acceptable academic credits earned at other institutions that are based on a different unit of credit than the one prescribed by the Arizona Board of Regents are subject to conversion before being transferred to Arizona State University.

Veterans Exception. By Arizona statute, no failing grades received by a veteran at an Arizona university or community college prior to military service may be considered when determining admissibility. This exception applies only to veterans who are (1) honorably discharged, (2) who have served in the Armed Forces of the United States for a minimum of two years, and (3) who have previously enrolled at a university or community college in Arizona. Military service records must be submitted including form DD 214.

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

Community college students who plan to transfer to Arizona State University at the end of their first or second year are strongly advised to plan their community college courses to meet the requirements of the curriculum they select.

Students Attending Other Arizona Community Colleges. To determine the equivalency of courses between Arizona institutions and those offered at Arizona State University, students should refer to the *Arizona Higher Education Course Equivalency Guide* in consultation with their academic advisor. Provided their college attendance has been continuous, students will be permitted to follow the degree requirements specified in the *Arizona State University Catalog* in effect at the time they began their community college work. (See page 82.)

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

Appeal Procedure. Transfer students who feel they have been unjustly denied credit for courses they have taken may appeal to the standards committee of the college in which they have enrolled. (This does not apply to community college trans-

fer of credit over the 64 hour maximum, see above.) The decision of this committee is final.

Applicants for transfer admission whose academic record fails to meet Arizona State University scholarship admission standards will be denied admission. Such applicants, however, may write a letter of appeal accompanied by letters of recommendation, to the University Undergraduate Admissions Board, Arizona State University, Tempe, AZ 85287-0112, for reconsideration of their applications. The decision of this board is final.

Admission of Disabled Applicants

Persons with disabilities who meet academic qualifications are encouraged to apply for admission to Arizona State University.

A preadmission inquiry may be made by Disabled Student Resources in order to better assist the incoming student with the appropriate support services. The inquiry will be made on a confidential basis. Refusal to respond to the inquiry or to provide information requested will have no bearing on either the applicant's admission or treatment at Arizona State University.

Disabled Student Resources is staffed with specially trained professionals working with hearing impaired/deaf, visually impaired/blind, orthopedically disabled, learning disabled and other handicapped applicants. Disabled Student Resources is committed to facilitating appropriate resources which will allow each qualified disabled student access to a greater number of educational, social and cultural/recreational opportunities within the university community. Each student is encouraged to function independently and to develop his/her own techniques for attaining the highest possible goals in life.

Disabled Student Resources coordinates a comprehensive academic support program for the disabled student population. (For additional information about available services see page 86.) Eligibility for such services is based on enrollment, appropriate documentation of permanent or temporary disability, and documented need for academic support services.

Students with disabilities who require attendant care or other personal assistance must make appropriate arrangements *before the beginning of each academic term.* The student has the sole responsibility for his/her own personal care assistance.

To ensure a smooth transition into the university community, prospective students with disabilities are encouraged to contact Disabled Stu-

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dent Resources, Arizona State University, Tempe, AZ 85287 2204, or call 602 965 1234 (TTY).

International Undergraduate Applicants who will Attend on F-1 or J-1 Visas

To comply with Immigration and Naturalization Services regulations, students who will attend Arizona State University on an F 1 or J 1 visa are required to:

1. Submit a financial statement assuring adequate resources to support themselves while in residence at the university.
2. Have all required admissions materials and credentials reach the Undergraduate Admissions Office at least two months prior to the beginning of the semester for which application is being made.
3. Pay a nonrefundable application fee of \$25 in U.S. funds.
4. Meet all appropriate immigration standards and requirements.
5. All applicants whose native language is not English, and who have not attended a high school for their junior and senior years where English is the language of instruction, or graduated from a college or university where English is the language of instruction, are required to submit a Test of English as a Foreign Language (TOEFL) score in place of the ACT or SAT. A minimum score of 500 is

required. Applicants to the School of Engineering, Department of Computer Science and the Division of Construction must score a minimum of 550 to be admitted into Professional Engineering curricula.

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

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

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

American Language and Culture Program

Arizona State University offers an intensive English training program for non-native speakers of English. Inquiries about the curriculum, fee schedule, etc., should be addressed to The American Language and Culture Program, Arizona State University, Tempe, AZ 85287 3106. Acceptance into the American Language and Culture Program is separate from admission to the university. For additional information see page 467.

Special Programs for Advanced Placement and Credit

(Maximum of 30 hours of credit awarded for any or all programs including ASU comprehensive and proficiency examinations.)

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

When the scores are received by the university directly from CEEB, credit will be awarded as follows:

Exam	Score	Semester Hours Equivalency
Art History	5 or 4	6 ARS 101 and 102
	3	3 ARS 101 or 102
Art Studio—Drawing	5, 4 or 3	Department will evaluate all portfolios for determination of advanced placement or credit
Art Studio—General		

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Exam	Score	Semester Hours	Equivalency
Biology	5 or 4	8	BIO 181 and 182
	3	4	BIO 181
Chemistry	5 or 4	9	CHM 113 and 115
	3	4	CHM 113
Computer Science	5	6	CSC 100 and CSC 101
	4	3	CSC 100; additional credit to be recommended by the department
	3	3	CSC 100
English Language and Composition	5 or 4	6	ENG 101 and 102; exempt from ENG 105
English Literature and Composition	5 or 4	6	ENG 101 and 110
French, German or Spanish Language	5	14	FRE 201, 205, 311, 312 GER 201, 202, 311, 312 SPA 201, 202, 311, 312
	4	11	FRE 201, 205, 311 GER 201, 202, 311 SPA 201, 202, 311
	3	8	FRE 201, 205 GER 201, 202 SPA 201, 202
French, German or Spanish Literature	5	18	FRE 111, 201, 205, 321, 322 15 GER 111, 201, 202, 314 15 SPA 111, 201, 202, 325
	4	12	FRE 111, 201, 205 GER 111, 201, 202 SPA 111, 201, 202
	3	8	FRE 201, 205 GER 201, 202 SPA 201, 202
History American or European	5 or 4	6	HIS 103 and 104 or 101 and 102
	3		Department will evaluate examination and recommend
Mathematics—Calculus AB	5, 4 or 3	4	MAT 270
Mathematics—Calculus BC			Same as for Calculus AB, upon Departmental approval, credit may be granted for MAT 271 as well with a 5 or 4
Physics B	5 or 4	6	PHY 111 and 112
	3	3	PHY 111
Physics C Electricity and Magnetism	5 or 4	4	PHY 112, 114; or upon departmental approval credit may instead be granted for PHY 131, 132

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Exam	Score	Semester Hours	Equivalency
Physics C Mechanics	5 or 4	4	PHY 111, 113, or upon departmental approval credit may instead be granted for PHY 121, 122
Political Science			
American Government and Politics	5 or 4	3	POS 110
Comparative Government and Politics	5 or 4	3	POS 150

2. College-Level Examination Program (CLEP). Students who have taken a College Level Examination of the College Entrance Examination Board may receive university credit. The following table of credit applies to all students enrolling in the university for the first time in August 1975 and any student enrolling thereafter. CLEP examination credit will *not* be given where (a) it duplicates credit previously earned by the student at the university or accepted by the university for work done elsewhere, or (b) it is more elementary than a course in which the student has already received credit. All examinations are given monthly by the University Testing Services.

No more than six semester hours taken under CLEP may be applied toward university General Studies requirements. General Studies requirements in natural sciences (S1, S2) and literacy and critical inquiry (L1, L2) are not satisfied by CLEP.

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

Subject Examinations: A standard score of 50 or higher must be received to obtain credit for any subject examination. The 60 semester hours of credit limitation does not apply to subject examinations.

General Examinations	Semester Hours	Equivalency
English Composition	None	With essay exempts ENG 101 and 102 to enter ENG 105
Humanities	6	Elective Credit
Mathematics	3	MAT 106
Natural Sciences	8	Elective Credit
Social Sciences and History	6	Elective Credit
Subject Examinations	Semester Hours	Equivalency
American Government	3	POS 310*
American History (6)		
Early Colonization to 1877	3	HIS 103
1865 to the Present	3	HIS 104

* Lower division credit.

SPECIAL PROGRAMS FOR ADVANCED PLACEMENT 37

Subject Examinations	Semester Hours	Equivalency
American Literature	6	ENG 341 and 342
Analysis and Interpretation of Literature	3	Elective Credit
Calculus with Elementary Functions	4	MAT 270
College Algebra	3	MAT 117
College Composition	None	With satisfactory essay exempts ENG 101 and 102 to enter ENG 105
College French	8	FRE 101 and 102
College German	8	GER 101 and 102
College Spanish	8	SPA 101 and 102
Computers and Data Processing	3	Elective Only
Educational Psychology	3	EDP 310*
English Literature	3	Elective Credit
Freshman English	None	Recommend College Composition Subject Exam
General Biology	8	BIO 181 and 182
General Chemistry	9	CHM 113 and 115
General Psychology	3	PGS 100
Human Growth and Development	3	CDE 232
Introduction to Business Law	3	Elective
Introduction to Management	None	No Credit
Introductory Accounting	6	ACC 211 and 212 (Business majors must see School of Accountancy for determination of equivalency)
Introductory Business Law	3	Elective Credit

* Lower division credit

38 SPECIAL PROGRAMS FOR ADVANCED PLACEMENT

Subject Examinations	Semester Hours	Equivalency
Introductory Macroeconomics	3	ECN 111 (Dept will accept credit for 111 or 112 not both)
Introductory Microeconomics	3	ECN 112 (No credit or advanced placement if major is Economics or any major in College of Business)
Introductory Sociology	3	SOC 101
Pre Calculus and Trigonometry	3	MAT 118
Western Civilization 9)		
Ancient Near East to 1648	6	HIS 100 and 101
1648 to the Present	3	HIS 102

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

For further information regarding CLEP, contact the University Testing Services at Payne Hall, Ed B 302, or call 602 965 3104

3. Students who present an International Baccalaureate Diploma Certificate may qualify for transfer credit, depending on the level of the examination and the grade received. Arizona State University grants credit for higher level courses only. A grade of 5 will qualify the student to receive credit for up to two introductory courses while a grade of 4 qualifies a student to receive credit for one introductory course. No credit will be awarded for the English as a Second Language examination. For additional information, contact the international admissions specialist in Undergraduate Admissions.

4. **Comprehensive Examinations.** A comprehensive examination is intended to permit a student to establish academic credit in a field in which the student has gained experience or competence equivalent to an established university course. Applications are given only for courses listed in the current university Catalog, and only for courses in which a comprehensive examination can serve as a satisfactory measure of accomplishment.

A number of restrictions apply. The student must be presently enrolled at Arizona State University with no more than 100 semester hours of credit earned. The examinations must be taken during the first two semesters in residence at the university. No more than 30 semester hours of credit may be established by comprehensive examinations (including AP and CLEP credit) and correspondence courses.

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

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

The student must then pay the stated fee for such examinations at the Cashier's Office. The receipt must be taken to the departmental office.

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

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

5. Proficiency Examinations. Proficiency examinations are given to: (a) waive a course requirement, (b) validate certain transfer credits in professional programs, and (c) determine a student's ability in a field where competence is an important consideration. Detailed information may be obtained from the dean's office of the college in which the student is registered.

Placement Examinations for Proficiency

English. New students (also continuing, re entry and transfer students who have not taken any composition courses) are placed in First Year Composition courses according to their scores on the ACT English or SAT Verbal test. Students who score 16 or below on the ACT English test or 380 or below on the SAT Verbal test must enroll in ENG 071, a noncredit basic writing course. Students who score between 17 and 24 on the ACT English test or between 390 and 580 on the SAT Verbal test are eligible to enroll in ENG 101. Students who score 25 or higher on the ACT English test or 590 or higher on the SAT Verbal test may take ENG 105 in place of ENG 101 or 102. Students who are accepted in the Honors College are eligible to enroll after being advised in ENG 105. Students may also qualify for ENG 105 by achieving appropriate scores on the CLEP General Examination in English Composition with Essay or the CLEP Subject Examination in College Composition with Essay.

Foreign Language. For information regarding foreign language placement, see page 129 (Foreign Languages) and page 34 (Advanced Placement).

Mathematics. All students registering for mathematics courses are required by the Department of Mathematics to take the Algebra Placement Examination or, if appropriate, the Calculus Entrance Examination. The examinations are given regularly each semester and during the summer. They are designed to determine the course level which will be of most benefit to the student. For further information, contact the Director of Mathematics Placement, Physical Science Center, A Wing. For testing appointments, contact University Testing Services at Payne Hall, Ed B302, or call 602 965 7146.

Academic Advisement

Effective academic advisement of students is an essential aspect of the educational experience at Arizona State University. Faculty, staff and administrators share a commitment to provide quality academic advisement to students. To assure swift and sound advisement to their majors, each college has advisors to assist students in developing programs of study, assessing educational alternatives; examining academic goals; and understanding rules, procedures and curriculum requirements. Advisement is one of each faculty member's responsibilities, and faculty are evaluated, in part, on the quality of their work as advisors.

An additional unit, the University Academic Advising Center, is a central advising, referral and information facility ready to assist students in their academic careers at Arizona State University. The center provides special advising services to prospective, undecided, undeclared, unclassified and visiting students. Information is available at the center concerning program standards; General Studies and graduation requirements; tutoring and other support services; probation, disqualification and retention procedures; transferring between colleges; as well as times and places for various forms of general testing (including mathematics and English placement and aptitude testing).

Students are strongly encouraged to seek academic advisement at the earliest possible time and regularly throughout their programs of study at ASU. Academic offices may be contacted at:

University Academic Advising Center

Social Science 101 (965-4464)

Hours:	M	Th	8:00	6:30
	F		7:00	4:00
	Sat.		9:00	12:00

40 ACADEMIC ADVISEMENT / REGISTRATION

College of Architecture and Environmental Design

Architecture 16 965 3564

Hours M F 8 00 2 00
1 00 5 00

College of Business

Business Administration (West) 140 965-4227

Hours: M F 8:00 5:00
W 8:30 6 30

College of Education

Payne Education B7 965-3877)

Hours: M F 8 00 5 00

College of Engineering and Applied Sciences

Engineering Center G 115 (965 5150)

Hours M F 8 00 5 00

College of Fine Arts

Gammage Hall 127 965-6647)

Hours: M F 8:00 12:00
1:00 5:00

Graduate College

Wilson Hall Lobby (965 3521

Hours M Th 10:00 7 00
F 10:00 2:00

College of Law

Law 102 (965 7207)

Hours: M F 8:00 5:00

College of Liberal Arts and Sciences

Social Science 111 (965-6506

Hours M F 8 00 5 00

College of Nursing

Nursing 108 (965 2987

Hours: M F 8:00 5:00

College of Public Programs

Wilson 203 (965 1058

Hours: M F 8:00 12:00
1.00 5:00

School of Social Work

West Hall 137 (965-6081)

Hours M F 8 00 12 00
1 00 5 00

ASU West Campus

Student Services, Alhambra (965 555/279 5485)

Call for appointment

Registration

All persons attending a class at Arizona State University must be registered for that class. A student is considered to be registered when all registration fees have been paid in full

Eligibility. Only eligible students may register for courses at Arizona State University. An eligible student is either continuing from the previ-

ous semester or has been admitted or readmitted to the university (see Undergraduate Admission, page 28, and Readmission to the University, page 81).

Proof of Identification. In order to receive university services, photo identification must be presented. Each admitted student who completes the registration process for a regular semester will be issued a student identification card. This photo identification card is valid for the duration of the student's enrollment at Arizona State University.

Photo ID's are issued throughout the semester at the Payne Registration Site (Ed B42). (Refer to page 22 for replacement fee.)

Registration Fees. Registration fees are due and must be paid in full at the time specified each semester in the *Schedule of Classes*. If any payment tendered is unauthorized, incomplete, or received after the due date, registration fees will be considered not paid.

Schedule of Classes. The *Schedule of Classes* is published each semester and distributed with out charge. The *Schedule* lists the semester's course offerings, dates, times, places and procedures for registration, along with other important information relating to the semester

Course Loads. A minimum full time course load for an undergraduate student is 12 semester hours. The maximum course load for which a student may register is 18 semester hours (with the exception of a 19 hour maximum for students enrolled in the College of Engineering and Applied Sciences or Architecture and Environmental Design). A student wishing to register for more than the maximum must petition the standards committee of the college in which enrolled and must have an approved overload petition on file with that college before registering.

Concurrent Enrollment. Provided that the other university regulations concerning enrollment, graduation requirements or transfer of credits are not violated, a student may be enrolled at other institutions, in correspondence courses or in classes, while enrolled at Arizona State University. However, the student is urged to seek advisement prior to concurrent enrollment to assure orderly progress toward a degree. If total credits exceed the maximum course load, prior permission must be granted by the college standards committee (See Course Loads, above.)

Attendance. The instructor has full authority to make decisions whether class attendance is required

Enrollment Verification Guidelines. The following general guidelines are used only to verify enrollment for the purpose of loan deferments and eligibility. The registrar is responsible for such verifications.

Regular Semester	Full-Time	Half-Time	Less Than Half-Time
Undergraduate	12 or more hours	6-11 hours	5 or fewer hours
Graduate	9 or more hours	5-8 hours	4 or fewer hours
Graduate Assistant	6 or more hours	3-5 hours	2 or fewer hours
Five Week Summer Session			
Undergraduate	4 or more hours	2 hours	1 hour
Graduate	3 or more hours	2 hours	1 hour
Graduate Assistant	2 or more hours	1 hour	
Eight Week Summer Session			
Undergraduate	6 or more hours	3-5 hours	2 or fewer hours
Graduate	5 or more hours	3-4 hours	2 or fewer hours

Cooperative Education

Cooperative Education at Arizona State University is any educational program that requires *alternating classroom and work experience* in government or industry. The work experience exists for its educational value.

1. *Full time Status of Co op Students.*

A co op student, during a work semester, is identified as both co op and full time by the university if he/she was full time during "co operative education" course.

2. *Rights and Privileges of Co op Students.*

During their work semester, co-op students have the rights, privileges and protections, with regard to university matters, accorded to full-time students, except financial aid assistance. They will maintain catalog continuity and have student access to university facilities and events.

3. *Financial Aid for Co op Students*

Co op students will not be identified to lenders (including ASU) as being in loan repayment status. They will have an "In School" Full time Enrollment Status. Co op students will not receive any financial aid disbursement during their co op semester nor will such awards be transferred to another semester. The student is responsible for notifying Student Financial Assistance as soon as plans for a co-op term are made but no later than ten days before the co op term begins. The department or school is responsible for notifying Student Financial Assistance of students approved for co op terms

Traveling Scholar Program.

The Traveling Scholar Program is a cooperative program between the three state universities designed to enable students to take advantage of programs or special resources that are not available at their own institution. Any undergraduate student with a 2.50 GPA or graduate student with a 3.00 GPA enrolled full time at Arizona State University, Northern Arizona University or University of Arizona may be designated a Traveling Scholar by prior mutual agreement of the appropriate academic authorities at both the sponsoring and hosting institution. Contact the Records Information Office for additional information and the application form.

Interdisciplinary/Intercollegiate Graduate Programs

The Graduate College oversees eight interdisciplinary/intercollegiate graduate programs:

- Adult Development and Aging Program (Certificate in Gerontology)
- Communication (Ph.D.)
- Creative Writing (M.F.A.)
- Exercise Science (Ph.D.)
- Humanities (M.A.)
- Justice Studies (Ph.D.)
- Public Administration (D.P.A.)
- Science and Engineering of Materials (Ph.D.)

These programs are briefly described on pages 463-464 of this Catalog. For more detailed information, refer to these programs in the Graduate Catalog.

42 INTERDISCIPLINARY STUDIES

Interdisciplinary Studies

City and Regional Planning. The city and regional planning focus provides undergraduate students of various disciplines a familiarity with this area's concerns, theories and techniques. These draw from course offerings related to planning in various departments of the university (Planning, Geography, Geology, Civil Engineering, Public Affairs, Business, History, Sociology, Family Resources and Human Development).

Energy Studies. An expanding instructional and research involvement in energy matters exists through three curricular paths: (1) General Studies, which emphasize energy as an elective beyond the scope of a chosen major (for more information contact the chair, Department of Geography), (2) Specific studies in the Department of Planning (College of Architecture and Environmental Design, usually for those pursuing the Master of Environmental Planning degree), (3) Specific studies in the College of Engineering and Applied Sciences, usually for those seeking a degree in a branch of engineering.

Environmental Studies. The Center for Environmental Studies was established to initiate, coordinate and encourage research, community service and academic programs. The center does not formally offer courses or a degree program. It sponsors special courses, conferences and workshops on environmental topics. Drawing from faculty and students throughout the university, the center participates in research and community programs relating to environmental problem areas.

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

Inquiries about this program should be directed to the chair of the Interdisciplinary Film Committee or the film studies advisor in participating colleges.

Islamic Studies. The art, history, geography and religion of the Islamic world are the subjects of several courses offered by departments in the Fine Arts and Liberal Arts and Sciences Colleges.

Linguistics. Linguistics concentrations are offered in the Departments of Anthropology, English, and Foreign Languages. Numerous interdisciplinary linguistics courses are offered in these and other departments. For information, contact the chair of the Interdisciplinary Linguistics Committee.

Medieval and Renaissance Studies. Significant opportunities for the study of medieval and renaissance culture exist at Arizona State University. Hayden Library has an extensive microfilm collection and many rare books in medieval and renaissance studies. The Collegium Musicum, composed of graduate and undergraduate students, regularly presents public performances of medieval and renaissance music.

In addition, the Arizona Center for Medieval and Renaissance Studies (ACMRS) is housed in the College of Liberal Arts and Sciences. The center is a research unit composed of scholars from Arizona State University, Northern Arizona University and the University of Arizona. ACMRS enriches departmental offerings in medieval and renaissance studies by sponsoring one visiting professor for one semester each year. Graduate research assistantships are available through the center. For information, contact Director, ACMRS, Social Science 224C, Arizona State University (965-5900). Scholars in ACMRS represent a variety of disciplines including history, literature, philosophy, religion, languages, music, art, and science. For a list of advisors, see Interdisciplinary Studies in the College of Liberal Arts and Sciences.

Women's Studies. An interdisciplinary perspective on women serves as a vehicle for critical explorations of the roles and status of women past and present, assumptions about women accepted in American and other cultures, the validity of research on women, effects on women of political, economic and social systems, the ethnic minority experience, and the contributions of women to world culture and development. The student has the opportunity to consider alternative ways of looking at the assumptions that affect the image of women and to make a research contribution to the field. Inquiries about this program should be directed to the director or associate director of Women's Studies, College of Liberal Arts and Sciences, and the fall and spring women's studies brochure.

Classification of Courses

Information about courses appears in two places, the *General Catalog*, published annually, and the *Schedule of Classes*, published before the beginning of every semester.

The course numbering system is as follows:

100–299 (“Lower-Division” Courses) are designed primarily for freshmen and sophomore students. Certain classes are closed to freshmen who lack the designated prerequisites or are majoring in other departments. This information is available in the *Catalog*, the *Schedule of Classes* or from the student’s curriculum advisor.

300–499 (“Upper-Division” Courses) are designed primarily for juniors and seniors and other advanced students. Prerequisites and other restrictions should be noted before registration. Courses at the 400 level apply to graduate degree requirements for an individual program of graduate study when approved by the Graduate College.

500–799 (“Graduate-Level” Courses) are designed for graduate students. However, upper division undergraduate students may enroll in graduate courses with the approval of their advisor, the course instructor, the department chair and the dean of the college in which the course is offered. If the course does not meet an undergraduate graduation requirement, it may be eligible for use in a future graduate program on the same basis as work taken by an unclassified graduate student. (See the *Graduate Catalog* or pages 459–460.)

Special Topics 294, 394, 494 have been reserved for courses covering topics of immediate or special interest of a faculty member and students. Credit, 1–4 hours.

Pro-Seminar 498. Small group study and research for advanced students within their major area. Prerequisite: major in the department or approval of instructor. Credit, 1–7 hours.

Independent Study 499. The course number 499 has been reserved for Independent Study courses in each of the instructional departments or divisions of the colleges at the undergraduate level. Independent Study courses are honor courses and may be taken only by outstanding senior students who have completed at least one semester in residence. To be eligible for an Independent Study course a student must have a cumulative grade point average of 3.00 or better in the major or field of specialization.

An Independent Study course is designed to provide an opportunity for the superior senior student or for the graduate student to do an original study or investigation in the major or field of specialization on an individual basis with a minimum of supervision or direction.

An Independent Study course is not a substitute for a catalog course, nor a means of taking a catalog course on an individual basis. Courses listed in the *Catalog* may not be taken as Independent Study.

Application for Independent Study must be made well in advance of the regular registration period with the student’s advisor. The application must be signed by the advisor, and approved by the instructor under whom the student will work, and by the chair of the department in which the course is taken. A special class fee may be required. Credit, 1–3 hours.

Special Liberal Arts Courses. *Liberal Arts 100*, 101, 171H, 172H are interdisciplinary courses offered by the College of Liberal Arts and Sciences. LIA 100 (University Adjustment and Survival) and LIA 101 (Use of Research Libraries) are open to all students, LIA 171H, 172H (The Human Event) is restricted to students in the University Honors College.

International Program Courses. Courses with the prefix IPO numbered 495 and 595 are reserved for the International Study Abroad Program. Undergraduates may receive credit for 12–18 semester hours, graduates for 6–12.

Honors Courses. The courses listed in the *Schedule of Classes* as 298 and 492 (Honors Individual Study), 493 (Honors Thesis) and 497 (Honors Colloquium) are reserved for students in the University Honors College. Credit, 1–6 hours.

Omnibus Courses. An omnibus course is one at a certain level available to academic units who may use their own prefixes before the number. The omnibus number (initially approved by the provost) is to be used for courses offered on an experimental basis. The title and course content varies with the subject matter.

Special Courses

	<i>Semester</i>
	<i>Hours</i>
484 Internship	1 12
500 Research Methods	1 12
580 Practicum	1 12
583 Field Work	1 12
584 Internship	1 12
590 Reading and Conference	1 12
591 Seminar	1 12

Special Courses	<i>Semester Hour</i>
592 Research	1 12
593 App ed Project	1 12
594 Conference and Workshop	1 12
598 Special Topics	1-4
599 Thesis	1 12
600 Research Methods	1 12
680 Practicum	1 12
683 Field Work	1 12
684 Internship	1 12
690 Reading and Conference	1 12
691 Seminar	1 12
692 Research	1 12
693 Applied Project	1 12
700 Research Methods	1 12
780 Practicum	1 12
783 Field Work	1 12
784 Internship	1 12
790 Reading and Conference	12
791 Seminar	12
792 Research	1 15
799 Dissertation	1 15

The above are set forth in announcements of the Graduate College and are also available in the respective departments, where offered. Under special circumstances, arrangements may be made at the dean's request, through the approval of the provost, to increase the standard semester hours of credit.

Prerequisites. A student registering for a course must meet the previous course requirement (prerequisites) listed for it or otherwise satisfy the instructor that equivalent preparation has been completed.

Courses Offered. The university does not offer all of the courses listed in the *Catalog* annually or each semester. The *Schedule of Classes* should be consulted for those courses offered each semester.

Key to Course Listing Abbreviations

GLG	Departmental prefix designation
410	Course number
(3)	3 semester hours
F	Course offered fall only
S	Course offered spring only
SS	Course offered summer session only
F, S	Course offered both semesters
A	Course offered once a year
F'89, S'90	Course offered every other year on semester indicated
N	Course not regularly offered

Student Records

Family Educational Rights and Privacy Act of 1974

(Buckley Amendment)

This Act sets forth the requirements governing the protection of the privacy of the educational records of students who are or have been in attendance at Arizona State University.

Definitions

Eligible Student. For the purpose of this Act, an *eligible student* is defined as any individual formally admitted to and enrolled at Arizona State University or the parents of a *dependent* eligible student. Dependency is defined by Section 152 of the Internal Revenue Code of 1954.

Record. Any information or data recorded in any medium, including, but not limited to: hand writing, print, tapes, film, microfilm, microfiche, and electronic means

Types of Information

"Educational Record" refers to those records which are directly related to a student and are maintained by an educational institution. Two types of educational records are subject to the provisions of this Act: (1) Directory Information, and (2) Personally Identifiable Information. The term does not include those records specifically excluded by Section 99.3 of the Privacy Act.

Directory Information includes the following student information: name, local and permanent address, local telephone number, date and place of birth, citizenship, residency status, academic level, major field of study, college of enrollment, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by the student.

Personally Identifiable Information includes the name of a student, the student's parent or other family member(s), the address of the student, a personal identifier such as the student's Social Security number, a list of personal characteristics or other information which would make the student's identity easily traceable.

Access to Records

Eligible students, or parents of a dependent eligible student, may inspect and review their educa

tional records. Some form of photo identification must be displayed before access to educational records will be allowed.

Directory information may be released to any one without consent of the student, unless the student indicates otherwise. Students may request that this information not be released by completing a form in the Office of the Registrar. Request to withhold this information will exclude the student from being listed in the annual *Directory*.

All other educational records that contain Personally Identifiable Information may not be released without the written consent of the student. Parents of a dependent student may challenge denial of such access by producing the most current copy of Internal Revenue Form 1040. If that form lists the student in question as a dependent, the parents will be required to sign an affidavit which affirms that the student is their dependent. The affidavit will be retained by the Office of the Registrar. Upon receipt of the affidavit, the university will make student records available to parents as specified under the Privacy Act.

Students may grant access to parents or agencies by completing a form in the Office of the Registrar.

Location of Policy and Records

The custodian of Educational Records at Arizona State University is the Office of the Registrar. Copies of this policy will be available in the following offices: Reserve Section of Hayden Library and the Noble Science and Engineering Library, the Office of the Registrar, the Offices of Undergraduate and Graduate Admissions, and the Office of the Dean of Student Life. The Office of the Registrar will also maintain a directory which lists all education records maintained on students by Arizona State University.

Grading System

Scholarship Grades and Marks. All grades and marks will appear on the grade report and/or the permanent record.

They are indicated by the following letters:

A	Excellent (4.00)	NR	No Report
B	Good (3.00)	P	Pass
C	Average (2.00)	RC	Remedial Credit
D	Passing (1.00)	RN	Remedial No Credit
E	Failure (0.00)	W	Withdrawn
I	Incomplete	X	Audit
Y	Satisfactory		

Grading Options. Ordinarily a grade of "A," "B," "C," "D" or "E" is given upon completion of

a course, unless a grading option of "audit" or "pass fail" is indicated at the time of registration. *Grading options cannot be changed after the close of the drop/add period.*

Credit Enrollment. The semester hour is the unit on which credit is computed. It represents one fifty minute class exercise per week per semester. To obtain credit, a student must be properly registered, and pay fees for the course.

Audit Enrollment. A student may choose to audit a course, in which case the student attends regularly scheduled class sessions but no credit is earned. The student should first obtain the instructor's approval, be properly registered and pay the fees for the course.

The mark of "X" will be recorded for completion of an audited course, unless the instructor determines that the student's participation or attendance has been inadequate, in which case, the mark of "W" (unrestricted withdrawal) may be recorded. This grading option may not be changed after the close of drop/add. The "X" is not included in earned hours and is not computed in the grade point average.

Pass Fail Enrollment. A mark of "P" (pass) or "E" (fail) may be assigned for this grading option. This grading method may be used at the option of individual colleges and schools within the university. Consult the college dean's office for detailed information and restrictions prior to registration. "P" is included in earned hours, but is not computed in the grade point average.

Remedial Enrollment. A mark of "RC" (remedial credit) or "RN" (remedial no credit) may be assigned for this grading option. The course appears on the grade report, but is not recorded on the official transcript nor included in earned hours.

Satisfactory. A mark of "Y" (satisfactory) may be used at the option of individual colleges and schools within the university, and is appropriate for seminars, internships, projects, workshops, readings and conference, theses, and research. The "Y" is included in earned hours, but is not computed in the grade point average.

Incomplete. A mark of "I" (incomplete) is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of illness or other conditions beyond the student's control. The mark of "I" should be granted only when the student can complete the unfinished work with the same instructor. However, an incomplete ("I") may be completed with an instructor designated by the

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department chair if the original instructor later becomes incapacitated or is otherwise not on campus. The student will be required to arrange with the instructor for the completion of the course requirements. The student has one calendar year from the date the mark of "I" is recorded to complete the course. If the student completes the course within the calendar year, the instructor must submit a Change of Grade form to the Registrar's Office, whether the student passed or failed the course. Marks of "I" will be changed to a grade of "E" for purposes of evaluating graduation requirements for undergraduate students. Marks of "I" received in the fall 1983 semester or thereafter for undergraduate courses that have been on a student's record for more than one calendar year will be automatically changed to a grade of "E." An undergraduate student does not reregister or pay fees for a course for which an incomplete "I" has been received in order to complete the course.

Students who receive a mark of "I" in courses 500 level or above have one calendar year to complete the course for a grade. After one calendar year, the mark of "I" will become a permanent part of the transcript. To repeat the course for credit a student must reregister and pay fees. The grade for the repeated course will appear on the transcript but will not replace the permanent "I."

Drop Add. A student who has registered for courses for a semester or summer session may drop or add courses through the first week of classes or the first two days of a summer session. See the *Schedule of Classes* or *Summer Sessions Bulletin* for dates of the drop add period. During this period, a student may drop one or more but not all scheduled courses without penalty. Courses that are dropped do not appear on the student's transcript and fees paid are fully refunded, depending on the student's remaining hours. A student who wishes to withdraw from all courses during the drop add period must process an unrestricted withdrawal.

Unrestricted Withdrawal. During the first four weeks of a semester a student may withdraw from any course with a mark of "W." Unrestricted withdrawal deadline dates pertinent to summer enrollment are displayed in the *Summer Session Bulletin*.

Restricted Withdrawal. Between the fourth week and up to the end of the tenth week of a semester, students may withdraw with a mark of "W" only from courses in which the instructor certifies that they are passing at the time of the

withdrawal. Restricted withdrawal deadline dates pertinent to summer enrollment are displayed in the *Summer Session Bulletin*.

The number of restricted withdrawals with the mark of "W" is limited: During freshman standing, a total of three; during sophomore standing, a total of two; during junior and senior standing, a total of two; during second undergraduate degree standing, a total of two. The preceding limits do not prevent students from processing a complete withdrawal from the university with marks of "W" and/or "E." Complete withdrawal counts as one withdrawal for purposes of applying the above limits. The preceding does not apply to audit enrollment.

Instructor-Initiated Withdrawal. An instructor may only withdraw a student from a course with a mark of "W" or a grade of "E" in cases of disruptive classroom behavior. A student may appeal an instructor initiated withdrawal to the standards committee of the college in which the course is offered. The decision of the committee is final. Restricted withdrawal limits do not apply to withdrawals initiated by an instructor.

Withdrawal from the University. In order to withdraw from *all* classes after having paid registration fees, a student must initiate complete withdrawal from the university by appearing in person or by addressing a signed request to the Office of the Registrar. No one will be permitted to withdraw from the university or conduct any registration transaction in the last two (2) weeks of the semester. Complete withdrawal deadline dates pertinent to summer enrollment are in the *Summer Session Bulletin*. The date of the complete withdrawal is always the date the withdrawal form or letter is received in the Office of the Registrar.

Medical Withdrawal. A student may withdraw from courses on an unrestricted basis when unable to complete course work for medical reasons. A medical withdrawal typically withdraws a student from all courses for the semester.

To receive permission for medical withdrawal from courses, a student must present proper documentation (usually a letter from a physician) of the medical condition to the dean of the college of the major.

Grade Points. For the purpose of computing the grade point average, grade points are assigned to each of the grades for each semester hour as follows: "A," 4 points, "B," 3 points; "C," 2 points; "D," 1 point, and "E," 0 points. Grade point averages are rounded to the nearest hundredth of a grade point.

Grade Point Average. The grade point average (GPA) is obtained by dividing the total number of grade points earned by the number of semester hours graded ("A," "B," "C," "D," or "E" net hours). Other grades do not carry grade points. *Semester GPA* is based on *semester* net hours. *Cumulative GPA* is based on *total* net hours.

Change of Grade. The instructor of a course has the sole and final responsibility for any grade reported.

Once a grade has been reported to the Office of the Registrar, it may be changed: (1) upon the signed authorization of the faculty member who issued the original grade, or (2) by the academic grievance committee of the college in which the course was offered, if the instructor is no longer at ASU. (Consult the department chair of the specific course.) In either case, approval is also required by the department chair and dean of the college concerned. This applies also to the grade of "incomplete" ("I"). (See *University Policy for Student Appeal Procedures on Grades*, Appendix B, page 571.)

Repeating Courses. An undergraduate course taken at ASU may be repeated once for credit if the grade of "D" or "E" or "W" or a mark of "X" is received. When an undergraduate student repeats 100 and 200 level courses, the student's transcript will show both grades but the student's cumulative grade point average will reflect only the higher grade.

After completing the course with a satisfactory grade, the student must then file a Deletion Form with the Office of the Registrar. To be eligible for the deletion of "D" or "E" grades, the course must be repeated at ASU. Students who have graduated will not be eligible to delete the grade for a course which was taken prior to the award of the ASU bachelor's degree. When an undergraduate student repeats 300 or 400-level courses, the student's cumulative grade point average and the transcript will reflect both grades. Undergraduate courses in which grades of "D" or "E" are received may be repeated only once.

This policy does not apply to seminar and independent study courses with different content each semester. This policy affects only undergraduate students and undergraduate courses.

Demonstration of Mastery. An undergraduate student who receives a 'D' grade in a course in which a 'C' or better is required may use the grade from an equivalent course taken elsewhere to demonstrate mastery at the 'C' or higher level

However, the course may neither be transferred to ASU (since credit has already been given for the course) nor can it be computed in the student's GPA.

Midterm Deficiency Report. Instructors are required to evaluate students at midterm for academic progress. A student who has been evaluated for a "D" or "E" at mid semester will receive a midterm grade report. The midterm "D" and "E" grades are not recorded on the student's permanent record. Midterm reports are mailed to the student's local address of record.

Final Grade Report. A grade report will be sent to each student at the end of each semester to the permanent address of record.

It is the responsibility of the student to keep the Office of the Registrar informed of address changes.

Records Hold. The Office of the Registrar will enforce a "Financial Records Hold" or "Administrative Hold" on the records of a student when an outstanding financial obligation or disciplinary action has been reported.

When a hold is placed on a record, the following results may occur: (1) an official or unofficial transcript will not be issued; (2) registration privileges will be suspended, (3) other student services may be revoked.

The "Hold" will remain effective until removed by the initiating office. It is the student's responsibility to clear the conditions causing the "Hold."

Transcripts. The Office of the Registrar will release official transcripts *only upon written request of the student*. The request must include: name or former name(s), the student ID number, date of birth, and dates of attendance. No transcript will be issued in case of a "Financial Records Hold." If the transcript is to be mailed, the student must also supply a specific address. The fee for an official transcript is \$1.00 per copy for students enrolled for a current or future semester. The fee for nonenrolled students is \$5.00 per copy.

Unofficial transcripts may be requested in person at the Office of the Registrar, any Registrar Site, or by mail if a signed release is enclosed. There is no charge for an unofficial transcript.

All in person transcript requests require presentation of photo identification. Requests will not be accepted from third parties without a written release from the student. For information on parental access to records, reference Access to Records, pages 44-45.

Retention and Academic Standards

Class Standing of Students.

- 1 Freshman, 24 or less hours earned
- 2 Sophomore, 25–55 hours earned
- 3 Junior, 56–86 hours earned
- 4 Senior, 87 or more hours earned
- 5 Graduate, Bachelor's degree from accredited institution

Academic Good Standing. Academic good standing for classified students for the purpose of retention is defined as follows.

Total Earned Hours	Minimum Cumulative GPA
24 or less	1.60
25–55	1.75
56 or more	2.00

A student who does not maintain the minimum GPA standard will be placed on academic probation or be disqualified. A student on academic probation is in conditional good standing and is permitted to enroll.

In order to transfer from one college to another within the university, or to be eligible for readmission, a student must have a 2.00 GPA or better. The GPA determining good standing is computed on courses taken only at Arizona State University.

For purposes of retention or transfer, an individual college may set higher GPA standards. If a college does not set standards for retention that are higher than the university standards, the university standards will prevail. See the college sections of this *Catalog* or contact the college deans' offices for statements regarding college retention standards.

Meeting Admission Competencies

Some students are required to have completed a specific number of courses in the areas of English, mathematics, laboratory science, American history, and social science. Students who are exempt from these requirements include transfer students with 36 or more transferable semester hours, students admitted by GED, and students who are 22 years of age or older by the first day of the semester. Admitted students who need to meet competencies in one or more of these areas must satisfy the requirement within one year of the beginning of their first semester at ASU. Subject competencies in each area may be met by earning a grade of "D" or better at ASU in an appropriate course(s) as listed in the following table.

Area	ASU courses which may be used to meet competencies
American History	HIS 103 or 104
English	ENG 071, 101, 105 or 107
Laboratory Science*	<i>Life Sciences</i> BIO 100, 151, or 182, or BOT 108 <i>Chemistry</i> CHM 101, 113, or 117 <i>Physics</i> PHY 01, 105, 111 and 113, 112 and 114, 121 and 122 or 131 and 132
Mathematics	MAT 106, 117, 118, 119, 211, 270, or 290
Social Science	ASB 102, ECN 111 or 112, GCU 107, 121, or 141, HIS 100, 101, or 102, PGS 100, POS 101, 110, 120, 150, or 160, SOC 11

* The laboratory science requirement is designed to demonstrate competency in two separate laboratory science areas. Therefore, for example, if one lab science competency has already been met in life science either through high school course work, the ATP biology achievement test, or college course work, the second lab science course must be selected from chemistry, or physics.

Appealing Admission Competencies

Students who have not met all admission competencies at the end of one calendar year after their initial date of enrollment will not be permitted to continue at ASU. Each student will be notified that he/she may not register, or, if already registered, that his/her registration has been cancelled.

Students wishing to appeal their dismissal will submit a petition through their college. The colleges will have three options in reviewing these appeals.

- 1. Extend the student's end semester to allow one additional semester to complete the required course work.
- 2. Allow the student to substitute a course not currently approved to fulfill a competency area when an error has been made in advising or for other just causes.
- 3. Deny the petition.

College actions will be forwarded to the Registrar's Office for processing.

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A," "B," "C," "D" or "E") during a semester in residence at Arizona State University with a grade point average

of 3.50 or better are eligible for the Dean's List. A notation regarding Dean's List achievement will appear **only** on the final grade report for the semester.

Satisfactory Academic Progress. The university is required to publish and enforce standards of satisfactory academic progress for certain students (e.g., student athletes, students receiving financial aid, or students receiving veterans benefits).

Certification of satisfactory progress is verified by the academic advisor and the dean's designee for certifying satisfactory progress for student athletes. Certification of satisfactory progress for students receiving financial aid or veterans benefits is verified by the Student Financial Assistance Office or the Veterans Affairs Office, respectively. Students should contact their advisors or the appropriate office for additional information on satisfactory progress requirements.

Student Academic Complaints. If a student is dissatisfied with the instruction received in a class or with the interaction with the instructor of the class, the student may pursue the following avenues in the order listed:

1. Discuss the complaint with the instructor of the class.
2. If the issue is not resolved at this level, the student may contact the chair of the department in which the course is offered.
3. If further discussion/appeal is needed, the student may contact the dean of the college in which the course is offered.

Probation. A student's college assumes responsibility for enforcing academic standards, and may place any student on probation who has failed to maintain good standing as defined above. For purposes of probation and retention, an individual college may set higher GPA standards. A student on academic probation is required to observe any rules or limitations the college may impose as a condition for retention.

Disqualification. A student who is placed on probation at the end of a semester is subject to disqualification by the college at the end of the following semester if the conditions imposed for retention are not met.

Disqualification is exercised at the discretion of the college and becomes effective on the first day of the semester following college action. *A disqualified student is notified by the dean of the college and or the Office of the Registrar, and is not allowed to register at the university until reinstated.* A student who has been disqualified may appeal to the college standards committee. A

student who is disqualified may not attend as an unclassified student.

Reinstatement.

1. If a student with a GPA of 2.00 or greater has been disqualified by one college and seeks to transfer to another college at ASU, the student may apply at the Readmissions Office (Student Services Building, Lobby B114) or directly to the college to which the student wishes and is qualified to transfer.
2. To be reinstated into an ASU college different from the disqualifying college, the student must submit an application for reinstatement to the University Undergraduate Admissions Board through the Readmissions section of the Registrar's Office.
3. To be reinstated into the same college from which the student was disqualified, the student must submit an application for reinstatement to the disqualifying college. When reinstatement includes readmission, application must be made to the Readmissions section of the Registrar's Office.

Reinstatement Appeals. A student wishing to appeal the decision of the standards committee of a college may apply for a hearing before the University Undergraduate Admissions Board. The decision of the board is final.

Suspension/Expulsion for Academic Dishonesty. Students who have been expelled from a school, college or other academic unit within the university may not re-enroll in the university. Students who are suspended for more than ten days from a program within a department, school or college are also automatically suspended from the university.

All decisions relating to expulsion or suspension that are concerned with academic dishonesty are the sole prerogative of the dean of the school or college in which the student has been admitted. These decisions of suspension or expulsion for ten days can be appealed to the University Hearing Board in accordance with *Code of Conduct* procedures.

After the specified period of suspension, application for reinstatement may be made to any of the academic units within the university. Merely having remained in a suspended status for a period of time does not, in itself, constitute a basis for reinstatement.

Academic Renewal

An undergraduate who has been readmitted to the university after an absence of at least five years, and who has satisfactorily completed a minimum

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of 12 additional semester hours in residence at ASU, may, upon petition to the dean of the college, have former record treated in the same manner as transfer credits. Credit will be granted for up to 64 hours in courses in which a grade of "C" or better was earned. The original cumulative grade point average will be listed separately rather than included as part of the ASU grade point average. Academic renewal may be effected only once during a student's academic career. Students must be aware that the former record remains intact and that, although eligibility for graduation is based on the ASU grade point average, most graduate and professional schools may average the two records together.

The University General Studies Requirement

The General Studies program is based on four principles. The first is the distinction between skill and knowledge—the instrumental skills by means of which knowledge is acquired and communicated, and the knowledge itself in the sense of fact, information or conclusions. Second is the distinction between skill in the use of language and skill in the use of figures—literacy and numeracy. Third is the conventional division of knowledge into the humanities, the social sciences, and the natural sciences. And fourth is the concept of the university graduate as a person who is not only prepared for advanced study or a particular profession, but also is amply prepared to lead a constructive and satisfying personal, social, and civic or political life. This principle implies a commonality of knowledge (that is, knowledge shared with others), skill in learning and in communicating with others, and a diversity of learning which frees the person to enjoy the diversity of human potentiality. In addition to the four principles, the program recognizes the value of sustained experience in the acquisition of a skill or the mastery of a body of knowledge, the increasing importance of literacy and numeracy skills because of the rapid growth of modern knowledge, the utility of historical perspective, and the internationalization of modern life.

The General Studies program consists of **five "core" areas** and **two "awareness" areas**. The **core areas** are:

Literacy and Critical Inquiry
Numeracy
Humanities and Fine Arts
Social and Behavioral Sciences
Natural Sciences

These areas provide training in basic academic skills and assure that students are introduced to the traditional branches of knowledge. **The two awareness areas are:**

Global Awareness

Historical Awareness

These contribute to the development of an international perspective and foster an understanding of current human events by study of the past.

The courses approved by the university General Studies Council for meeting General Studies requirements are noted in the *General Catalog* following this section, the course descriptions, and in the *Schedule of Classes* each academic term. All students enrolled in a baccalaureate degree program must successfully complete a minimum of 35 semester hours of approved General Studies courses. The required distribution of General Studies courses among the core areas and awareness areas is described below. It is important to note that **35 semester hours must be taken in the five core areas. Fulfillment of the requirements in global awareness and historical awareness does not oblige the student to exceed the 35-semester-hour total since a large number of approved courses within the five core areas concurrently satisfy the global or the historical requirement as well.**

Although a course may satisfy a core area requirement and an awareness area requirement concurrently, **a course may not be used to satisfy requirements in two different core areas simultaneously or in both the awareness areas**, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirements and the major program of study. Students transferring from approved institutions of higher education ordinarily will be given General Studies credit, hour for hour, for work done in those institutions insofar as it is equivalent in content to General Studies courses at this university.

Specific patterns of General Studies requirements are established by the colleges within the overall program. First Year Composition is a university requirement of all students that is separate from and in addition to the General Studies program.

Core Areas

1. Literacy and Critical Inquiry

Literacy is here defined broadly as communicative competence in written and oral discourse. Critical inquiry involves the gathering, interpreta-

tion, and evaluation of evidence. Any field of university study may require unique critical skills which have little to do with language in the usual sense (words) but the use of spoken and written evidence pervades university study and everyday life. The General Studies requirements assume that all undergraduates should develop the ability to reason critically and communicate using the medium of language.

The requirement in literacy and critical inquiry presumes, first, that training in literacy and critical inquiry must be sustained beyond traditional First Year Composition in order to create a habitual skill in every student; and, second, that the skills become more expert, as well as more secure, as the student learns to read, hear, analyze, and write or speak using increasingly challenging subject matter. *Thus the literacy and critical inquiry requirement stipulates a sequence of two courses beyond First Year Composition.*

Requirement (6 semester hours):

1) **One course at the intermediate level** (typically at the sophomore level) devoted primarily to development of skill in reading, writing, listening, speaking, or critical analysis of a course; this course includes a series of formal, graded, written or spoken assignments in composing critical discourse.

2) **One upper-division course** with advanced subject matter and rigorous critical writing assignments in a specialized discipline. This course can be taken in the student's major discipline and count toward the major's semester hour requirements.

2. Numeracy

Numeracy includes not only an understanding of the basic tenets of mathematics, but also statistical procedures and concepts and the ability to assimilate and interpret quantitative data. It also includes the use of computer software in facilitating analytical thinking. Fundamental to the development of numeracy skills at the university level are the principles and practices taught in courses widely known as College Algebra. These courses are designed to develop the minimal level of mathematical ability required for an understanding of the sciences, statistical methods and quantitative analysis. In addition, algebraic logic offers one of the simplest approaches to the development of a rational process of thinking and reasoning in daily life. Contemporary developments in computer hardware and software have substantially enhanced the application of mathematical and statistical models to a wide variety of physical and social situations.

Requirement (6 semester hours).

One course must be selected from the mathematics category; a second course must be selected from either of the remaining two categories listed below. However, if competence is demonstrated in College Algebra by passing an exemption examination, six semester hours are still required, and one course in the mathematics category that has College Algebra as a prerequisite may be selected, or all six semester hours may be taken in one or both of the two remaining categories.

(1) **Mathematics:** A course in College Algebra (i.e., MAT 117) or any other mathematics course for which College Algebra is a prerequisite.

(2) **Statistics and Quantitative Reasoning:** Courses that emphasize the use of statistics or other mathematical methods in the interpretation of data and in describing and understanding quantitative relationships. The course selected can be taken in the student's major discipline and count toward the major's semester hour requirements.

(3) **Computer Applications:** Courses that involve the use of computer programming languages or software in the development of skills in analytical thinking. The course selected can be taken in the student's major discipline and count toward the major's semester hour requirements.

3. Humanities and Fine Arts

The humanities are concerned with questions of human existence and the universality of human life, questions of meaning and the nature of thinking and knowing, and questions of moral, aesthetic and other human values. The humanities investigate these questions in both the present and the past and make use of philosophy, foreign languages, linguistics and communication studies, religious studies, literature, and fine arts. The fine arts constitute the artist's creative deliberation about reality, meaning, knowledge, and values. The humanities and fine arts core area enables students to broaden and deepen their consideration of basic human values and their interpretation of the experiences of human beings.

Requirement (6–9 semester hours)

A total of 15 semester hours must be completed in the following two core areas: humanities and fine arts and social and behavioral sciences. A minimum of six semester hours must be taken in one core area and nine hours in the other core area. In addition, three conditions must be satisfied:

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(1) In one of these two core areas, two courses must be in the same department; and

(2) In one of these two core areas courses from at least two departments must be taken. These two conditions may, but need not, be satisfied in the same core area.

(3) At least one course within the 15 semester hours must be at the upper division level.

4. Social and Behavioral Sciences

The social and behavioral sciences provide scientific methods of inquiry and empirical knowledge about human behavior, both within society and individually. The forms of study may be cultural, economic, geographic, historical, linguistic, political, psychological or social. The courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a world of diminishing economic, linguistic, military, political, and social distance.

Requirement (6–9 semester hours)

A total of 15 semester hours must be completed in the following two core areas: social and behavioral sciences and humanities and fine arts. A minimum of six semester hours must be taken in one core area and nine hours in the other core area. In addition, three conditions must be satisfied.

(1) In one of these two core areas, two courses must be in the same department, and

(2) In one of these two core areas, courses from at least two departments must be taken. These two conditions may, but need not, be satisfied in the same core area.

(3) At least one course within the 15 semester hours must be at the upper-division level.

5. Natural Sciences

Courses in the natural sciences core area help the student to develop an appreciation of the scope and limitations of scientific capability, of the potential for uncertainty in the results of scientific inquiry, of the time required to conduct such inquiries, of their cost in terms of human and financial resources, and of the risks involved. Above all, however, the courses stress mastery of basic scientific principles and concepts, in particular those that relate to matter and energy in living and nonliving systems and a knowledge of the methods of scientific inquiry. Because the concepts, principles and even the vocabulary of science may be meaningless in an introductory course without firsthand exposure to scientific phenomena, laboratory work is required. The

natural sciences core area requires at least one laboratory course that includes a substantial introduction to the fundamental behavior of matter and energy in physical or biological systems. This requirement derives from the fact that the natural sciences trace all physical and biological phenomena to fundamental principles governing the behavior of matter and energy. These principles have proven to be of value in reliably predicting and rationalizing a broad range of phenomena in the natural sciences and in other fields as well.

Requirement (8 semester hours).

(1) **One laboratory course in the natural sciences** that includes a *substantial* introduction to the fundamental behavior of matter and energy in physical or biological systems.

(2) **A second laboratory course in the natural sciences** selected, for example, from anthropology, astronomy, botany, chemistry, experimental psychology, geology, microbiology, physical anthropology, physical geography, physics or zoology.

Awareness Areas

Requirement (6 semester hours)

1. Global Awareness

Human organizations and relationships have evolved from being family- and village centered to the modern global interdependence which is apparent in many disciplines—for example, contemporary art, business, engineering, music, and the natural and social sciences. Many serious local and national problems are world issues and require solutions which exhibit mutuality and reciprocity. These problems occur in a wide variety of activities such as food supply, ecology, health care delivery, language planning, information exchange, economic and social developments, law, technology transfer, and even philosophy and the arts. The global awareness area recognizes the need for an understanding of the values, elements and social processes of cultures other than the culture of the United States. The global awareness area includes courses which recognize the nature of other contemporary cultures and the relationship of the American cultural system to generic human goals and welfare.

Courses which meet the requirement in global awareness are of one or more of the following types: (1) area studies which are concerned with an examination of culture specific elements of a region of the world; (2) the study of foreign language; (3) studies of international relationships, particularly those in which cultural change is fa

cilitated by such factors as social and economic development, education, and the transfer of technology; and (4) studies of cultural interrelationships of global scope such as the global interdependence produced by problems of world ecology.

Requirement: One of the approved courses in the global awareness course list, either in the group of courses which simultaneously satisfy a core area requirement or in the group of courses which satisfy the global awareness requirement only. Courses which are listed for a core area and global awareness may satisfy both requirements concurrently.

2. Historical Awareness

The historical awareness area aims to develop a knowledge of the past which can be useful in shaping the present and future. Because historical forces and traditions have created modern life and lie just beneath its surface, historical awareness is an aid in the analysis of present-day problems. Also, because the historical past is a source of social and national identity, historical study can produce intercultural understanding by tracing cultural differences to their origins in the past. Even the remote past may have instructive analogies for the present.

The historical awareness area consists of courses which are historical in method and content. In this area, the term "history" designates a sequence of past events or a narrative whose intent or effect is to represent such a sequence. The requirement presumes that these are human events and that history includes all that has been felt, thought, imagined, said, and done by human beings. History is present in the languages, art, music, literature, philosophy, religion, and the natural sciences, as well as in the social science traditionally called History.

Requirement: One of the approved courses in the historical awareness list, either in the group of courses which simultaneously satisfy a core area requirement or in the group of courses which satisfy the historical awareness requirement only. Historical awareness courses which are also listed for a core area concurrently satisfy both requirements.

The following General Studies courses satisfy the requirements of the five core areas and two awareness areas. Under each core and awareness area, courses are presented alphabetically by:

1. College name,
2. Course prefix, followed by course number and course title. The number in parentheses

following the course title indicates the semester hours of credit. The letter following the semester hours of credit indicates when the course will be offered:

- F Course offered fall only
- S Course offered spring only
- SS1, SS2 Course offered first (1) or second (2) summer session only
- F, S Course offered both semesters
- A Course offered once a year
- F'89, S'90 Course offered every other year on semester indicated
- N Course not regularly offered

General Studies courses are regularly reviewed. The following key to General Studies credit abbreviations identifies which requirement(s) the course meets. This key also will be used in the *Schedule of Classes*. General Studies courses are also identified following course descriptions.

**Key to General Studies
Credit Abbreviations**

- L1 Literacy and Critical Inquiry Core Courses (Intermediate level)
- L2 Literacy and Critical Inquiry Core Courses (Upper division)
- N1 Numeracy Core Courses (Mathematics)
- N2 Numeracy Core Courses (Statistics and Quantitative Reasoning)
- N3 Numeracy Core Courses (Computer Applications)
- HU Humanities and Fine Arts Core Courses
- SB Social and Behavioral Science Core Courses
- S1 Natural Science Core Courses (Introductory)
- S2 Natural Science Core Courses (Additional Courses)
- G Global Awareness Courses
- H Historical Awareness Courses



COLLEGE OF BUSINESS

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
CIS 200 Computers in Business. (3 F S					N3						
ECN 111 Macroeconomic Principles. (3) F S SS							SB				
112 Macroeconomic Principles. 3 F S SS							SB				
313 Intermediate Macroeconomic Theory. 3 F S, SS							SB				
314 Intermediate Macroeconomic Theory. 3 F S SS							SB				
315 Money and Banking. 3 N							SB				
331 Comparative Economic Systems. 3 N							SB			G	
360 Economic Development. 3 A							SB			G	
365 Economics of the Soviet Union and Eastern Europe. 3 N							SB			G	
404 History of Economic Thought. 3 A							SB				
421 Labor Economics. (3) A							SB				
436 International Trade Theory. 3 A							SB			G	
438 International Monetary Economics. 3 F, S SS							SB			G	
441 Public Finance. 3 A							SB				
453 Government and Business. 3 A							SB				
480 Introduction to Econometrics. 3 A				N2							
485 Mathematical Economics. 3 A				N2							
GNB 233 Business Communication. 3 N	1										
301 Administrative Communication. 3 F S SS	L1										
IBS 300 Principles of International Business. 3 A											G
MGT 463 Strategic Management. 3 F S SS		L2									
QBA 221 Statistical Analysis. 3 F S				N2							

COLLEGE OF EDUCATION

CBE 421 Computer Literacy. 3 F S SS					N3						
EDP 310 Educational Psychology. 1 6 F, S SS							SB				
454 Introduction to Statistical Data Analysis in Education. 3 F S SS				N2							
HUE 101 Ideas and Values in the Humanities. 4 F S						HU					
102 Ideas and Values in the Humanities. (4) F S						HU					
130 Introduction to Popular Culture. 3 F, S						HU					
SPE 311 Orientation to Education of Exceptional Children. (3 F S SS							SB				
SPF 111 Exploration of Education. (3) F S							SB				
411 History of American Education. 3 N							SB				
457 Third-World Women. (3) F							SB				G

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COLLEGE OF ENGINEERING AND APPLIED SCIENCES

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
AET	308 Air Transportation. 3) F										G	
	472 Applied Linear Analysis. (3) N			N1								
	490 Mathematical Modeling of Aerospace Systems. (2) S				N2							
AGB	101 Food Chain. 2) F							SB			G	
	450 International Agricultural Development. (3) F							SB			G	
	458 International Agribusiness. (3) N							SB			G	
ASE	485 Engineering Statistics. 3) F, S, SS				N2							
BME	413 Physiological Instrumentation. 3) S		L2									
CEE	371 Introduction to Urban Planning. (3) N	L1										
	400 Microcomputer Applications in Civil Engineering. 3) F, S					N3						
CHE	351 Measurements Laboratory. 2) F	L1										
	Both CHE 351 and 352 must be taken to secure L1 credit											
	352 Transport Laboratories. 2) S	L1										
	Both CHE 351 and 352 must be taken to secure L1 credit											
	413 Physiological Instrumentation. 3) S		L2									
	461 Process Control. 3) F					N3						
CON	389 Construction Cost Accounting and Control. 3) F, S					N3						
	453 Construction Labor Management. 3) F, S					N3						H
	495 Construction Planning and Scheduling. 3) F, S					N3						
CSC	101 Introduction to Computer Science II. 3) F, S					N3						
	180 Computer Literacy. 3) F, S					N3						
	181 Applied Problem Solving with BASIC. 3) F, S					N3						
	183 Applied Problem Solving with FORTRAN. 3) F, S					N3						
	300 Concepts of Computer Science. 4) A					N3						
	355 Introduction to Theoretical Computer Science. 3) F, S					N3						
	410 Information Processing. 3) A					N3						
	412 Database Management. 3) S					N3						
	420 Comparison of Computer Architectures. 3) A					N3						
	428 Computer-Aided Processes. 3) A					N3						
	450 Analysis of Algorithms. 3) F					N3						
	457 Theory of Formal Languages. 3) A					N3						
	470 Computer Graphics. 3) S					N3						
	473 Non-Procedural Programming Languages. 3) S					N3						
	474 Modeling for Computer Simulation. 3) A					N3						
	475 Simulation Theory and Languages. 3) A					N3						

			L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
ECE	106	Introduction to Computer-Aided Engineering. 3 F, S											
	383	Probability and Statistics for Engineers. 2 F S SS				N2	N3						
	400	Engineering Communications. (3 F S, SS)		L2									
EEE	221	Digital Computer Fundamentals. 4 F S SS					N3						
ERA	346	Natural Resource Conservation. 3 F											
	350	Applied Quantitative Methods. (3) F				N2						G	
ICG	310	Computer Graphics Fundamentals. (3 A					N3						
	312	Computer Assisted Graphics. 3 A					N3						
	412	Computer Graphics Modeling. 3 A					N3						
IEE	330	Microcomputer Applications in Industrial Engineering. 3 F S					N3						
	463	Computer-Aided Manufacturing and Control. 3 F, S					N3						
	464	Computer-Integrated Design. (3) F S					N3						
	475	Introduction to Simulation. (3) F S					N3						
	476	Operations Research Techniques Applications. (4 F S				N2							
ITC	200	Impact of Communications Technology on Society. 3 F, S		L1									
MAE	405	Microcomputer-Aided Processes for MAE. (3 F S					N3						
MET	416	Applied Computer Integrated Manufacturing. (3 F, S					N3						
	460	Manufacturing Capstone Project. (3 S		L2									
STE	201	Technology and Social Change. 2 A						HU					H
	310	Man and Machine. (2) A						HU					H
	311	Science and Technology in History. 3 F, S						HU					H
	312	Science and Technology in History. 3 F S						HU					H
	402	Technology, Society and Human Values. 3 A						HU					H
TCE	250	Digital Systems and Microprocessors. 3 F, S					N3						
	400	Technical Communications. (3 F S SS		L2									
COLLEGE OF FINE ARTS													
ARA	202	Introduction to Photo Aesthetics. 3 F S											H
	488	Understanding Art. (3) F S		L2				HU					
ARS	100	Introduction to Art. (3) F, S SS						HU					H
	101	Art of the Western World I. (3) F, S						HU					H
	102	Art of the Western World II. (3) F S						HU					H
	201	Art of the Non-Western World I. (3 A						HU				G	H

58 UNIVERSITY GENERAL STUDIES COURSES

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
202	Art of the Non-Western World II. (3 A.					HU					H
300	Introduction to Art. 3 F S					HU				G	H
325	History of Christian Art. 3 N					HU					H
400	History of Printmaking. 3) A					HU					H
402	Ancient Near Eastern Art. 3) N					HU					H
404	Greek Art. 3 A					HU					H
406	Roman Art. 3 A					HU					H
410	Early Christian and Byzantine Art. 3 A					HU					H
412	Early Medieval Art. 3 A					HU					H
414	Romanesque Art. 3 A					HU					H
416	Gothic Art. 3 A					HU					H
418	Renaissance Art in Northern Europe. 3 A					HU					H
420	Early Renaissance Art in Italy. 3 A					HU					H
422	Italian High Renaissance Art and Mannerism. 3 A					HU					H
424	Italian Baroque Art. 3 A					HU					H
426	Art of the 17th Century in Northern Europe. 3 A					HU					H
428	Art of the 18th Century. 3 A					HU					H
430	Art of Spain and Its Colonies. 3 A					HU					H
432	Art and Revolution. 3 A					HU					H
434	Romanticism and Realism. 3 A					H					
436	Impressionism and Late 19th-Century Art. 3 A					HU					
438	Art of the 20th Century I. 3 A					HU					H
439	Art of the 20th Century II. 3 A					HU					H
450	19th-Century Photography. 3 A					HU					H
451	20th Century Photography. 3 A					HU					H
454	Research and Writing in Photography. 3 A					HU					H
456	History of Art Criticism I. 3 N					HU					H
457	History of Art Criticism II. 3 N					HU					H
458	20th-Century Art Criticism. 3 N					HU					H
459	Writing Art Criticism. 3 N					HU					H
462	Precolumbian Art I. 3 A					HU					
463	Precolumbian Art II. 3 A					HU					
465	North American Indian Art. 3 A					HU					
466	Southwest Indian Art. 3 A					HU					H
468	Shamanism and Art. 3 A					HU	SB			G	

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
469	Mexican Art. 3 A						HU				G	H
472	Art of China. 3 A						HU				G	H
473	Art of Japan. 3 A						HU				G	H
475	Chinese Painting. 3 A						HU				G	H
480	Research Methods. 3 F S						HU					H
ART	444 Computer Art I. 3 F S					N3	HU					H
DAH	100 Introduction to Dance. 3 F S						HU					
300	Introduction to Dance. 3 F, S						HU					
301	Philosophy and Criticism of Dance. 3 F S						HU					
401	Dance History I. 3 F						HU					H
402	Dance History II. 3 S						HU					H
MHL	352 The Evolution of Jazz 3 F											H
439	Music in the 19th Century. 3 N		L2									
441	Music of the Baroque Era. 3 N		L2									
447	Music Since 1900. 3 F SS		L2									
466	North American Indian Music. 3 N											
MUE	381 Music Therapy Research. (3 S)		L2				HU					
MUS	107 Introduction To Music. 2 F S SS						HU					H
340	Survey of Music History. 3) F S SS						HU					
347	Jazz In America. 3 F S, SS						HU					
353	Survey of Afro-American Music. 3 A						HU					H
354	Popular Music. 3 A						HU					
355	Survey of American Music. 2 F S SS						HU					
356	Survey of the Musical Theatre. 3 N						HU					
357	Aesthetic Perception in Music Performance. (3) F S SS						HU					
THE	100 Introduction to Theatre. (3) F S.						HU					
220	Principles of Dramatic Analysis. 3 S											
300	Film: The Creative Process. 3 F S SS						HU					H
320	History of the Theatre. 3) F S						HU					H
321	History of the Theatre. 3 F S						HU					
325	Play Reading. 1 F, S SS						HU					
400	Focus on Film. (1 F S, SS						HU					
420	History of the American Theatre. 3 S						HU					H
421	History of the English Theatre. (3) F						HU					H
425	History of the Oriental Theatre. (3) S						HU					H

62 UNIVERSITY GENERAL STUDIES COURSES

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
	313	Advanced Chinese.	3 F								G	
	314	Advanced Chinese.	3 S								G	
	322	Chinese Literature.	3 S								G	
CHM	101	Introductory Chemistry	4 F, S						S1	S2		
	113	General Chemistry.	4 F S SS						S1	S2		
	114	General Chemistry for Engineers.	4 F S						S1	S2		
	115	General Chemistry with Qualitative Analysis.	5 F S SS						S1	S2		
	116	General Chemistry.	4 F, S						S1	S2		
	117	Advanced General Chemistry.	4 F						S1	S2		
	118	Advanced General Chemistry	5 S						S1	S2		
CLS	450	Principles of Clinical Laboratory Administration.	2 F S	L2					S1	S2		
		Both CLS 450 and 460 must be taken to secure L2 credit										
	460	Principles of Clinical Laboratory Education.	1 S	L2					S1	S2		
		Both CLS 450 and 460 must be taken to secure L2 credit										
ENG	110	Introduction to Literature.	3 F S				HU					H
	200	Critical Reading and Writing About Literature.	3 F, S	L1			HU					H
	201	World Literature.	3 F				HU					H
	202	World Literature.	3 S				HU					H
	204	Literature of Today.	3 F S				HU					
	212	English Prose Style.	3 N	L1								
	215	Strategies of Academic Writing.	3 F S	L1								
	216	Persuasive Writing on Public Issues.	3 F S	L1								
	217	Personal and Exploratory Writing.	3 F S	L1								
	218	Writing about Literature.	3 F S	L1								
	221	Survey of English Literature.	3 F S				HU					H
	222	Survey of English Literature.	3 F S				HU					H
	260	Film Analysis.	3 N				H					
	301	Writing for the Professions.	3 F S	L1								
	303	Classical Backgrounds of English Literature	3 N				HU					
	307	Utopian Literature.	3 N				HU					
	312	English in Its Social Setting.	3 F S				HU					
	314	Modern Grammar.	3 F S				HU					
	321	Introduction to Shakespeare.	3 F S				HU					
	341	American Literature.	3 F S				HU					H
	342	American Literature.	3 F S				HU					H
	352	Short Story.	3 F S				HU					

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
355	History of the Drama. (3 S											
356	Biblical Backgrounds of Literature. 3 F S						HU					H
357	Introduction to Folklore. (3 N						HU					H
358	Afro-American Literature. 3 N		L2				HU					H
359	American Indian Literatures. 3 S						HU					H
360	History of Film. 4 N						HU					H
361	Silent Film. 4 F						HU					H
362	Sound Film Genres. (4 S						HU					H
400	History of Literary Criticism. 3 S						HU					H
413	History of the English Language. 3 F S		L2				HU					H
415	Medieval Literature. 3 F						HU					H
418	Renaissance Literature. 3 F						HU					H
419	English Literature in the Early Seventeenth Century. 3 S						HU					H
420	Renaissance Drama. 3 S		L2				HU					H
421	Shakespeare I. 3 F S						HU					H
422	Shakespeare II. 3 F, S						HU					H
423	Milton. 3 F S						HU					H
424	Chaucer. 3 F S						HU					H
425	Romantic Poetry. 3 F		L2				HU					H
426	Victorian Poetry. 3 S		L2				HU					H
427	Age of Johnson. 3 S		L2				HU					H
428	Age of Dryden, Swift, and Pope. 3 F		L2				HU					H
430	19th-Century British Cultural Backgrounds. 3 N		L2				HU					H
435	19th-Century American Poetry. (3 S		L2				HU					H
439	Drama from Dryden to Sheridan. 3 S 90		L2				HU					H
440	American Literature to 1815. 3 N						HU					H
441	20th-Century American Drama. 3 N		L2				HU					H
443	American Poetry, 1900-1945. 3 F						HU					H
444	American Romanticism, 1830-1860. 3 F						HU					H
445	American Realism, 1860-1900. 3 S						HU					H
448	20th-Century British Novel. 3 S						HU					H
451	The Novel to Jane Austen. 3) F		L2				HU					H
452	The 19th-Century Novel. 3) S		L2				HU					H
453	The American Novel to 1900. (3 F		L2				HU					H
454	The American Novel, 1900-1945. 3) F		L2				HU					H
457	American Poetry Since 1945. (3 S						HU					H

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	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
458											
460		L2				HU					H
461						HU					H
462						HU					H
463						HU					H
464						HU					H
471						HU					
FAS							SB				
330							SB				
331							SB				
354							SB				
357							SB				
435							SB				
494							SB			G	
FLA						HU				G	
150						HU					
323						HU					
400							SB				
415							SB				
420						HU				G	H
480							SB				
FRE										G	
201										G	
203										G	
205						HU				G	
207										G	
311										G	
312										G	
319										G	
321		L2				HU					H
322		L2				HU					H
411										G	
412										G	
415						HU				G	
441						HU					H
442						HU					H
445		L2				HU					H
452						HU					H

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
	461											
	462						HU					
	471						HU					
	102						HU					
GCU	121							SB				
	141							SB			G	
	253							SB				
	294							SB				
	294							SB				
	322							SB				
	323							SB				
	325							SB				
	326							SB				
	327							SB				
	328							SB				
	332							SB				
	350							SB				
	351							SB				
	352							SB				
	357							SB				
	359							SB				
	360							SB				
	361							SB				
	364							SB				
	401							SB				
	423							SB				
	424							SB				
	426							SB				
GER	201							SB				
	202							SB				
	311							SB				
	312							SB				
	313							SB				
	319							SB				
	321							SB				

66 UNIVERSITY GENERAL STUDIES COURSES

	H	G	S2	S1	SB	HU	N3	N2	N1	L2	L1			
322												German Literature, 3 S		
411												Advanced Grammar and Conversation, 3 F		
412												Advanced Grammar and Composition, 3 S		
415												German Civilization, 3 F		
GLG												101	Introduction to Geology I (Physical), 3 F S	
													Both GLG 101 and 103 must be taken to secure S1 and S2 credit	
													102	Introduction to Geology II (Historical), 3 S
													Both GLG 102 and 104 must be taken to secure S1 and S2 credit	
													103	Introduction to Geology I-Laboratory, 1 F S
													Both GLG 101 and 103 must be taken to secure S1 and S2 credit	
													104	Introduction to Geology II-Laboratory 1 S
													Both GLG 102 and 104 must be taken to secure S1 and S2 credit	
GPH													111	Introduction to Physical Geography, 4 F S
													212	Introduction to Meteorology I, 3 F S
													214	Introduction to Meteorology Laboratory, 1 F
													381	Geography of Natural Resources, 3 A
													405	Energy and Environment, 3 S
GRK													301	Greek Literature, 3 F S
													302	Greek Literature, 3 S
HIS													100	Western Civilization, 3 F S
													101	Western Civilization, 3 F S
													102	Western Civilization, 3 F S
													103	The United States, 3 F S
													104	The United States, 3 F S
													107	Introduction to Japan, 3 A
													270	Judaism in American History, 3 N
													294	Selected Topics in History, 3 N
													303	American Cultural History, 3 F S
													304	American Cultural History, 3 F S
													305	Asian Civilizations, 3 F S
													306	Asian Civilizations, (3 F S
													320	Ancient Greece, 3 A
													321	Rome, (3 A
													322	The Middle Ages, 3 A
													323	The Middle Ages, 3 A
													324	Renaissance, 3 F

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
325 Reformation. 3 S							SB				H
326 Early Modern Europe. 3 A							SB				H
327 Early Modern Europe. 3 A							SB				H
329 19th-Century Europe. 3 A							SB				H
330 19th-Century Europe. 3 A							SB				H
331 20th-Century Europe. 3 N							SB			G	H
332 20th-Century Europe. 3 N							SB			G	H
333 Women and Society in Europe. 3 N						HU	SB				H
351 England. 3 F S							SB				H
352 England. 3 F S							SB				H
362 The American Indian. 3 F							SB				H
363 The Black American Experience. 3 A		L2					SB				H
364 The Black American Experience. 3 A		L2					SB				H
365 Islamic Civilization. 3 F							SB			G	H
366 The Modern Middle East. 3 S						HU	SB			G	H
367 The West in American History. 3 A							SB				H
368 The West in American History. 3 A							SB				H
369 The West in the 20th Century. 3 N							SB				H
370 Women in United States History, 1600-1880. 3 F							SB				H
371 Women in United States History, 1880-1980. 3 S							SB				H
373 United States Military History. 3 F S							SB				H
374 United States Military History. 3 F S							SB			G	H
380 History of the Mexican-American. 3 A							SB				H
382 Historical Statistics. 3 S				N2			SB				H
383 Latin America. 3 A							SB				H
384 Latin America. 3 A							SB				H
401 American Colonial History. 3 A							SB				H
406 Civil War and Reconstruction. 3 A							SB				H
407 The Emergence of Modern America. 3 A							SB				H
409 Recent American History. 3 A							SB				H
410 Recent American History. 3 A							SB				H
411 Contemporary America. 3 A							SB				H
413 Origins of the American Economy. 3 F							SB				H
414 The Modern American Economy. 3 S							SB				H
415 American Diplomatic History. 3 A							SB				H
416 American Diplomatic History. 3 A							SB			G	H

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	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
417							SB				H
418							SB				H
419							SB				H
420							SB				H
421							SB				H
422							SB				H
423							SB				H
424							SB				H
425							SB				H
426							SB				H
428							SB				H
429							SB				H
430							SB				H
431							SB				H
433							SB				H
434							SB			G	H
435							SB				H
437							SB			G	H
438							SB				H
441							SB			G	H
442							SB			G	H
443							SB			G	H
445							SB				H
446							SB				H
449							SB			G	H
450							SB				H
451							SB				H
452							SB				H
453							SB				H
454							SB			G	H
455							SB				H
456							SB				H
457							SB				H
464							SB			G	H
466							SB				H
467							SB				H

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
	469	Chinese Thought and Way. (3 N	.....	.....	.....	.....	.....	SB	.....	.....	.....	H
	470	Chinese Thought and Way. 3 N	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	471	The United States and Japan. 3) A	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	472	The United States and China. 3) N	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	473	China. 3) A	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	474	China. (3 A	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	475	The American Experience in Vietnam, 1945-1975. 3 N	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	477	Japan. 3) A	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	478	Japan. (3 A	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	479	The Chinese Communist Movement. (3) N	.....	.....	.....	.....	.....	SB	.....	.....	G	H
	481	The People's Republic of China. 3 N	.....	.....	.....	.....	.....	SB	.....	.....	G	H
HPS	201	Technology and Social Change. (2 A	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	321	Man and Machine. 2) A	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	322	Science and Technology in History. (3) F S	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	323	Science and Technology in History. 3 F, S	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	330	History of Biology. 3 N	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	331	History of Medicine. (3) N	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	402	Technology, Society and Human Values. 3 A	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
HUM	110	Contemporary Issues in Humanities. 3 F S	.....	.....	.....	.....	HU	.....	.....	.....	G	H
	301	Humanities in the Western World. 4 F	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	302	Humanities in the Western World. 4 S	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	413	Comedy: Meaning and Form. 3 S	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	414	Tragedy: Meaning and Form. 3 A	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	498	Pro-Seminar: Interpretation of Culture. 3 A	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
ITA	201	Intermediate Italian. 4 F S	.....	.....	.....	.....	.....	.....	.....	.....	G	.....
	202	Intermediate Italian. 4 F S	.....	.....	.....	.....	.....	.....	.....	.....	G	.....
	311	Italian Composition and Conversation. 3 F S	.....	.....	.....	.....	.....	.....	.....	.....	G	.....
	312	Italian Composition and Conversation. 3 F S	.....	.....	.....	.....	.....	.....	.....	.....	G	.....
	314	Advanced Italian. 3 N	.....	.....	.....	.....	.....	.....	.....	.....	G	.....
	325	Introduction to Italian Literature. 3 F	.....	.....	.....	.....	HU	.....	.....	.....	G	.....
	415	Italian Civilization. 3 N	.....	.....	.....	.....	HU	.....	.....	.....	G	H
	430	Italian Literature of the Middle Ages. 3 N	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	441	Dante: <i>Divina Commedia</i> . (3) N	.....	.....	.....	.....	HU	.....	.....	.....	.....	H
	443	Italian Literature of the Renaissance. (3 N	.....	.....	.....	.....	HU	.....	.....	.....	.....	H

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
206	Microbiology Laboratory. 1 F S SS Both M C 205 and 206 must be taken to secure S2 credit									S2		
302	Advanced Bacteriology Laboratory. 2 S		L2									
494	Special Topics: Research Paper. 1 F S SS		L2									
PGS	100 Introduction to Psychology. 3 F S SS							SB				
	241 Adolescence Psychology. 3 N							SB				
	270 Psychology of Adjustment. 3 F, S, SS							SB				
	304 Effective Thinking. 3 A	L1										
	306 Environmental Psychology. 3 F S SS							SB				
	315 Personality Theory and Research. 3 F S SS							SB				
	331 Sexual Identification. 3 N							SB				
	332 Human Sexual Behavior. 3 F S							SB				
	341 Developmental Psychology. 3 F S							SB				
	350 Social Psychology. 3 F, S SS							SB				
	365 Community Psychology. 3 F S							SB				
	427 Psychology of Aging. 3 N							SB				
	441 Cognitive Development. 3 F S							SB				
	442 Life Span Development. 3 N							SB				
	443 Abnormal Child Psychology. 3 F S							SB				
	445 Child Language and Drawing. 3 F							SB				
	461 Interpersonal Influence. 3 N							SB				
	466 Abnormal Psychology. 3 F, S SS							SB				
PHI	101 Introduction to Philosophy. 3 F S SS						HU					
	103 Principles of Sound Reasoning. 3 F S SS	L1					HU					
	111 Introduction to Moral and Social Philosophy. 3 F S SS						HU					H
	301 History of Ancient Philosophy. 3 F						HU					H
	302 History of Modern Philosophy. 3 S						HU					H
	303 Contemporary Analytic Philosophy. 3 A						HU					
	304 Existentialism and Phenomenology. 3 A						HU					
	305 Ethics. 3 A						HU					
	306 Applied Ethics. 3 A						HU					
	307 Philosophy of Law. 3 A						HU					
	308 Philosophy of Art. 3 A						HU					
	309 Social and Political Philosophy. 3 A						HU					
	311 Philosophy in Literature. 3 A						HU					H
	312 Theory of Knowledge. 3 A						HU					

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
POS	321	Luso-Brazilian Literature	3	N								
	472	Luso-Brazilian Civilization	3	N			HU					
	101	Political Ideologies	3	F S				SB			G	H
	110	Government and Politics	3	F S				SB				
	120	Political Issues and Public Policy	3	A				SB			G	
	150	Comparative Government	3	F S				SB			G	
	160	Global Politics	3	F, S				SB				
	170	American Legal System	3	F S				SB			G	
	294	Special Topics: Introduction to Southeast Asia	3	N								
	301	Empirical Political Inquiry	3	F S				SB				
	310	American National Government	3	F S				SB				
	311	Arizona Constitution and Government	2	F S				SB				
	313	The Congress	3	A				SB				
	314	The American Presidency	3	A				SB				
	315	The Supreme Court	3	A				SB				
	316	State and Local Government	3	A				SB				
	320	Public Administration	3	A				SB				
	325	Public Policy Development	3	A				SB				
	330	Current Issues in National Politics	3	F S				SB				
	331	Public Opinion	3	A				SB				
	332	American Political Parties	3	A				SB				
	333	Interest Groups	3	A				SB				
	336	Electoral Behavior	3	A				SB				
	350	Comparative Politics	3	A				SB			G	
	351	The British Nations	3	A				SB			G	
	352	Revolution and the Social System	3	A				SB				
	356	Western Europe	3	A				SB			G	
	360	Current Issues in International Politics	3	F S				SB			G	
	361	American Foreign Policy	3	A				SB			G	
	401	Political Statistics	3	F S	N2							
	410	Urban Government and Politics	3	A				SB				
	417	The Arizona Political System	3	N				SB				
	422	Politics of Bureaucracy	3	N				SB				
	423	Politics of Budgeting	3	N				SB				
	424	Regulatory Politics	3	N				SB				

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	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
426 Elements of Public Policy. (3 A							SB				
435 Women, Power and Politics. 3 N							SB				
439 Minority Group Politics in America. 3 N							SB				
440 History of Political Philosophy I. 3 A						HU					H
441 History of Political Philosophy II. 3 A						HU					H
442 American Political Thought. 3 A						HU					H
443 Topics in Contemporary Political Theory. 3 A						HU	SB			G	H
445 Asian Political Thought. 3 A						HU					
446 Problems of Democracy. 3 A							SB			G	
450 Soviet Union and Eastern Europe. 3 A							SB			G	
451 China, Japan, and the Koreans. 3 A							SB			G	
452 China 3 A							SB			G	
453 South America. 3 A							SB			G	
454 Mexico. 3 A							SB			G	
455 Central America and the Caribbean. 3 A							SB			G	
456 Comparative Legislative Processes. 3 A							SB			G	
458 Southeast Asia. 3 A							SB			G	
459 Sub-Saharan Africa. 3 N							SB			G	
460 World Politics. 3 A							SB			G	
462 Soviet Foreign and Defense Policies. 3 A							SB			G	
463 Inter-American Relations. 3 A							SB			G	
464 American Defense Policy. 3 A							SB			G	
465 International Organization and Law. 3 A							SB			G	
467 Comparative Defense Policy. 3 A							SB			G	
468 Comparative Asian Foreign Policies. 3 A							SB			G	
470 Law and Society. 3 A							SB				
471 Constitutional Law I. 3 A							SB				
472 Constitutional Law II. 3 A							SB				
484 Internship. 1-6 A							SB				
485 Political Economy. 3 A							SB				
486 International Political Economy. 3 A							SB				
498 Pro Seminar. 3 A		L2					SB				
PSY 230 Introduction to Statistics. 3 F S,SS				N2							
290 Experimental Psychology. 4 F S	L1								S2		
330 Statistical Methods. 3 S				N2							

REL		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
100	Religions of the World. 3 F S											
210	Introduction to Judaism. 3 A	L1					HU				G	H
270	Introduction to Christianity. 3 A	L1					HU					H
294	Special Topics: The Magic of Magic. 3 A	L1					HU					H
294	Special Topics: Introduction to Southeast Asia. 3 N										G	
305	Ritual, Symbol, and Myth. 3 A		L2				HU				G	
310	Western Religious Traditions. 3 A		L2				HU					H
315	Hebrew Bible (Old Testament). 3 A						HU					H
316	Types of Early Judaism. 3 A						HU					H
317	Introduction to Rabbinic Judaism. 3 A						HU					H
320	Religion in America. 3 F S						HU					H
321	Religion in America. 3 F, S						HU					H
330	Native American Religious Traditions. 3 A		L2				HU					H
331	History of Native American Religious Traditions. 3 N		L2				HU					H
340	Confucianism and Taoism. 3 A		L2				HU					H
350	Hinduism. 3 A		L2				HU				G	H
351	Buddhism. 3 A		L2				HU				G	H
365	Islamic Civilization. 3 A		L2				HU	SB			G	H
371	New Testament. 3 A						HU					H
372	Formation of the Christian Tradition. 3 A						HU					H
381	Religion and Moral Issues. 3 A		L2				HU					H
385	Contemporary Western Religious Thought. 3 A		L2				HU					H
390	Women and Religion. 3 A		L2				HU				G	H
410	Judaism in Modern Times. 3 N						HU					H
415	The Jewish Mystical Tradition. 3 A						HU					H
420	Religion in American Life and Thought. 3 A		L2				HU					H
426	American Preachers and Preaching: The Sermon in America. 3 N		L2				HU					H
427	American Religious Thought. 3 N						HU					H
435	Problems in Native American Religions. 3 A						HU					H
444	Religion in Japan. 3 A						HU				G	H
454	Hindu Religious Thought. 3 A		L2				HU					H
460	Studies in Islamic Religion. 3 A						HU				G	H
464	The Islamic Mystical Tradition. 3 N						HU					H
470	Religion in the Middle Ages. 3 A						HU					H
471	Reformation and Modern Christianity. 3 A						HU					H
486	Critiques of Religion. 3 A						HU					H

76 UNIVERSITY GENERAL STUDIES COURSES

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
RUS	201	Intermediate Russian.	4	F	SS						G	H
	202	Intermediate Russian.	4	S	SS						G	
	211	Basic Russian Conversation.	3	F							G	
	212	Basic Russian Conversation.	3	S				SB			G	
	311	Russian Composition and Conversation.	3	F							G	
	312	Russian Composition and Conversation.	3	S							G	
	321	Survey of Russian Literature.	3	A			HU					H
	322	Survey of Russian Literature.	3	A			HU					H
	323	Survey of Soviet Literature.	3	A			HU				G	
	411	Advanced Composition and Conversation I.	3	F				SB			G	
	412	Advanced Composition and Conversation II.	3	S				SB			G	
	417	Applied Russian Phonetics I.	2	N								
	418	Applied Russian Phonetics II.	2	N								
	420	Russian Poetry.	3	N			HU					H
	421	Pushkin.	3	N			HU					
	423	Dostoyevsky.	3	N			HU					
	424	Tolstoy.	3	N			HU					
	425	Chekhov.	3	N			HU					
	426	Soviet Dissident Literature (1917 Present).	3	N			HU				G	
	430	Russian Short Story.	3	N			HU					H
	440	History of the Russian Language.	3	N			HU				G	
	441	Survey of Russian Culture.	3	N			HU					H
SHS	305	Survey of Communication Disorders.	3	F	S			SB				
SOC	101	Introductory Sociology.	3	F	S	SS		SB				
	294	Special Topics: Introduction to Southeast Asia.	3	N							G	
	301	Principles of Sociology.	3	F	S	SS		SB				
	305	Courtship and Marriage.	3	F	S	SS		SB				H
	332	The Modern City.	3	F	S			SB				
	333	Population Problems.	3	F	S	SS		SB			G	
	340	Sociology of Deviant Behavior.	3	F	S	SS		SB				
	341	Modern Social Problems.	3	F	S	SS		SB				H
	348	Overview of Aging.	3	F				SB				
	351	Industrial Sociology.	3	S				SB				
	352	Social Change.	3	F	S			SB			G	
	360	Sociological Psychology.	3	F	S			SB				H

			L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
	311	Spanish Conversation.										G	
	312	Spanish Conversation.										G	
	313	Spanish Conversation and Composition.										G	
	314	Spanish Conversation and Composition.										G	
	319	Business Correspondence and Communication.										G	
	325	Introduction to Hispanic Literature.						HU					
	412	Advanced Conversation and Composition.										G	
	413	Advanced Spanish Grammar.										G	
	420	Applied Spanish Linguistics.							SB				
	421	Spanish in the Southwest.							SB				
	424	Masterpieces of Hispanic Literature.						HU					
	425	Spanish Literature.						HU					
	426	Spanish Literature.						HU					
	464	Mexican American Literature.						HU					
	471	Civilization of the Spanish Southwest.						HU					
	472	Spanish American Civilization.						HU				G	H
	473	Spanish Civilization.						HU	SB			G	
STP	226	Elements of Statistics.				N2							
	326	Intermediate Probability.				N2							
	420	Introductory Applied Statistics.				N2							
	429	Experimental Statistics.					N3						
TXC	122	Clothing and Human Behavior.							SB				
	424	History of Costume.							SB				H
WST	100	Women and Society.							SB				H
	300	Women in Contemporary Society.							SB				
	457	Third-World Women.							SB			G	
	498	Pro-Seminar: Theoretical Issues in Women's Studies.		L2					SB				
ZOL	201	Human Anatomy-Physiology.									S2		
	316	History of Biology.											H
	318	History of Medicine.							SB				H
COLLEGE OF NURSING													
HDE	395	Overview of Aging.							SB				
NUR	403	Research in Nursing Practice.		L2									
	457	Third-World Women							SB			G	

COLLEGE OF PUBLIC PROGRAMS

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
COM	100 Introduction to Human Communication. 3 F, S SS							SB				
	207 Introduction to Communication Inquiry. 3 F, S SS	L1										
	222 Argumentation. 3 A	L1										
	225 Public Speaking. (3 F, S, SS)	L1										
	230 Small Group Communications. 3 F, S, SS							SB				
	241 Introduction to Oral Interpretation. (3 F, S, SS)	L1						SB				
	263 Elements of Intercultural Communication. 3 F, S							SB			G	
	308 Empirical Research Methods in Communication. 3 F, S, SS		2					SB				
	320 Communication and Consumerism. 3 F, S							SB				
	321 Rhetorical Theory and Research. 3 F, S		L2				HU					
	329 Persuasion. 3 F, S							SB				
	344 Oral Traditions in Literature. 3 N						HU					
	363 Intercultural Communication Processes. (3 F, S)							SB				
	371 Language Culture, and Communication. 3 A						HU					
	408 Quantitative Methods in Communication Research. 3 N				N2							
	410 Interpersonal Communication Theory and Research. 3 A							SB				
	421 Rhetoric of Social Issues. 3 N						HU					
	430 Leadership in Group Communications. 3 N							SB				
	450 Theory and Research in Organizational Communication. 3 F, S							SB				
	456 Political Communication. 3 A							SB				
	457 Communication and Information Diffusion. 3 N							SB				
	472 Development of Language as Communicative Behavior. 3 N							SB				
JRN	201 Journalism News Writing. 3 F, S, SS	L1										
	301 Reporting. 3 F, S		L2									
JUS	100 The Justice System. 3 F, S, SS							SB				
	200 Concepts and Issues of Justice. 3 F, S, SS							SB				
	302 Basic Statistical Analysis in Justice Studies. 3 F, S, SS				N2							
	360 Law and Social Control. 3 F, S, SS							SB				
	463 Discretionary Justice. 3 F, S, SS		L2					SB				
	469 Political Deviance and the Law. 3 F, S, SS							SB				
MCO	120 Media and Society. 3 F, S							SB				
	418 History of Communications. 3 F, S							SB				H
	430 International Communication. 3 F, S							SB			G	
	450 Visual Communication. 3 N						HU					

Readmission to the University

Undergraduate students who have previously attended Arizona State University but have not been enrolled at this institution for one semester or more, will be required to apply for readmission for the semester in which re-enrollment is intended. If, meanwhile, the student has attended an accredited college or university other than Arizona State University, it will be necessary for the student to have on file an official transcript of all academic work taken. Failure to report such attendance is considered misrepresentation and falsification of university records. In addition, it is considered cause for "Records Hold" action and withholding of further registration privileges.

An applicant for readmission to a classified program must meet the requirements for good standing (page 48) and the requirements of the college to which the application is being made. An applicant who has been denied readmission may appeal to the University Undergraduate Admissions Board.

Former students who have not attended the university for two years or more must complete a Health History Questionnaire, available at the Student Health Center, in order to receive services at the Student Health Center.

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

University Degree Requirements

Program of Study Requirements. Students must file an Undergraduate Program of Study for graduation within the semester they earn their 87th hour. The intention of the policy is to guide the student in accomplishing successful completion of degree requirements in a timely manner. Students who have not met the above requirement will be prevented from further registration.

Programs of study and procedural information are available from the Graduation Office, Student Services Building, Room B113A, or any Registrar's Site.

Application for Graduation Requirements.

The following steps are required to complete the graduation process:

1. Register for your final semester.
2. Pay graduation fee at the University Cashier's Office. Note deadline date listed in the University Calendar.
3. Submit the fee receipt to the Graduation Office, Student Services Building, Room B113A, and apply for graduation. Your program of study will be reviewed at this time and your graduation date and eligibility to graduate will be verified.
4. Complete all course work listed on the Undergraduate Program of Study by graduation date.

Students failing to comply with the above requirements will not graduate.

The Application for Graduation along with the program of study will be reviewed to verify graduation eligibility.

Credit Requirements. A minimum of 126 semester hours is required for graduation with a baccalaureate degree. A minimum of fifty (50) semester hours in upper-division courses is required for graduation. The College of Business requires 51 hours in upper division.

Not more than 30 hours of credit in correspondence courses and/or by comprehensive examination will be accepted for credit toward the baccalaureate degree.

First-Year Composition Requirement.

ENG 101 and 102 (or ENG 105) with a grade of C or better are required for graduation from Arizona State University in any baccalaureate program (see page 39). International students from non-English speaking countries may meet the First Year Composition requirement by taking ENG 107 and 108 with a grade of C or better in place of ENG 101 and 102.

Transfer students from other Arizona colleges or universities can determine the acceptability of their composition courses by referring to the most recent Arizona Commission for Postsecondary Education *Course Equivalency Guide*. Composition courses transferred from out of state institutions must be evaluated and approved by advisors specifically designated for this purpose by the dean of each college.

The transfer student must file an application in his or her college for Adjustment of Freshman Composition Requirements, along with a transcript and catalog descriptions of the composition

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courses to be transferred. The application, available in each college, should be filed immediately upon transfer of course work to Arizona State University, so that the student will be able to enroll in an additional composition course, if required to do so.

For information, the student should go to the office in his or her college listed below

Architecture and Environmental Design

Architecture 16

Business Business Administration 140

Education Payne B 7

Fine Arts Dixie Gymnase 27

Liberal Arts and Sciences Social Sciences 111

Nursing Nursing 410

Public Programs Wilson 203

Social Work West Hall 13

Grade Point Requirements. The minimum cumulative grade point average must be 2.00 for all courses taken at Arizona State University for a baccalaureate degree.

Resident Credit Requirements. Resident credit refers to a course which is offered in a regular semester or summer session. A minimum of 30 semester hours earned in resident credit courses at Arizona State University is required of every candidate for the baccalaureate degree. The final 12 semester hours immediately preceding graduation must be of resident credit. Arizona State University correspondence courses do not qualify as resident credit.

Determination of Catalog Requirements. The *General Catalog* is published annually. Department, college, and university requirements may change and often are upgraded. In determining graduation requirements, a student may use only one catalog.

1. Students who have been in continuous attendance at ASU will usually follow the degree requirements specified in the ASU catalog in effect at the time they registered for their first fall or spring semester at ASU. They may instead choose to follow any subsequent catalog while remaining in continuous attendance. Continuous attendance is defined by enrollment in fall and spring semesters, not summer sessions.
2. Students who attend an Arizona community college and transfer to ASU without a break in attendance may elect to use the catalog in effect at the time of their first enrollment at the community college.
3. A student who has been readmitted after a period of nonattendance, or after attending an institution other than ASU or an Arizona

community college, will graduate under the requirements for graduation as stated in the catalog at the time of readmission.

4. Students who complete one undergraduate degree program at ASU, are readmitted into a second undergraduate degree program, and attend the next semester do not maintain the catalog year under which they graduated with the first degree. These students must meet the catalog requirements in effect at the time they begin work toward the second degree.
5. Summer registration does not apply in determining catalog requirements.
6. Unclassified students who apply for admission to a degree program will be permitted to follow the catalog requirements in effect at the time they first attended ASU, unless they first attended during a summer session.
7. Correspondence courses do not affect catalog determination. Students who are registered for only a correspondence course for a semester do not maintain their prior catalog year.
8. There is no exception in the application of these guidelines for disqualified students. A student who is disqualified and attends an Arizona community college the next semester remains in continuous attendance. A disqualified student who does not attend ASU or an Arizona community college for one or more semesters will follow requirements in the catalog in effect at the time of readmission to ASU.

Inquiries about these guidelines may be directed to the Graduation Office, 602 965 3256.

Petition for Waiver of Degree Requirements

Any student wishing to have a college or university degree requirement waived must petition the standards committee of the college in which the student is enrolled. In addition, waivers of university degree requirements must be approved by the University Standards Committee.

All petitions must originate with the student's advisor. See pages 81-82 for university degree requirements. See the college sections of this *Catalog* for college and department requirements.

University Standards Committee. This committee advises the Office of the Provost regarding undergraduate student petitions which concern university-wide academic requirements. These include but are not limited to requirements on the amount of transfer credit, graduation requirements, limits on credit by examination, and re-

quirements for a second baccalaureate degree. In order to petition for a waiver of such university requirements, the normal department and college forms and procedures will be used, prior to being forwarded to the Office of the Provost.

General Graduation Information

Graduation with Academic Recognition. An undergraduate student must have completed at least 60 semester hours of resident credit at Arizona State University to qualify for graduation with academic recognition for a baccalaureate degree. A student with a cumulative grade point average of: 3.40–3.59 will graduate *cum laude*, 3.60–3.79 will graduate *magna cum laude*, 3.80–4.00 will graduate *summa cum laude*. The cumulative grade point average for these designations is based on only Arizona State University course work. All designations of graduation with academic recognition will be indicated on the diploma and the Arizona State University transcript. Graduation with academic recognition applies only to undergraduate degrees.

A student who has a baccalaureate degree from Arizona State University and is pursuing a second baccalaureate degree at Arizona State University (minimum of 30 hours of resident credit), will be granted academic recognition on the second degree based on the semester hours earned subsequent to the posting of the first degree. If the semester hours for the second ASU degree are fewer than 60, a student is eligible for academic recognition no higher than that obtained on the student's first ASU degree. If 60 or more semester hours are completed at ASU subsequent to completion of the first ASU degree, the level of academic recognition will be based on the grade point average earned for the second ASU degree. Inquiries about graduation with academic recognition may be directed to the Graduation Office, 602/965-3256.

Second Baccalaureate Degree. The student seeking a second baccalaureate degree must meet admission criteria for that degree. To obtain a second baccalaureate degree, a student must successfully complete a minimum of 30 additional hours of resident credit after conferral of the first baccalaureate degree and must meet all degree and university requirements of the second degree.

More than one baccalaureate degree may be pursued concurrently, if prior approval is given by the standards committee(s) of the college(s)

involved. In any case, a minimum of 30 additional hours is required.

Graduate Degrees. See section of this *Catalog* headed Graduate College and College of Law for graduate degrees offered and statements of requirements for graduate degrees. A separate *Graduate Catalog* may be obtained from the Graduate College.

Applications for Teaching Certificates. Applications for teaching certificates should be obtained from the office of the Director of Student Services in the College of Education.

Western Interstate Commission for Higher Education (WICHE)

For Arizona residents who wish to attend professional schools of dentistry, veterinary medicine, occupational therapy, optometry, and osteopathy in one of the other western states, Arizona has joined with the other western states to create the Western Interstate Commission for Higher Education through whose effort and agency qualified Arizona residents may attend schools in these other states at essentially the same expense to the students as to residents of the state in which the school is located. Students must have maintained at least average grades in their preprofessional work and must have been legal residents of Arizona for at least the last five years. Recipients are required to return to Arizona to practice or to repay a portion of the funds expended in their behalf.

For further information and applications, interested students should contact Dr. Odus Elliott, Certification Officer, Arizona Board of Regents, 3030 N. Central Avenue, Suite 1400, Phoenix, Arizona 85012, 602/255-4082, or Dr. Brice W. Corder, Assistant Dean, College of Liberal Arts and Sciences, SS 107, 602/965-2365.





Student Services: The Campus Ecology

The university is committed to the belief that an education involves more than attending classes. While the assimilation of information is a central part of the university experience, learning about others, about independence and leadership, and about moving and living in a complex society are equally important. This view is reflected in the eleven areas of Student Affairs and in the service and developmental programs offered by each.

Undergraduate Admissions

For many undergraduates, the first introduction to Arizona State University is through the recruitment and admission programs of Undergraduate Admissions. This office works with high schools and community colleges to provide information about the academic programs and support services available at ASU. Information is provided on admission requirements, policies, and procedures. Orientation programs are conducted to ease the student's (and parents') transition to the ASU campus. This office also coordinates and supports the ASU Parents' Association. Special emphasis is given to encourage the enrollment of underrepresented student groups. (For additional information call 602/965 7788.)

Student Financial Assistance

Approximately two-thirds of the full time students at ASU rely on some form of financial assistance to meet their educational expenses. The purpose of Student Financial Assistance is to review, award and disburse financial resources from a variety of private, federal, state and institutional sources. Information about, and applications for, scholarships, grants, loans and student employment are coordinated by this office. From these types of assistance, 20,000 students received approximately \$73 million in 1987-88.

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

Registrar

Management of the registration system and maintenance of academic records are the primary responsibilities of the registrar. An on-line registration system, accessed at any of five Registrar Sites, four located strategically around the campus and one on the ASU West Campus, eases the enrollment process and makes ASU a national leader in the use of computerized registration. The Student Information System stores academic records and improves the quality of data used in academic advising. Coordinated through this office are applications for graduation and undergraduate readmission, course changes and scheduling, veteran certification for educational benefits, transcript services, dispersion of student identification cards and applications for residency and verification of enrollment. (For additional information call 602/965 3175.)

Residence Life

Arizona State University has on-campus residential facilities for approximately 5,700 students. Housing arrangements include non-coed residences, coed residences and facilities used by the majority of the 22 fraternities and 13 on-campus sororities. Residence Life strives to provide a safe, clean, economical, and convenient living environment conducive to personal growth and academic success.

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A variety of room plans is available. Choices of accommodations range from apartment style housing to high rise living. Suite and community style arrangements including single, double, and triple rooms; and special accommodations for disabled students provide additional options.

Residence hall living is a unique opportunity for students to live and grow in a community of individuals from diverse backgrounds, sharing a common university experience. The residence hall environment provides a variety of activities designed to meet the emotional, intellectual, social, and physical needs of the individual. In addition, opportunities for leadership through the Residence Hall Association, Interfraternity Council and Panhellenic Council are fostered in this community lifestyle.

Skilled professionals and paraprofessional staff live in each residence hall. Residence hall directors, their assistants, and peer advisors are available to provide personal and educational support. They also work with students to develop a sense of community within the residence hall environment.

Residence hall application information may be obtained from the Residence Life Office. Students are *strongly encouraged to apply early*—at least six months in advance. Demand for on campus housing exceeds supply. While students must be admitted to the university to live in a residence hall, applications are accepted prior to official admission to the university. Actual assignment will not be made, however, until a student is officially admitted to the university. Residence hall assignments are made based upon the date of receipt in the Residence Life Office of the completed application and a deposit. Application materials contain the Residence Life License Agreement and a description of residence hall meal service options. Requests for specially modified rooms for disabled students should be noted on the application. (For additional information call 602 965 3515.)

Educational Development

Educational Development consists of four programs dedicated to meeting the educational and personal developmental needs of students whose backgrounds require special attention in order to meet and overcome the academic challenges they face. The **Educational Opportunity Center** is a community outreach service which focuses on low income individuals. The center has a main office in central Phoenix and satellite offices around Maricopa County. It offers vocational

testing and guidance, as well as assistance in application for admission and financial assistance at a postsecondary institution suited to particular individuals' needs. Services are free. (For additional information call 602 256-2124.)

The Disabled Student Resource Office provides a broad range of support services which include academic, career, and personal counseling; orientation and mobility for the blind; campus orientation, assistance with registration, financial aid, and housing. In addition, the following academic support services are provided as appropriate: readers, interpreter notetakers, library research aides, test accommodations (proctors, scribes, readers), and assistance with adapting course work materials.

Disabled Student Resource houses the Access Learning Lab which helps students develop individualized strategies for mathematics, writing, study skills, and time management. The Lab coordinates closely with other campus resources such as the Writing Center, the Math Center and the Educational Support Services Tutoring Center. An Adapted Computer Lab with many of the latest high technology devices for persons with disabilities is also available. An intracampus cart transportation system and an off campus van are available for academic and medical needs. Adapted recreational facilities and physical education classes are provided for students with disabilities through the Recreation and Physical Education Departments. Students are fully integrated into campus life and all activities. For additional information call 602 965 1234 (TTY).

The Upward Bound Program works with eligible high school students and recent high school graduates to provide the academic foundation for success in the college environment. (For additional information call 602 965-6483.)

Veterans Upward Bound directs its efforts to identify veterans who have not completed their secondary education or are not pursuing a postsecondary education because of inadequate preparation and motivation. GED and college preparatory classes in the basic subject areas are available for veterans who need special instruction. Interest inventory assessments plus career advisement are also available. (For additional information on either of these programs call 602 965 3944.)

Student Life

Working closely with a variety of student populations, the Office of Student Life strives to enrich the overall student experience at ASU. Opportu

nities for leadership and community involvement help students prepare for their roles as responsible citizens. Through their involvement in student activities and student governance, students learn the qualities of democratic leadership.

The special needs of such nontraditional populations as international students, commuter students, and adult re entry students are a so concerns of the Student Life Office. Other programs and service areas include student leadership, REACH (Research, Educate, Advise, Counsel and Help), the Student Organization Leadership Center, the Re entry Center, ASU Student Foundation, the Cultural Diversity Program, the Educational Support Program (tutoring, etc.), Understanding the University Experience (Hispanic Mother/Daughter Program) registration of student organizations, student conduct, and exit interviews.

Student organizations offer all students the opportunity to participate in leadership experiences and to explore areas of specific interest to them. Students are encouraged to consider the values of membership in an organization or group of their choice. Each of the approximately 300 existing student organizations has its own membership requirements and university advisor. More detailed information regarding these organizations may be obtained from the Student Life Office or by calling 602 965 2255.

The Office of Student Life works closely with the academic and student support service areas of the university to make sure students are aware of, and use, available resources. Staff members act as advisors, ombudspersons, and as liaisons with other departments. (For additional information call 602/965-6547.

Counseling and Consultation

Counseling and Consultation provides confidential psychological counseling services for all ASU students. The psychologists and counselors on the staff help students with almost any type of psychological problem. The staff is particularly committed to helping minority students and non traditional students adjust to campus life.

Counseling and Consultation has counseling groups for career exploration, relationship difficulties, stress management, depression, assertiveness, eating disorders, family problems, and other common student issues. Individual therapy and couples counseling are available, but are limited to a maximum of twelve sessions. Counseling

and Consultation also provides 24 hour emergency counseling to help students in emotional crises.

Students and nonstudents may take career interest tests. Other services available to the ASU community include consultation services to faculty and staff, outreach, academic instruction, research, and advanced clinical training for graduate students. Students may schedule an initial counseling appointment either by phone (602 965-6146) or in person. Counseling and Consultation is located in the Student Services Building, third floor, room B317.

The **Minority Assistance Program (MAP)** is a separate component within Counseling and Consultation. The program is built upon a student development model providing cultural, emotional, and academic support services to ASU's under represented minority populations. The MAP counselors provide this support through programs and workshops, academic classes, personal and educational counseling, and sponsorship of student organizations. Students may schedule an appointment with a MAP counselor by phone (602 965-6060) or in person. The MAP office is located in the Student Services Building, third floor, room B314.

Student Health

Services. Student Health offers fully accredited outpatient health care to all students enrolled at ASU. The professional staff, consisting of physicians, nurse practitioners, registered nurses, psychiatrists and educators, has special interest and training in college health care. Consultant physicians in dermatology, gynecology, neurology, orthopedics, and ear, nose and throat are also available upon referral by a member of this professional staff.

Additional services include the Extended Gynecology Clinic offering comprehensive women's health care and an Allergy Clinic for students needing periodic injections. X ray and laboratory services are also available to perform most diagnostic procedures. Many prescription and over the counter medications are available at the Student Health pharmacy.

Health Education. Health Education focuses on community health education, wellness promotion and illness prevention. A wide variety of seminars, workshops, discussions, lectures, and activities are conducted both at Student Health and various locations throughout the campus.

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Hours. Student Health is open Monday through Friday all year. During the academic year, some services are also available in the evening and on Saturday. Making an appointment is strongly encouraged to minimize waiting time and allow students the opportunity to establish a relationship with one clinician. Appointments are available by calling 965 3349. Patients with immediate health care problems can be seen without an appointment in the Urgent Care Clinic.

Fees. Full time students are not charged for most visits at Student Health. Part time students are charged semester eligibility fees or visit fees. There are also charges for x-rays and laboratory services, certain special procedures and medications. Patients receiving medical treatment off campus (consultations, emergency care, hospitalization, etc.) are financially responsible for any resulting charges.

Insurance. Although medical insurance is not required for students to be seen at Student Health, coverage is strongly recommended for all students and is required for international students. Students without other medical insurance coverage may enroll in the policy made available by ASU during registration or through the Insurance Office at Student Health. Dependents are also eligible for this medical insurance coverage although they are not eligible for treatment at the Student Health Center. This policy assists students in paying for laboratory and x-ray procedures, off campus consultations, hospitalization, surgery, emergency and after hours care.

Student Publications

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

The *State Press* provides students with on the job training in news writing, photography, editing, advertising, and production work. The *State Press* also addresses the many informational needs of the university community, not only through stories about campus and local national events, but through paid advertisements by area merchants, campus groups and university faculty, students, and staff.

In addition to the *State Press*, Student Publications publishes the *Sun Devil Spark Yearbook* each May. The yearbook is published by a team of more than 55 student editors, writers, photog-

raphers, and marketing people. The *Spark* is a comprehensive history book encompassing every aspect of campus life and is available to students, staff, and the general public for \$25 per copy at the fall discount.

Student Publications publishes an annual literary magazine entitled *Hayden's Ferry Review* and the annual *Student Handbook and Calendar*. *Hayden's Ferry Review* includes fiction, poetry, photography, and illustrations submitted from people throughout the country.

The *Student Handbook and Calendar* is produced by student editors, writers, photographers, and advertising salespeople. It serves as an ASU guidebook, answering the questions most often asked by new and continuing students.

Student Publications provides typesetting and composition services to the university community. (For additional information call 602 965 7572.)

Memorial Union

The Memorial Union is a major center of campus activity. The Union serves thousands of students, faculty and staff, as well as many daily campus visitors.

Diversified dining for individual and group needs, the university information desk, a Lost and Found department, student lounges (both TV and study), a Fine Arts Lounge, card and gift shop, reserved meeting rooms, catering services, credit union, photo shop, conference services, ballroom, bowling, billiards and amusement games, and the Memorial Union Activities Board are all found in the MU. Eight student committees serve advisory and program development functions for the Memorial Union. The MU, in turn, provides opportunities for students to contribute to their community and develop leadership skills. The facility meets the needs of many diverse student populations. For additional information call 602 965 5728.

Career Services

Career Services provides advisement for individual career planning concerns and offers information about numerous career fields and permanent positions. Students are encouraged to utilize the Career Development Center throughout their academic careers. Computerized career planning systems and published resources and position listings are available to assist them in evaluating and making career choices. Workshops and classroom presentations on career planning, interview

ing skills and resume writing are offered. Hundreds of employers from business, industry, government and social service agencies, health organizations, and school districts come to ASU to interview students seeking permanent or career related part time/summer employment. Career Services schedules these interviews for both employers and students to meet each group's needs and interests. The office also helps students prepare for interviews and maintains credentials for both students and alumni. Current job listings are maintained and published on a regular basis throughout the year. Career Services recommends students register at least two semesters before graduating to fully participate in employment placement activities. The offices are located on the third floor of the Student Services Building, Rooms C359 and C363. (For additional information call 602 965 2350.)

Veterans Affairs

This office offers complete educational services for U.S. veterans and their eligible dependents. Counseling is available regarding admissions, registration, and veterans benefits. Veterans programs provide service by advising all interested veterans and dependents regarding educational benefits and their optimum use. The program also assists veteran students to obtain suitable paid tutors, when needed, using their federal benefits. Veterans must achieve adequate grade point averages and semester-hour progress toward their academic program for continued educational benefits. The university must report this progress each semester. The Veterans Affairs Office is located in Student Services Building, Room B117. For additional information call 602 965 7725.)

Military Training—Officers

U.S. Air Force and U.S. Army. ROTC units are active on the ASU campus. See Aerospace Studies and Military Science in the College of Liberal Arts and Sciences for additional information.

U.S. Marine Corps. Platoon leaders classes are conducted by the Marine Corps for students who have enlisted in Officers Training while at ASU. Students attend for six weeks in two different summers or ten weeks in one summer, dependent upon their enlistment date. Credit in Marine Leadership Training (MLT) 302 (three semester hours) and MLT 402 (three semester hours) is granted for the platoon leaders classes upon the recommendation and certification of the U.S. Ma-

rine Corps to the registrar in the absence of a U.S. Navy R.O.T.C. unit in Arizona.

Defense Activity for Non-Traditional Education Support (DANTES)

Arizona State University is a participating institution with DANTES and is listed in the DANTES Directory of Independent Study. DANTES is an executive agency of the Department of Defense which provides educational support for the voluntary education programs of all services. The primary missions of DANTES are: (1) to provide nationally recognized examination and certification programs as part of the voluntary education programs of military services, (2) to facilitate the availability of high quality independent institutions for service men and women.

U.S. Armed Forces Institute Correspondence Courses. Arizona State University does not grant military science credit for active service or courses that were taken through the military.

Underrepresented Student Recruitment Services

Arizona State University is committed to the active recruitment of all underrepresented ethnic groups. A primary goal of Undergraduate Admissions is to identify, inform, motivate, recruit, and enroll underrepresented students at Arizona State University. Personal contact through high school and community college visits, ASU on campus visits, mail and phone follow up, and the award of a limited number of need based scholarships are just some of the approaches used in this recruitment effort. Assistance in the completion of applications for admission, on campus housing and financial aid is available. Information about university orientation programs, registration, and referrals to other ASU student support services is also offered. (For additional information call 602/965 3040.)

Other Opportunities for Student Involvement

Associated Students (ASASU). The Associated Students of Arizona State University (ASASU) is the student government of the university. It is the official representative of the student body in matters of university governance and budgeting. Programs and services include the Association Graphics and Advertising, Concerts, Homecoming, Leadership Institute, Lecture Series, Political Union, Special Events, Bike Repair

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Co-op, Counseling and Health Advisory Committee, Course Information Program, Graduate Student Association, Minority Cultural Awareness Board, Safety Escort Service, Student Legal Assistance, Student Orientation Service, Tenants and Commuter Students Association, Regional Ridesharing, Insuring Tomorrow Leadership, Public Relations, State Relations, Campus Clubs and Organizations, College Councils, the Student Senate, and the Executive Committee.

Student Recreation Program. The Student Affairs Intramurals/Club Sports/Recreation Program is one of the largest programs in the country serving more than 20,000 students annually through more than 60 recreation activities. Located on the northwest corner of McCallister and Apache Boulevard, the Student Recreation Complex is one of the finest student recreation centers in the United States. Features include expansive weight-lifting facilities, three large gymnasiums, 15 indoor racquetball courts, martial arts, aerobics and club rooms, and a physically challenged fitness gym. Outdoor facilities include playing fields, 14 tennis courts, and an olympic-size swimming pool.

Fraternities and Sororities. Thirteen sororities and 22 fraternities offer a range of opportunities for interested students. Programs are coordinated by the Interfraternity Council and Panhellenic Council to foster communication between chapters, reward scholastic achievement, and promote university and community service projects. For more information call 602/965-3806.

Music. Performing organizations with the School of Music provide opportunities for involvement and credit, including symphony orchestra, bands,

university choral organizations, and Lyric Opera Theatre.

Dance. Programs and concerts are presented by members of the University Dance Theatre. Interested students should arrange to audition.

Forensics. A Sun Devil Forensic squad, associated with Pi Kappa Delta, national forensic honorary, travels to trophy tournaments across the country. Permission of the Director of Forensics required.

Interpreters Theatre. Participants write, compile, and perform scripts for presentation in diverse on- and off-campus settings through the Department of Communication

Theatre. The University Theatre presents six to ten faculty-directed productions and the Student Experimental Theatre produces six student-directed productions each year.

Religious Activities. Various religious centers representing most major religious groups are available near the campus and provide students with the opportunity to participate in programs of religious worship and to meet other students through social activities.

Intercollegiate Athletics. The university is a member of the National Collegiate Athletic Association, Division I and the Pacific Athletic Conference (PAC 10). Under the regulations of the Board of Regents, the respective association or conference listed above, and the university, intercollegiate athletics at Arizona State University is governed by a board of faculty, students, and staff. Policies are administered by the Department of Intercollegiate Athletics. All athletic grants-in-aid and scholarships are administered by Intercollegiate Athletics and coordinated with Student Financial Assistance.



The University Honors College

Ted Humphrey, Ph.D.

Dean

Nature and Goals

The University Honors College offers talented, motivated students educational opportunities designed to enrich and further their personal academic and career goals. This college is unique in Arizona and the southwest. It provides students the educational benefits typical of small colleges while allowing them to enjoy the resources found only at a comprehensive, research university. Students enroll for courses taught by creative teaching and research faculty who nurture their students' intellectual creativity and curiosity. These faculty bring to undergraduate education the expertise of their own academic backgrounds and the excitement of nationally distinguished research.

The University Honors College has administrative, faculty, classroom, and residential facilities in a single, centrally located building, McClintock Hall, The Scholars' Residence. It houses honors lounges, libraries, computer facilities, classrooms, and study areas. With its interior courtyard, McClintock Hall is an inviting environment where students, faculty, and visiting scholars informally interact.

McClintock Hall is a coeducational residence hall that accommodates 160 students and is open to honors students on a first come, first served basis. Incoming freshmen receive preferential assignment to available openings. The college regularly schedules intellectual and social events in McClintock Hall.

Students from all academic majors and disciplinary colleges enroll in the University Honors College. Honors studies at ASU are comprehensive, extending to the entire campus, with particularly strong offerings in the Colleges of Architecture and Environmental Design, Engineering and Applied Sciences, which has the most complete engineering honors curriculum in the United States,

Liberal Arts and Sciences, and Public Programs. But students with majors in the Colleges of Business, Education, Fine Arts, and Nursing can also choose from a wide range of exciting courses, especially at the lower division.

The first two years of honors study focus on general studies. The second two years are mostly in the student's academic major and lead to graduation from the University Honors College. Participating in this part of the curriculum gives students a chance to write an honors thesis or complete some other extended creative project appropriate to their academic interests. In conceiving and completing this project, students work closely with a mentoring faculty member and bring together the various strands of their education.

Students seeking to graduate from the University Honors College must also graduate from a disciplinary college. Students become eligible for an honors degree by completing the requirements for an academic major and for graduation from the University Honors College. The ASU honors curriculum normally allows students to finish all requirements within the 126 semester hours of credit usually required for graduation.

Participants in ASU's Honors College have diverse interests and strong records of success. Many go on to the nation's finest graduate and professional programs, including Cornell, Harvard, Michigan, Stanford, Virginia, Wisconsin, MIT, Northwestern, UC, Berkeley, UCLA, and USC. Many have published portions of their honors theses and have made presentations at the national and regional meetings of scientific and honors societies. Some have received such distinguished recognition as Mellon and Fulbright fellowships and other scholarships and assistantships.

Benefits

Honors courses are normally limited to 22 students.

Honors students receive priority at early registration.

Honors students are eligible to live in McClintock Hall, The Scholars' Residence and home of the University Honors College.

Honors students have access to all the college's facilities, lounges, computer rooms, study areas, and libraries.

Honors students have special advisors to help them plan personal programs of study.

Students can receive transcript recognition for lower division honors studies.

Students who meet the requirements graduate with dual degrees, from the college of their disciplinary major and from the University Honors College.

Honors graduates often receive special consideration when applying for graduate or professional school and for jobs.

Admission

Entering freshmen are admitted if they graduate in the top 5% of their high school class, or have a composite ACT score of 29, or have a combined SAT score of 1250, or submit similar indications of academic achievement and aptitude.

Recipients of Regents' Scholarships, National Merit Scholarships, Flinn Scholarships, and Gamage Scholarships receive automatic admission upon application.

Continuing and transfer students who have completed at least 15 semester hours of study with at least a 3.25 cumulative GPA (on a 4.00 A scale) are admitted to the college.

Community college transfer students who have graduated from honors programs receive automatic admission to the college upon application and they are eligible for Regents' Scholarships for transfer students.

Students not meeting the requirements listed above but who believe they can better succeed at the university and meet the college's academic standards may apply for provisional admission. The dean of the college interviews each such applicant.

Application forms and additional information about the college and its activities are available by writing or calling the college's offices at 602/965 2359.

Retention

Honors students must maintain high standards of academic performance and show progress toward completion of graduation requirements in their disciplinary major and the Honors College. Students normally register for at least one honors course each semester. Persons with cumulative GPA's below 3.25 (on a 4.00 A scale) will be placed on probation and will be withdrawn from the college if they do not make reasonable progress in raising their cumulative GPA during the following semester.

Courses

Entering freshmen must take LIA 171, 172, The Human Event, a cross disciplinary seminar that acquaints them with ideas that form the foundation of a university education and to critical thinking, discussion, and writing. Those entering the college before completing 45 semester hours of course work must also take this sequence. Entering freshmen also normally enroll for ENG 105, Advanced English Composition.

Transfer students and students entering the college after completing 45 semester hours must take LIA 394, a junior level seminar that introduces them to critical thinking, discussion, and writing in an area chosen by the instructor.

Departmental courses carrying footnote number 19 are limited to honors students and others who receive special permission to enroll from the instructor. These courses are limited to 22 students.

Departmental courses carrying footnote number 18 may be taken by honors students for honors credit. The student and instructor contractually arrange learning enrichment activities that warrant honors credit. When several students register for honors credit in a course footnoted 18, the instructor may require them to meet for discussion sessions. Footnote 18 contracts and completion forms must be filed in a timely manner.

Departmental courses with the number 497 are Honors Colloquium and always carry the footnote number 19. Students may receive credit for more than one honors colloquium in a given department.

Departmental courses with the number 493 are reserved for honors students completing their honors project or thesis. Students may enroll for this course only with the approval of the faculty member who will serve as their thesis director.

with whom the student meets regularly while preparing the thesis or other appropriate project. Students may receive a maximum of six semester hours credit for an honors project or thesis.

The college regularly offers blocks of three or four courses focused on a central theme. This permits students to concentrate on the issues at stake and thus understand them more fully. These course blocks are honors learning communities, where students work together closely and with a master learner and two or three other faculty. Past honors learning communities have focused on symbolism, language, and culture, and the social, economic, scientific, and personal impact of AIDS.

Courses listed in the *Schedule of Classes* as 293 and 492 (Honors Individual Study), 493 (Honors Thesis) and 497 (Honors Colloquium) are reserved for honors students.

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

Honors Transcript Recognition

Lower Division. To receive transcript recognition for lower-division honors work, students must complete 18 semester hours of honors course work in the first 60 semester hours. These 18

hours must include LIA 171–172, The Human Event, and may include ENG 105 and any combination of lower-division General Studies honors courses and upper-division honors courses. Students must also have attained a cumulative ASU grade point average of at least 3.40 (on a 4.00 = A scale).

Graduation from the University Honors College. To receive an honors degree, students must complete either LIA 171–172, or, if they enter the college as transfer students or after completing 45 semester hours of honors course work, LIA 394, and 18 semester hours of upper-division honors courses. The 18 hours of upper-division honors courses must include three to six semester hours of honors thesis work, which may include a research preparation course, and at least six semester hours of honors courses **outside the academic major**, preferably Honors Colloquium. Students must also meet the requirement of their disciplinary college and an academic major and have a cumulative ASU grade point average of at least 3.40 (on a 4.00 = A scale). Except for LIA 171–172, students may not use the same course to satisfy requirements for both lower-division transcript recognition and graduation from the college.



College of Liberal Arts and Sciences

Samuel A. Kirkpatrick, Ph.D.

Dean

Purpose

The College of Liberal Arts and Sciences provides an essential balance between a broad education in the natural sciences, social sciences, and humanities, and a deeper specialization in one or more fields of knowledge. The interests of the college include the preservation, transmission, and expansion of knowledge. At the core of these interests lies the intent of fostering continuous learning and freedom of inquiry, necessary ingredients for personal growth and for achievement in both the public and the private sectors.

The interplay of quality teaching, research, and service is part of the mission of the college to provide an outstanding undergraduate education. The college has a commitment to undergraduate excellence in a variety of ways, including active participation in the Honors Program and comprehensive advisement services related to diverse career patterns or preparation for graduate education and a wide range of professional careers, such as law or medicine.

In addition to caring for its own majors, the college provides the foundations of learning in several core areas for the other undergraduate colleges. In more ways than one, the college stands at the heart of undergraduate education in the university.

Organization

The College of Liberal Arts and Sciences consists of 22 academic departments, several interdisciplinary programs, six centers, and several research institutes and laboratories. There are 33 programs leading to either a Bachelor of Science or a Bachelor of Arts degree. There are also 25 programs leading to a Master of Arts or Master of Science degree and 14 programs leading to a Doctor of Philosophy degree, as well as interdis-

ciplinary graduate programs in cooperation with other colleges.

Admission

Any student who has met the minimum requirements for admission to the university (see pages 28-34) and who wishes to major in a subject offered within the College of Liberal Arts and Sciences, or who is undecided about a major and has fewer than 60 semester hours, will be admitted to the College of Liberal Arts and Sciences.

Any student with a cumulative grade point average of at least 2.00 who is currently registered (in good standing) in another college at Arizona State University and who wishes to major in a subject offered within the College of Liberal Arts and Sciences and follow a program of study in the major may transfer into the college by making application in the Office of Student Academic Affairs, Social Science Building, Room 111.

Transfer Students. The university standards for evaluation of transfer credit are listed under undergraduate admissions (page 32). Transfer students are urged to contact the relevant academic department or the Office of Student Academic Affairs, Social Science 111, to ensure a smooth transition to the College of Liberal Arts and Sciences.

Courses transferred from two-year (community) colleges will not be accepted as upper division credit. Students are urged to choose their community college courses carefully, in view of the fact that a minimum of 50 semester hours of work taken at the university must be upper division credit (see page 81).

Transfer students are urged to seek early confirmation of the remaining general studies, proficiency, and graduation requirements by seeking transfer evaluation by a college advisor in Social Science 111.

Advisement

Regular Advisement. A prospective student who has already selected a major field of specialization will ordinarily be assigned to an advisor selected from the faculty of the department offering that field. Questions relating to the assignment of an advisor should be taken either to the departmental office or to the Coordinator of Advisement, College of Liberal Arts and Sciences, Social Science Building 111. An *Academic Advising Guide for Students* is available for students in the advisement office. Students should examine the calendar for enrollment, adding, dropping, and withdrawing published in the *Schedule of Classes* for each semester.

Advisement for Other Preprofessional Programs. A student who plans to enter one of the baccalaureate degree programs in the College of Liberal Arts and Sciences, and who also plans to pursue postgraduate training in a professional field, will ordinarily be assigned an advisor from the faculty of the department of his/her major field of study. Special advisement is available for students planning to enter the following fields:

Professional Field

- Dentistry*
- Foreign Service
- Health Professions
- Law
- Medicine*
- Ministry
- Occupational Therapy*
- Optometry*
- Osteopathy*
- Pharmacy*
- Physical Therapy*
- Podiatry*

Clearances of admission deficiencies for new students in the college are processed through the University Academic Advisement Center in Matthews Center. The college also works closely with the center in coordinating university wide academic information for any student seeking assistance.

The Office of Student Academic Affairs, located in Social Science Room 111, is the central resource center for academic information in the college. Students are urged to use the college center, the department and the University Academic Advising Center.

Office Where Advisor Is Located

- Pre Health Professions, SS 107
- Department of chosen major
- Pre Health Professions, SS 107
- Student Academic Affairs Office, SS 111
- Pre Health Professions, SS 107
- Department of Philosophy
- Pre Health Professions, SS 107
- Pre Health Professions, SS 107
- Pre Health Professions, SS 107
- Pre Health Professions, SS 107
- Pre Health Professions, SS 107
- Pre Health Professions, SS 107

These professional programs are not majors in themselves; that is, there are no majors called "pre medical," "pre law," etc. In each program the student must eventually select an established major in the College of Liberal Arts and Sciences or in one of the other colleges.

- * Students preparing for a career in these areas should register with the secretary in the Office of Pre Health Professions. No school in the State of Arizona offers a program in dentistry, occupational therapy, optometry, osteopathy or podiatry. Students interested in pursuing these professions should confer with the pre health professions advisor concerning out of state schools where they may complete their training.
- * Students preparing for a career in law should register in Social Science Building 111.

"Undecided" or "Undeclared" Majors.

Students in the College of Liberal Arts and Sciences are not required to select a major upon entering the college as freshmen or at any time thereafter until the semester in which 60 semester hours are earned. Until such students have chosen a major, they will be advised through the University Academic Advising Center in Matthews Center. It is important to consult an academic advisor prior to any enrollment activity. During

the semester in which they earn 60 semester hours, or before, students in consultation with their advisors must select their majors and transfer into the appropriate department. Thereafter, they receive advisement from a faculty advisor in that department. Note: Students who wish to enter a program of study which has a rigidly structured curriculum should be aware that delay in choosing a major initially could result in added time and cost in completion of requirements.

Degrees

Majors. Programs leading to the B.A. and B.S. degrees are offered by the College of Liberal Arts and Sciences, with majors in the following subjects. Each major is administered by the academic department indicated.

Minors. Special minors are available in most departments. Please check department program descriptions for details.

MAJOR FIELD	DEGREE	DEPARTMENT
Anthropology	B.A.	Anthropology
Asian Languages (Chinese/Japanese)	B.A.	Foreign Languages
Biology	B.S.	Botany; Microbiology; Zoology
Botany	B.S.	Botany; Microbiology
Chemistry	B.A., B.S.	Chemistry
Clinical Laboratory Sciences	B.S.	Botany; Microbiology
Computer Science†	(B.S.)	Computer Science
Economics*	B.A., B.S.	Economics
English	(B.A.)	English
Family Resources and Human Development	(B.A., B.S.)	Family Resources and Human Development
French	(B.A.)	Foreign Languages
Geography	(B.A., B.S.)	Geography
Geology	(B.S.)	Geology
German	B.A.	Foreign Languages
History	B.A., B.S.	History
Humanities	(B.A.)	Humanities Program
Interdisciplinary Studies	B.A., B.S.	Interdisciplinary
Italian	(B.A.)	Foreign Languages
Mathematics	B.A., B.S.	Mathematics
Microbiology	(B.S.)	Botany; Microbiology
Philosophy	B.A.	Philosophy
Physical Education	B.S.	Health and Physical Education
Physics	(B.S.)	Physics
Political Science	B.A., B.S.	Political Science
Psychology	B.A., B.S.	Psychology
Religious Studies	B.A.	Religious Studies
Russian	(B.A.)	Foreign Languages
Sociology	(B.A., B.S.)	Sociology
Spanish	(B.A.)	Foreign Languages
Speech and Hearing Science	(B.S.)	Speech and Hearing Science
Wildlife Biology	(B.S.)	Zoology
Women's Studies	(B.A., B.S.)	Women's Studies Program
Zoology	(B.S.)	Zoology

† The Department of Computer Science is located administratively in the College of Engineering and Applied Sciences. The B.S. with a major in Computer Science is offered by both the College of Liberal Arts and Sciences and the College of Engineering and Applied Sciences. Requirements differ according to college; see page 115 and page 334.

* The Department of Economics is located administratively in the College of Business. The baccalaureate degree with a major in Economics is offered by both the College of Liberal Arts and Sciences and the College of Business. Requirements differ according to college; see page 116 and page 230.

Degree Requirements

Course Load. The normal course load is 15-16 semester hours. First-semester freshmen and entering transfer students are not permitted to register for more than 18 semester hours in their initial semester. Other students who wish to register for more than 18 hours must have an average of at least 3.00 and must file a petition in the Student Academic Affairs Office, Social Science 111, prior to registration. Any petition for an overload in excess of 21 hours must be presented to the Standards Committee of the college. Unauthorized excess hours will be removed at random from the student's class list by administrative action.

Credit Requirement. All candidates for graduation in the B.A. and B.S. degree curricula are required to present at least 126 semester hours, of which at least 50 hours must consist of upper division courses. A cumulative grade point index of 2.00 is required for graduation.

English Proficiency Requirement. All students must demonstrate reasonable proficiency in written English. A student who receives a grade of "C" or better in both ENG 101 and 102, or in ENG 105, or in their equivalents, will be presumed to have demonstrated the necessary degree of writing proficiency. Transfer students who believe they have met with university and college English proficiency requirements need to go to Social Science Room 111 to have an advisor evaluate their transfer work. Foreign students whose native language is not English may substitute ENG 107 and 108 for ENG 101 and 102.

Foreign Language Requirement. The College of Liberal Arts and Sciences requires knowledge of one foreign language equivalent to the completion of two years' study at the college level. A student who desires to fulfill the requirement in whole or in part through foreign language study in secondary schools may do so in accordance with the equivalency principles explained under foreign languages placement, page 34. Students who transfer from other colleges with less than two years of credit in a foreign language will be placed in a course at the next level above the work completed.

The foreign language requirement can be met in languages not taught at Arizona State University either by transferring credit from another institution or by passing a proficiency examination. When possible, the Department of Foreign Languages will recommend an appropriate source for such examinations and will proctor them. Grading will be done by the institution that provides the

examination, and the student will pay any costs incurred. The examination can be used only to demonstrate proficiency; it does not produce semester hours.

Students who have received their secondary education from a school where the language of instruction was other than English will be considered to have satisfied the foreign language requirement. Certification of this status will be made at the time of admission to Arizona State University. Questions should be addressed to the foreign credentials evaluator in the Admissions Office.

General Studies Requirements

A well-planned program of study will enable students to articulate university General Studies requirements with the College of Liberal Arts and Sciences graduation requirements.

General Studies courses are regularly reviewed. For specific requirements and to determine whether a course meets one or more General Studies course credit requirements, see the listing of courses by core and awareness area, pages 54-80.

Graduation Requirements

In cooperation with their advisors, students initiate, construct, and take responsibility for filing their own Programs of Studies in accordance with the degree requirements set forth below.

Advisement and academic counseling are available both in academic departments and in the Student Academic Affairs Office of the college or the University Academic Advising Center; however, it is the student's responsibility to be aware of the requirements for a degree program and to plan course selections accordingly, giving due regard to prerequisite courses. Important: See section V of the college graduation requirements (page 100).

To graduate from the College of Liberal Arts and Sciences, a student must satisfy requirements of three kinds: (1) proficiency requirements, which indicate a minimal level of competence in communication, quantitative reasoning, and foreign language; (2) major requirements, which involve concentrated course work in one field, and (3) distribution requirements, which insure that the student is exposed to disciplines outside the major field.

I. Proficiency Requirements. Each student is required to demonstrate proficiency in English, foreign language, and mathematics.

Each student must demonstrate proficiency by passing an examination or by completing the courses specified below with a grade of "C" or better in each course. Courses used to meet a proficiency requirement may not ordinarily be used to satisfy the distribution requirement; the two exceptions are specified below under III.A and III.C.

A. English

1. ENG 101 and 102, or
2. ENG 105, or
3. ENG 107 and 108 for foreign students

B. Foreign Language

1. Completion of a foreign language at the intermediate level (202 or equivalent), or
2. A foreign language course at the 300 level or above taught in the foreign language, or
3. Completion of secondary education at a school in which the language of instruction is not English

C. Mathematics

1. MAT 117, or
2. Any MAT course for which MAT 117 is a prerequisite

II. Major Requirements. Each student is required to select a major from among the fields of study offered by the College of Liberal Arts and Sciences. The requirements for completion of the major are described under departmental listings.

A. The major department may require up to 45 semester hours of course work. The minimum is 30 hours. A maximum of 18 additional hours may be required in related courses, and prerequisites. No more than 63 semester hours of course work may be required to complete the major, related courses and prerequisites. Additionally, three college algebra credits (MAT 117), if required for natural sciences or mathematics majors, are not included in the 63-hour limit. Some departments require calculus level mathematics, up to five of these hours may be excluded from the 63-hour maximum because they satisfy the mathematics proficiency requirement.

B. No credit will be granted toward fulfilling major or minor requirements in any upper division course in the sub-

ject field of the major unless the grade in that course is at least a "C." Normally a "Y" (satisfactory) grade needs confirmation that it is equivalent to a "C" or better.

C. Major fields of study are classified into the following divisions:

Humanities and Fine Arts

Asian Languages (Chinese
Japanese
English
French
German
Humanities
Italian
Philosophy
Religious Studies
Russian
Spanish)

Social and Behavioral Sciences

Anthropology
Economics
Family Resources and Human
Development*
Geography
History
Physical Education*
Political Science
Psychology
Sociology
Speech and Hearing Science*
Women's Studies*

* Students majoring in these fields must satisfy the distribution requirements in all three divisions.

Natural Sciences and Mathematics

Biology
Botany
Chemistry
Clinical Laboratory Sciences
Computer Science
Geology
Mathematics
Microbiology
Physics
Wildlife Biology
Zoology

In addition, the Departments of Aerospace Studies and Military Science offer programs leading to commissions in the armed forces, but they do not offer majors.

D. Interdisciplinary Studies Major. For students who wish to pursue a coherent course of study involving more

than one department, an interdisciplinary studies major is available.

Admission requirements: Completion of 32 semester hours with a grade point average of at least 3.25 and three letters of recommendation from ASU faculty members. Degree requirements include:

1. 18-30 semester hours to meet the core requirements in one discipline, and
2. 15-27 semester hours that complement the disciplinary core

III. Distribution Requirements. The purpose of the distribution requirement is to insure that the student is introduced to a methodology outside the division of the major.

Majors are classified according to division as humanities, social and behavioral sciences, and natural sciences and mathematics. A list of major fields is given above under I.C.

Unless the major field is starred in I.C., students will be considered to have fulfilled the distribution requirement in the division of the major.

Starred major fields. Students majoring in family resources and human development, physical education, speech and hearing science, and women's studies must satisfy distribution requirements in social and behavioral sciences as well as in the other two divisions.

Cross-listed Departments: Students majoring in cross-listed departments (Anthropology, Geography and Psychology) may not use ASM courses in the case of anthropology majors, GPH courses in the case of geography majors, or PSY courses in the case of psychology majors to satisfy the natural sciences and mathematics requirements, nor may respective majors count ASM, GPH or PSY courses toward the social and behavioral sciences distribution requirements.

- A. Humanities and Fine Arts (15 semester hours). Each student is required to complete five courses of at least three semester hours each. Course prefixes are identified below.

At least three of the five courses must be taken in the Departments of English, Foreign Languages, Philosophy and Religious Studies. Two of these must be at the 300 level or above.

Exception: Literature or "civilization" courses (300 level or above) taught in a foreign language may be used to satisfy the humanities distribution requirement, even if they are also used to demonstrate foreign language proficiency.

Course prefixes for the humanities distribution requirement:

- ENG, HUM (English Department: Any course except ENG 101, 102, 105, 107, 108)
 CHI, FLA, FRE, GER, GRK, ITA, JPN, LAT, POR, RUS, SPA (Foreign Language Department: FLA 150 or any literature or "civilization" course at the 300 level or above)
 PHI (Philosophy Department)
 REL (Religious Studies Program)
 APH (College of Architecture and Environmental Design)
 ARS, DAH, MHL, MUS, THE (College of Fine Arts)

- B. Social and Behavioral Sciences (15 semester hours). Each student is required to complete five courses of at least three semester hours each.

Courses used to fulfill the social and behavioral sciences distribution requirement must be taken from at least two departments, but from no more than three departments.

At least two courses must be at the 300 level or above.

Course prefixes for the social and behavioral sciences distribution requirement:

- ASB (Anthropology Department)
 ECN (Economics Department, College of Business)
 GCU (Geography Department)
 HIS (History Department)
 POS (Political Science Department)
 PGS (Psychology Department)
 SOC (Sociology Department)
 WST (Women's Studies Program, WST 100 only)

- C. Natural Sciences and Mathematics (14 semester hours)

Part A (eight semester hours). Two courses (either lecture courses with an included laboratory, or lecture courses with appropriate accompany

ing laboratory) to be taken in the Departments of Botany, Chemistry, Microbiology, Physics or Zoology. See departmental listings.

Part B (six semester hours). Two courses to be taken from the Departments of Anthropology (ASM only), Botany, Chemistry, Computer Science, Geography (GPH only), Geology, Mathematics, Microbiology, Physics, Psychology (PSY only) or Zoology. See departmental listings. Students who completed Part A using courses from only one department may not use courses from that department in Part B.

Exception: Only mathematics courses for which MAT 117 or a higher level mathematics course is a prerequisite can be used to satisfy natural sciences and mathematics distribution requirement. Mathematics courses for which MAT 117 is a prerequisite may be used to satisfy distribution requirement in natural sciences and mathematics, even if they were also used to demonstrate mathematics proficiency.

IV. General Electives. In addition to meeting university General Studies and college graduation requirements, the remainder of the minimum of 126 hours required for graduation are general electives that may be selected from any of the departments of the College of Liberal Arts and Sciences and from the offerings of other colleges.

V. Program of Study. The program of study, which is required by university regulations within the semester students earn their 87th hour, must be filed and approved at least two weeks prior to the preregistration period for the subsequent semester. Students are expected to follow the approved program of study or receive early college approval for proposed changes to the program of study. Students should contact the college Graduation Office, Social Science 111, regarding college graduation rules and deadlines. Deadlines for filing a program of study after enrolling in the 87th hour are March 1, July 1, and October 1 of each year. Students with 87 hours must have a college approved program of study prior to registering for the next semester.

Special Credit Options

All special options including pass fail and audit need the approval of the instructor and the college and should be completed before the end of drop/add.

Pass/Fail Grade Option

- I. The pass fail option is intended to broaden the education of Liberal Arts and Sciences undergraduates by encouraging them to take advanced courses outside their specialization. A mark of "P" contributes to the student's earned hours but does not affect the grade point average. A failing grade is computed into the GPA.
- II. Only Liberal Arts and Sciences students with 60 semester hours may take courses under the pass fail option.
- III. The option may be used under the following conditions:
 1. Enrollment for pass fail must be indicated during registration and may not be changed after the late registration period.
 2. Students may not enroll for pass fail in courses which are:
 - a. taken to satisfy the foreign language or English proficiency requirements,
 - b. in the student's major,
 - c. counted toward or required to supplement the major,
 - d. counted as Independent Study 499,
 - e. taken for Honors credit,
 - f. counted toward satisfying the proficiency and distribution requirements of the college or the university General Studies requirement.
 3. A maximum of 12 hours taken for pass/fail may be counted toward graduation.
- IV. The above option is not available to Liberal Arts and Sciences students for courses offered by other colleges except for courses in economics offered by the College of Business.

Academic Standards

The standards for grade point average (GPA) and the terms of probation, disqualification, reinstatement and appeal are identical with those of the university as set forth on pages 48-50 of this *Catalog*, except that the disqualified student in the College of Liberal Arts and Sciences is sus

pending for at least two regular semesters at the university. Students on probation normally have one semester in which to remove their probation. Readmission of a probationary student who breaks enrollment is not automatic. Disqualified students should contact the Office of Student Academic Affairs, Social Science 111, regarding procedures and guidance for returning to good standing.

Academic discipline is one of the functions of the Office of Student Academic Affairs, Social Science 111. All students who are having academic difficulties of any kind should contact this office. Also available in this office is information on policies and procedures of the college on academic honesty, student grievances with respect to grades, and various petitions regarding college standards and graduation requirements.

Academic honesty is expected of all students in all examinations, papers, academic transactions, and records. The possible sanctions include but are not limited to appropriate grade penalties, loss of registration privileges, disqualification, and dismissal.

Any enrollment in correspondence courses must have prior approval from the college.

Student Responsibilities

Any student enrolling in courses offered by the College of Liberal Arts and Sciences is expected to follow the rules and deadlines specified in the *General Catalog*, the current *Schedule of Classes* and the college's *Academic Advising Guide for Students*. Students are urged to meet with their academic advisor prior to registration and are urged to meet with an advisor in the college of office (Social Science 111) regarding the academic rules of the college and the university.

Special Programs

Honors Program. The College of Liberal Arts and Sciences works closely with the Honors College at the University. The Honors College affords superior undergraduates opportunities for enhanced educational experiences in the major field. For a complete description of the Honors College requirements and opportunities, see the description of the University Honors College in this *Catalog*, pages 91-93.

Interdisciplinary Studies. An interdisciplinary studies major leading to the B.A./B.S. degree provides students of outstanding ability in the humanities, social sciences and natural sciences the opportunity to pursue courses of studies

that cut across departmental boundaries and focus on specific topics or problem areas. For more information about degree requirements, see Section II.D under the college graduation requirements or contact the Office of Student Academic Affairs in the College of Liberal Arts and Sciences, Social Science 111.

Certificate Programs

Asian Studies. The Center for Asian Studies has developed interdisciplinary programs to prepare both undergraduate and graduate students for governmental or private employment or for admission to graduate programs at other institutions.

At the undergraduate level, programs can be devised leading to an emphasis within a major. Examples: History Asian Studies, Anthropology Asian Studies. Any department in the university may, at its discretion, accept an Asian studies component. The goal is to offer programs which, while insuring a rigorous training for students in their chosen field of study, will enable them to relate their discipline to Asian conditions and problems.

The requirements for Asian studies in such an emphasis are 30 semester hours of wholly Asian content courses and knowledge of an Asian language. Fulfillment of requirements will be recognized on the transcript by a bachelor's degree with a major in "(Discipline)—Asian Studies." Contact the director of the Center for Asian Studies for details.

Health Physics. The curriculum of health physics involves work in the College of Liberal Arts and Sciences and in the College of Engineering and Applied Sciences. The purpose of the concentration is to serve undergraduate students who wish to prepare themselves for a career in health physics. To qualify for professional status, a health physicist needs a B.S. degree in one of the physical or life sciences and a group of specialized courses in physics, mathematics, chemistry, engineering and biology or zoology.

A Certificate of Concentration in Health Physics is awarded for the successful completion of a B.S. degree in a physical and life science which follows a prescribed program. Inquiries about the program should be addressed to the Pre-Health Professions Office, Social Science 107, where academic advisement is available.

Jewish Studies. The Jewish studies program is designed to: (1) examine the history and culture of the Jews; (2) provide a model for interdisciplinary teaching and research, (3) generate and fa

facilitate research on Judaism, (4) provide the community with programs, courses and research furthering the understanding of Judaism, and (5) stand as an example of the university's commitment to a program of meaningful ethnic studies on a firm academic base.

The Certificate of Concentration in Jewish Studies may be combined with a major in any college. For information about the program, refer to the Department of History or the Department of Religious Studies.

Latin American Studies. The Latin American area studies program is designed to give students an understanding of public affairs, culture and national trends in Latin American nations and is offered as a combined degree program in cooperation with the Departments of Anthropology, Economics, Geography, History, Political Science and Foreign Languages, as well as the College of Business. In this program the students major in one of the cooperating departments, completing the degree requirements of that particular discipline. At least 30 upper division semester hours of the total program must be in Latin American content courses, 15 hours in the major and 15 hours in other disciplines. A reading knowledge of Spanish or Portuguese is required.

For detailed information about program requirements consult the Office of the Center for Latin American Studies, Social Science 213.

Russian and East European Studies. Any undergraduate major can earn a Certificate in Russian and East European Studies by successfully completing one of the following options: Option One: three years of Russian or two years of Russian and one year of another East European language and 30 upper division semester hours in Russian/East European course work; Option Two: two years of Russian and 36 upper division hours in Russian/East European course work. Fulfillment of these requirements will be recognized on the transcript by a bachelor's degree with a major in "(Discipline) Russian/East European Studies."

For further details consult the coordinator of the Russian and East European Consortium, Department of History.

Southeast Asian Studies. Certificate in Southeast Asian Studies is awarded to any undergraduate student who elects an interdisciplinary focus on southeast Asian studies while simultaneously completing degree requirements in any college in the university. The curriculum involves completion of 36 hours of course work,

including two years of a southeast Asian language; one required interdisciplinary core course; and several elective social science and humanities courses, covering history, geography, cultures, politics, and religions of the region. Further information may be obtained from the Office of the Program for Southeast Asian Studies.

Women's Studies. The curriculum of women's studies involves courses from colleges throughout the university. The program is designed to: (1) examine the central issues of the quality and shape of women's lives; (2) provide a model for interdisciplinary teaching and research; (3) generate and facilitate research on women's experience; (4) provide the university and the community with programs, courses, and research which acknowledge and expand the potential of women; and (5) stand as a visible example of the university's commitment to change in the status of women.

A Certificate of Concentration in Women's Studies will be awarded for the successful completion of either WST 100 or WST 300, plus WST 498 and an additional 15 semester hours from the list of approved women's studies courses, only six hours of which may also be applied toward the student's major.

Inquiries about the program should be addressed to the Women's Studies Office, Social Science 104, where the current list of approved courses is available.

General Information

Research Centers. To expand educational horizons and to enrich curriculum, the College of Liberal Arts and Sciences maintains the following research centers:

- Arizona Center for Medieval and Renaissance Studies
- Cancer Research Institute
- Center for Asian Studies
- Center for Latin American Studies
- Center for Meteorite Studies
- Center for Solid State Science
- Hispanic Research Center

See the *Graduate Catalog* of the university for a description of these research centers.

Aerospace Studies

Air Force ROTC

PROFESSOR:

CARRIGAN MA N 340

ASSISTANT PROFESSORS:

BUTER GU NEY, SWIGERT

Purpose. The Department of Aerospace Studies curriculum consists of the general military course for freshmen and sophomores (GMC AES 101, 102, 201, 202) and the professional officer course for juniors and seniors (POC AES 301, 302, 401, 402). The goal of this professional education is to provide the foundation of military knowledge and skills needed by Air Force junior officers. Upon graduation, each student who satisfactorily completes the professional officer course and degree requirements will receive a commission as a Second Lieutenant in the Air Force Reserve.

General Qualifications. Men or women entering AFROTC must (1) be a citizen of the United States; noncitizens may enroll, but must obtain citizenship prior to commissioning; (2) be of sound physical condition; (3) be at least 17 years of age for scholarship appointment or admittance to the POC. Additionally, scholarship recipients must be able to fulfill commissioning requirements by age 25. If designated for flying training, the student must be able to complete all commissioning requirements prior to age 26; other categories must be able to complete all commissioning requirements prior to age 30.

Four-Year Program (GMC and POC). A formal application is not required for students entering the four-year program. A student may enter the program by simply registering for one of the general military course (GMC) classes at the same time and in the same manner as other courses. GMC students receive two semester hours for each AES 100 and 200 class completed, a total of eight semester hours. GMC students not on AFROTC scholarship incur no military obligation. Each candidate for commissioning must pass an Air Force aptitude test and a physical examination and be selected by a board of Air Force officers. If selected, the student then enrolls in the professional officer course (POC), the last two years of the Air Force ROTC curriculum. Students attend a four-week field training course at an Air Force base normally between the sopho-

more and junior year. Upon successful completion of the POC and the college requirements for a degree, the student is commissioned in the U.S. Air Force as a Second Lieutenant. The new officer then enters active duty or may be granted an educational delay to pursue graduate work.

Two Year Program (POC). The basic requirement for entry into the two-year program is that the student have two academic years of college work remaining, either at the undergraduate or graduate level. Applicants seeking enrollment in the two-year program must pass an Air Force aptitude and medical examination, and be selected by a board of Air Force officers. After successfully completing a six-week field training course at an Air Force base, the applicant may enroll in the professional officer course in the Air Force ROTC program. Upon completion of the POC and the college requirements for a degree, the student is commissioned.

Qualifications for Admittance to the Professional Officer Course (POC). (1) For the four-year student, successfully complete the general military course and the four-week field training course. (2) For the two-year applicant, complete a six-week field training course. (3) Pass the Air Force Officer Qualifying Test (AFOQT). (4) Pass the Air Force physical examination. (5) Maintain the minimum grade point average required by the college.

Pay and Allowances. POC members in their junior and senior years receive \$100 per month for a maximum of 20 months of Professional Officer Course attendance. Students are also paid to attend field training. In addition, uniforms, housing and meals are provided during field training at no cost to the student. Students are reimbursed for travel to and from field training.

Scholarships. Air Force ROTC offers scholarships annually to outstanding young men and women on a nationwide competitive basis. Scholarships cover full college tuition for resident and nonresident students as well as an allowance for books, fees, supplies and equipment, plus a monthly tax-free allowance of \$100. Scholarships are available on a four-, three and a half-, three-, two and a half-, and two-year basis. To qualify for the four-year scholarship, students must be U.S. citizens and submit an application prior to December 1 of their senior year in high school. Interested students should consult their high school counselors or call AFROTC at ASU for application forms to be submitted to HQ, AFROTC, Maxwell AFB, AL., 36112-6663. Male

104 AEROSPACE STUDIES ANTHROPOLOGY

and female students enrolled in AFROTC at Arizona State University are eligible for three and a half, three, two and a half, and two year scholarships. Those interested must apply through the Department of Aerospace Studies. Consideration is given to academic grades, score achieved on the Air Force Officer Qualifying Test and physical fitness. A board of officers considers an applicant's personality, character and leadership potential.

Light Aircraft Training ROTC (LATR). Cadets designated to enter U.S. Air Force Undergraduate Pilot Training after graduation participate in LATR after their junior year in college unless they already have a private pilot's license. Each cadet receives 14 hours of instruction at no expense to the student. This training also includes ground school instruction.

AEROSPACE STUDIES

AES 101 U.S. Air Force Organization. 2 F
Introduction to U.S. Air Force organization, mission, doctrine, offensive and defensive forces. 1 lecture, 1 hour Leadership Practica. Application.

102 Nature of U.S. Air Power. 2 S
Background on strategic mission, defense forces, general purpose and aerospace support forces, national defense. 1 lecture, 1 hour Leadership Practica. Application.

201 Aerospace History to WWII. 2 F
Historical survey of events, trends, and policies leading to the emergence of air power through WW I. 1 lecture, 1 hour Leadership Practica. Application. [Satisfies General Studies Requirements. SB/H]

202 Aerospace History: WWII to Present. 2 S
Development of aerospace power from WW I to the present, emphasizing the impact of modern war and technology on roles and missions. 1 lecture, 1 hour Leadership Practica. Application. [Satisfies General Studies Requirements. SB/H]

301 U.S. Air Force Communication Management and Leadership. 3 F
An integrated management course emphasizing the individual as a manager in an Air Force milieu and individual motivation and behavioral processes. Leadership communication and group dynamics are covered. 2 lectures, 1 hour Leadership Practica. Application. [Satisfies General Studies Requirement. SB]

302 U.S. Air Force Management and Leadership. 3 S
Organization and personal values, management of forces in change, organizational power, political management, strategy and tactics. 2 lectures, 1 hour Leadership Practica. Application. [Satisfies General Studies Requirement. SB]

401 National Security Institutional Policy and Strategy. 3 F
Armed Forces as a technological element of society with emphasis on the broad range of American civil-military relations, principles and techniques of communicative skills, the political, economic and social constraints on the national defense structure. 2 lectures, 1 hour Leadership Practica. Application. [Satisfies General Studies Requirement. SB]

402 Topical and Regional Security Issues. 3 S
Formation and implementation of U.S. defense policies, impact of technology and international developments on strategic preparedness, the overall defense policy-making processes. 2 lectures, 1 hour Leadership Practica. Application. [Satisfies General Studies Requirement. SB]

Anthropology

PROFESSORS:

REDMAN (ANTH A 124), BAHR, CLARK, EDER, FOSTER, GAINES, MARTIN, MERBS, MORRIS, NASH, SCHOENWETTER, STARK, TURNER

ASSOCIATE PROFESSORS:

AGUILAR, BRANDT, CARR, CHANCE, FIRESTONE, KENTIGH, WILLIAMS

ASSISTANT PROFESSORS:

HEDLUND, HUDAK, MARZKE, SPIELMANN, STEADMAN

LECTURER:

WINKELMAN

PROFESSORS EMERITI:

DITERT, RUPPE, STEWART

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

Anthropology. Consists of 45 semester hours of which 36 must be in anthropology and nine in related fields to be approved by the advisor in consultation with the student. Course requirements are distributed as follows: (1) ASB 102 and ASM 101; (2) six hours including one 400 to 500 level course in each of (a) social-cultural anthropology, (b) physical anthropology, (c) archaeology, (3) three hours in each of (a) linguistics, (b) ethnographic area course, (c) archaeology or physical anthropology area course. Three of the nine hours in related fields must be in statistics. Each student's program of study must be approved by the advisor in consultation with the student. At least 18 semester hours must be in upper-division courses. For details see departmental brochure. (See foreign language requirement, page 97.)

Latin American Studies Combined Degree Program. (See Latin American studies, page 102.) Consists of the B.A. requirements in Anthropology. At least 30 upper-division semester hours of the total program must be in Latin American content courses including 15 hours in anthropology and 15 in other disciplines. A reading knowledge of Spanish or Portuguese is re-

quired and a reading knowledge of the other language is suggested. The program must be approved by the Center for Latin American Studies. Fulfillment of requirements is recognized on the transcript as a B.A. degree with a major in Anthropology Latin American Studies.

Departmental Minor Requirements

The Anthropology minor requires 18 semester hours. Two courses, ASB 102 and ASM 101, are required. The other 12 hours must be upper division and represent two of the three subfields of anthropology, with two courses in one subfield.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Social Studies: Anthropology. Consists of 63 semester hours, of which 30 hours must be in the anthropology courses required for the B.A. degree in liberal arts. Of the remaining hours, two groups of 15 hours are to be taken in related social sciences. Psychology or a single natural science may be used as one of the 15 hour fields. SED 480 is taken to provide the remaining three hours.

	<i>Semester Hours</i>
Anthropology	30
Social sciences	15
Social sciences, natural sciences or psychology ...	15
SED 480 Special Methods of Teaching Social Studies	3
Total	63

Departmental Minor Teaching Field Requirements

(Secondary Education)

Anthropology. Consists of 24 semester hours in anthropology. Courses ASB 102, ASM 101, and two upper division courses in each subdisciplinary field (archaeology, physical anthropology, social cultural anthropology) are required.

Departmental Graduate Program

The Department of Anthropology offers programs leading to the M.A. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

ANTHROPOLOGY (ASM)

ASM 101 Human Origins and the Development of Culture. 3) F S

Physical anthropology and archaeology. Evidence and processes of human evolution and of culture change. Primates. Fossil hominids and the tools. Race variation and heredity. Environment and human biology. Prehistoric culture and society. [Satisfies General Studies Requirements SB, H]

241 Biology of Race. 3 F S

Human variation and its interpretation in an evolutionary context.

338 Anthropological Field Session. 2 8) SS

Anthropological field techniques. Analysis of data and preparation of field reports. May be repeated for credit. Prerequisite: instructor approval.

341 Human Osteology. 4 F

Osteology, human paleontology, osteometry. Description and analysis of archaeological and contemporary human populations. 3 lectures, 3 hours lab. Prerequisite: ASM 101 or instructor approval.

342 Human Biological Variation. 4 S

Evolutionary interpretations of biological variation in living human populations with emphasis on anthropological genetics and adaptation. Nutrition and disease and the relation to genetics and behavior. 3 lectures. 3 hours lab. Prerequisites: ASM 101, MAT 106 or equivalent or instructor approval. [Satisfies General Studies Requirement S2]

343 Primatology. 3 F

Evolution and adaptations of nonhuman primates. Emphasis on social behavior. Includes material from fossil evidence and field and laboratory studies in behavior and biology. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement H]

344 Fossil Hominids. 3 N

Ancient African, Asian and European human and primate skeletal, dental and cultural remains. Human biology, behavior and cultural evolution. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirements, SB, H]

345 Disease and Human Evolution. 3 F

Interaction of people and pathogens from prehistoric times to the present with emphasis on disease as an agent of genetic selection. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement H]

346 Human Origins. 3 S

Humanity's place in nature. Fossil, historic and recent concepts of human races. Influence of culture on human evolution. [Satisfies General Studies Requirement H]

348 Social Issues in Human Genetics. 3 S

Moral and social implications of developments in genetic science, particularly as they affect reproduction, medicine and evolution. [Satisfies General Studies Requirement, SB]

365 Laboratory Methods in Archaeology. 4 N

Techniques of artifact analysis. Basic archaeological research techniques. Methods of report writing. May be repeated for credit for total of 8 hours. Prerequisite: ASM 101 or instructor approval.

435 Archaeological Pollen Analysis. 3 F

Theory, methodology and practice of pollen analytical techniques. Compares uses in botany, geology and archaeology. 2 lectures. 3 hours lab. Possible field trips. Prerequisite: instructor approval.

106 ANTHROPOLOGY

450 Bioarchaeology. 3 S

Surveys archaeology and physical anthropology methods and theories for evaluating skeletal and burials remains to reconstruct biological adaptation and lifeways
Prerequisite: ASM 101 or instructor approval

452 Dental Anthropology. 4 F

Human and primate dental morphology growth evolution and genetics Within and between group variation Dental pathology and behavioral dietary factors Features 3 hours ab Prerequisite: instructor approval [Satisfies General Studies Requirement S2]

454 Comparative Primate Anatomy. 4 S

Functional anatomy of the crania, teeth and locomotor apparatus of primates including humans emphasizing the relationship of morphology to behavior and environment Lectures and dissections and demonstrations 3 lectures 3 hours ab Prerequisite: instructor approval

455 Primate Behavior or Laboratory. 3 N

Instruction and practice in methods of observation and analysis of primate behavior Discussion of the relationship between classwork and captive animals and field techniques for studying free ranging groups Directed readings and 6 hours ab Prerequisites: ASM 343 instructor approval [Satisfies General Studies Requirement L2]

465 Quantification and Analysis for Anthropologists. 3 S

Statistical, quantitative, and geometric strategies for environmental and experimental archaeology physical anthropology bioarchaeology and sociocultural data Univariate and multivariate methods Prerequisites: introductory statistics course and instructor approval

472 Archaeological Ceramics. 3 N

Analysis and classification of pottery wares types and varieties Systems for ceramic classification and cultural interpretation 2 lectures 3 hours ab Prerequisite: instructor approval

494 Special Topics: Roles in Computer Anthropology. 3 S

[Satisfies General Studies Requirement N3]

555 Advanced Human Osteology. 3 N

Laboratory and field techniques dealing with the human skeleton Emphasis on preparation identification, radiography sectioning microscopy and data processing 1 lecture 6 hours ab Prerequisite: ASM 341 or instructor approval

565 Computer Archaeology. 3 F

Methods of structuring and coding archaeological data sets both management and manipulation techniques stressed Review of computer applications of archaeology databases Design of individual research project utilizing a mainframe computer

566 Advanced Computer Applications. 3 S

Advanced applications utilizing a variety of software packages for managing and manipulating large data sets Graphic techniques are emphasized as research aids Prerequisite: ASM 565 or instructor approval

573 Lithic Analysis. 3 N

Analysis and interpretation of chipped stone artifacts Focus on both techniques and underlying concepts and the application to reconstructions Prerequisite: instructor approval

591 Seminar. 3 N

Selected topics in archaeology and physical anthropology
a Physical Anthropology
b Primates and Behavior
c Advanced Computer Applications in Archaeology
d Evolution and Culture
Cross listed as ASB 591
e Interdepartmental Seminar
Cross listed as ASB 591

Special Courses: ASM 294 298 394 484, 492 493 494 497, 498 499 500 580 583 584 590, 591 592 593 594 598 599 600 680 683 684 690, 691 692, 693 700 780 783 784 790 791 792 799 See pages 43-44

ANTHROPOLOGY (ASB)

ASB 102 Introduction to Cultural and Social Anthropology. 3 F S

Principles of cultural and social anthropology with illustrative materials from a variety of cultures The nature of culture Socio-political and economic systems regions aesthetics and language [Satisfies General Studies Requirements SB G]

210 Sex, Marriage and Evolution. 3 F

Examination of the sexual nature and behavior of humans from both a biological and anthropological point of view

211 Women in Other Cultures. 3 N

Cross-cultural analysis of the economic socio-political and religious factors that affect women's status in traditional and modern societies [Satisfies General Studies Requirement G]

222 Buried Cities and Lost Tribes: Our Human Heritage. 3 S

Archaeology through its most important discoveries Human origins Pompey King Tut, the Holy Land, Southwest Indians and methods of field archaeology [Satisfies General Studies Requirement HU]

231 Archaeological Field Methods. 4 S

Excavation of archaeological sites and recording and interpretation of data Includes on-campus field experience 2 lectures 8 hours ab Prerequisite: ASM 101 or instructor approval [Satisfies General Studies Requirement S2]

294 Special Topics: Introduction to Southeast Asia. 3 N

[Satisfies General Studies Requirement G]

311 Principles of Social Anthropology. 3 S

Comparative analysis of domestic groups and economic and political organizations in primitive and peasant societies [Satisfies General Studies Requirement SB]

314 Comparative Religion. 3 F S

Origins elements forms and symbolism of religion a comparative survey of religious beliefs and ceremonies the place of religion in the total culture Prerequisite: ASB 102 or instructor approval

319 The North American Indian. 3 A

Archaeology ethnology and linguistics relationship of the Indians of North America Does not include Middle America Prerequisite: ASB 102 or instructor approval

320 Indians of Arizona. 3 F

The traditional cultures and the development and nature of contemporary political economic and educational conditions among Arizona Indians

321 Indians of the Southwest. (3 S)

Cultures of the contemporary Indians of the Southwestern United States and their historic antecedents. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirements SB H]

322 Indians of Mesoamerica. (3 S)

Historic tribes and folk cultures. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirement G]

324 Peoples of the Pacific. (3 N)

Peoples and cultures of Oceania with a focus on particularly on societies of Melanesia, Micronesia and Polynesia. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirement G]

325 Peoples of Southeast Asia. (3 F)

A cultural ecological perspective on the peoples of mainland and insular Southeast Asia. Subsistence modes, social organization and the impact of modernization. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirement G]

330 Principles of Archaeology. (3 F)

Prehistoric societies. Survey of dating methods, field techniques and artifact inventory. Geographic, climatic and geologic relationships. [Satisfies General Studies Requirement SB]

331 Old World Prehistory I. (3 F)

Development of peoples as biosocial animals in the Pleistocene, emphasizing technological achievements and focusing upon the relationship between technology and environment. Areas include western Europe, sub-Saharan Africa and western Asia. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement H]

332 Old World Prehistory II. (3 S)

Transition from hunting and collecting societies to domesticated economies; establishment of settled village life emphasizing the Near East, Egypt, southwest Europe. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement H]

333 New World Prehistory. (3 S)

The variety of archaeological patterns encountered in the Western Hemisphere. Covers the period from the appearance of humans in the New World to European contact, covers the area from Alaska to Tierra del Fuego. [Satisfies General Studies Requirements: L2, SB H]

334 Arctic Anthropology. (3 S)

Past and present Arctic Eskimo prehistory, organic physical features, adaptations, variation and culture with comparisons of Asian Arctic populations. Prerequisite: ASB 101 or instructor approval. [Satisfies General Studies Requirement G]

335 Southwestern Anthropology. (3 N)

Past cultures in the Southwest and their relationship to present peoples using archaeological, ethnological and linguistic evidences. Environmental and resource utilization from earliest times to the present. [Satisfies General Studies Requirements. SB H]

337 Pre-Hispanic Civilization of Middle America. (3 S)

Pre-conquest cultures and civilizations of Mexico. The Aztecs, Mayas and their predecessors. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement. H]

338 Archaeology of North America. (3 N)

Origin, spread and development of the prehistoric Indians of North America up to the historic tribes. Does not include

the Southwest. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement H]

350 Anthropology and Art. (3 A)

Art forms of people in relationship to their social and cultural setting. Prerequisite: ASB 102 or instructor approval.

351 Psychological Anthropology. (3 S)

Approaches to the interactions between the personality system and the sociocultural environment. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirement SB]

353 Death and Dying in Cross-Cultural Perspective. (3 S)

Humanistic and scientific study of aging, sickness, dying, death, funerals, grief, the philosophy and ecology in non-Western and Western cultures.

383 Linguistic Theory: Phonetics and Phonology. (4 F)

Basic articulatory phonetics and contemporary theories of the sound system of language. 3 hours lecture, 1 hour lab. [Satisfies General Studies Requirement SB]

411 Kinship and Social Organization. (3 S)

Meanings and uses of concepts referring to kinship, consanguinity, affinity, descent, alliance and residence in the context of a survey of the varieties of social groups, marriage rules and kinship terminology systems. Prerequisite: 6 hours of anthropology or instructor approval.

412 History of Anthropology. (3 F)

Historical treatment of the development of the culture concept and its expression in the chief theoretical trends in anthropology between 1860 and 1950. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirements L2 SB]

416 Economic Anthropology. (3 F)

Economic behavior and the economy in pre-industrial societies: description and classification of exchange systems, relations between production-exchange systems and other societal sub-systems. Prerequisite: ASB 102 or instructor approval.

417 Political Anthropology. (3 A)

Comparative examination of the forms and processes of political organization and activity in primitive, peasant and complex societies. Prerequisite: ASB 102 or instructor approval.

426 Historical Archaeology. (3 N)

Principles, techniques and important sites. Use of ethnography, laboratory techniques and artifact analysis. Discusses on value to historical understanding. Prerequisite: one course in archaeology or instructor approval.

471 Introduction to Museums. (3 F)

History, philosophy and current status of museums. Exploration of collecting, preservation, exhibition, education and research activities in different types of museums. Prerequisites: ASB 102, ASM 101, or instructor approval.

480 Introduction to Linguistics. (3 F)

Descriptive and historical linguistics. Survey of theories of human language emphasizing synchronic linguistics. [Satisfies General Studies Requirement SB]

481 Language and Culture. (3 S)

Application of linguistic theories and findings to non-linguistic aspects of culture: language change; psycholinguistics. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirement SB]

108 ANTHROPOLOGY

483 Sociolinguistics and the Ethnography of Communication. 3 N

Relationship between linguistic and social categories function analysis of language use maintenance and diversity; interaction between verbal and nonverbal communication Prerequisites ASB 480 ENG 213 or FLA 400 or instructor approval. [Satisfies General Studies Requirement SB]

530 Ecological Anthropology. 3 A

Relations among the population dynamics social organization culture and environment of human populations, with special emphasis on hunter-gatherers and extensive agriculturalists

532 Graduate Field Anthropology. 2–8 S

Independent research on a specific anthropological problem to be selected by the student in consultation with the staff. May be repeated for credit Prerequisites ASM 338 or equivalent, instructor approval

535 Public Archaeology. 4 N

Theoretical and practical applications of cultural resources registration and policy. Legal and administrative requirements conservation development and management of cultural resources CRM research design formulation. Seminar and fieldwork Prerequisites regular graduate student standing 12 completed graduate hours in archaeology, instructor approval

537 Topics in Mesoamerican Archaeology. 3 N

Changing organization of pre-Columbian civilizations in Mesoamerica explored through interpretive issues, such as regional analysis, chiefdoms urbanism, and exchange. Prerequisite instructor approval

540 Method and Theory of Social and Cultural Anthropology. 3 F

Development and theoretical basis of social and cultural anthropology placed in the context of science in general and social science in particular Prerequisite instructor approval

541 Method and Theory of Social and Cultural Anthropology. 3 S

Continuation of ASB 540 Prerequisite ASB 540 or instructor approval

542 Method and Theory of Archaeology. 3 F

Development and theoretical basis of archaeology Rationales and methods of reconstruction of past human behavior from archaeological data Prerequisite instructor approval

543 Method and Theory of Archaeology. 3 S

Continuation of ASB 542 Prerequisite ASB 542 or instructor approval

544 Settlement Patterns. 3 N

Spatial arrangement of residences activities and communities over landscape Emphasis on natural and cultural factors influencing settlement patterns Prerequisite instructor approval

546 Pleistocene Prehistory. 3 F

Development of society and culture in the Old World during the Pleistocene epoch, emphasizing technological change through time and the relationship of people to the environment Prerequisite ASB 331 or equivalent

547 Rise of Urban Life. 3 S

Focus on the archaeological evidence in the Old World for the transition from subsistence economies dependent upon hunting and gathering to those dependent upon do-

meesticated plants and/or animals impact of this shift in subsistence on local groups and on sedentism in both "nuclear" and nonnuclear areas Prerequisite ASB 332 or equivalent

571 Museum Principles. 3 F

History philosophy and current status of museums. Exploration of collecting preservation exhibition, education, and research activities in different types of museums Prerequisites ASB 102, ASM 101, or instructor approval

572 Museum Collection Management. 3 S

Principles and practices of acquisition, documentation care and use of museum collections registration, cataloging, preservation methods legal and ethical issues Prerequisite ASB 571 or instructor approval

573 Museum Administration. 3 S

Formal organization and management of museums governance, personnel matters fundraising and grantsmanship legal and ethical issues. Prerequisite ASB 571 or instructor approval

574 Exhibition Planning and Design. 3 S

Exhibition philosophies and development processes of planning, design staging installation evaluating and disassembling temporary and long-term exhibits. Prerequisites ASB 571 572 or instructor approval

575 Computers and Museums. 3 F

Basics of museum computer application hardware and software, fundamentals of database management, issues of research, collections management and administration

577 Principles of Conservation. (3 S

Preservation of museum objects: nature of materials environmental controls, causes of degradation recognizing problems damage and solutions, proper care of objects Prerequisites ASB 571 572, or instructor approval

582 Linguistic Theory: Syntax. 3 N

Contemporary theories of the grammatical structure of languages Prerequisite ASB 480 FLA 400 or instructor approval

583 Linguistic Theory: Phonological Systems. 3 F

Origins and development of contemporary phonological systems with particular attention to non-Western languages Prerequisite ASB 480 FLA 400 or instructor approval

591 Seminar. 3 N

Selected topics in archaeology linguistics and social/cultural anthropology

a Cultural Anthropology

b Social Anthropology

c Problems in Southwestern Ethnology

d Culture and Personality

e Linguistics

f Museology

g Problems in Southwestern Archaeology

h Archaeology

i Evolution and Culture

 Cross-listed as ASM 591

j Interdepartmental Seminar

 Cross-listed as ASM 591

Special Courses: ASB 294, 298, 394, 484 492 493, 494 497 498 499 500, 580 583 584 590, 591 592 593 594 598 599 600 680 683 684 690, 691 692, 693 700 780 783 784 790 791 792 799 (See pages 43–44)

Biological Sciences

The following curricula are offered jointly by the Department of Botany and the Department of Zoology. Students who elect one of these programs are advised by a member of the Botany Department or by a member of the Zoology Department.

Bachelor of Science Degree Curriculum

Biology. This major serves students desiring a broader program in the biological sciences than that provided by the more specialized majors in the degree programs of the individual departments. The major consists of 43 hours and 20 hours in supplementary areas, plus a mathematics proficiency. Required major courses (31 hours are BIO 181, 182, 320, 340; BOT 300, 360 (or ZOL 360); MIC 205 (or 220), 206; ZOL 350. The remaining 12 hours are to be selected so that the total major hours reflect a balance between the two departments. Required supplementary courses are CHM 113, 115, 231 or 331, 332, 335, 336), CSC 181 (or 183); MAT 210 or any calculus; and PHY 101 (or 111, 112, 113, 114).

Bachelor of Arts in Education Degree Curriculum

Departmental Major Teaching Field Requirements

(Secondary Education)

Biological Sciences. This major consists of a minimum of 42 semester hours, plus at least nine hours in supporting courses. Required major courses are BIO 181, 182, 320, 340; BOT 300 (or 370), 360; MIC 205 (or 220), 206; ZOL 350, 360. The remaining courses in the major (seven hours minimum) must include one from each of the two departments. Required supporting courses are CHM 113, 115. BIO 480 is required in the professional education program.

Departmental Minor Teaching Field Requirements

(Secondary Education)

Biological Sciences. Consists of 24 semester hours as follows: BIO 181, 182, 340; MIC 205 (or 220, 206; and eight additional hours in courses listed under biology, botany, microbiology and zoology, with the *exception* of the fol-

lowing: BIO 100, 218; BOT 108; ZOL 113, 300, 318. Supporting course: BIO 480 is required in addition to the 24 hours credit in biological sciences.

BIOLOGY

BIO 100 The Living World. 4 F, S

Principles of biology. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab. [Satisfies General Studies Requirements S1 S2]

181 General Biology. 4 F, S

Biological concepts emphasizing fundamental principles and the interplay of structure and function at the molecular, cellular, organismal and population levels of organization. 3 hours lecture, 3 hours lab. For majors in biological sciences and preprofessional students in health-related sciences. Secondary school chemistry strongly recommended. [Satisfies General Studies Requirement S1 or S2]

182 General Biology. 4 F, S

Continuation of BIO 181. Prerequisite: BIO 181. Secondary school chemistry strongly recommended. [Satisfies General Studies Requirement S2]

217 Introduction to Fisheries and Wildlife Management. 3 F

Management of fisheries and terrestrial wildlife emphasizing management of ecosystems. Designed for prospective wildlife biologists. Prerequisite: 8 hours of biology.

218 Medical History. 1 F

Brief survey of human and important inventions and discoveries in the art and science of medicine, illustrating their terrestrial consequences.

300 Natural History of Arizona. 3 F, S

Plant and animal communities of Arizona. Cannot be used for major credit in the biological sciences. Prerequisite: junior or standing.

301 Field Natural History. 1 F, S

Organisms and their natural environment. 2 weekend field trips and a field project. Cannot be used for major credit in the biological sciences. Prerequisite: BIO 300.

310 Special Problems and Techniques. 1-3 F, S

Qualified undergraduates may investigate a specific biological problem under the direction of a faculty member. May be repeated for a total of 6 semester hours. Prerequisite: formal conference with the instructor approval of the problem by the instructor and departmental chair.

320 Fundamentals of Ecology. 3 F, S

Organization, functioning and development of ecological systems: energy flow, biogeochemical cycling, environmental interactions, population dynamics. Prerequisite: BIO 182 or instructor approval.

330 Ecology and Conservation. 3 F

Ecological and biological concepts of conservation used to understand man-made ecological problems. Cannot be used for major credit in the biological sciences. [Satisfies General Studies Requirement G]

332 Cell Biology. 3 F

Survey of major topics in cell biology including structure, biochemistry and molecular aspects of cell function. Prerequisite: BIO 182.

340 General Genetics. 4 F, S, SS

Science of heredity and variation. 3 hours lecture, 1 hour recitation. Prerequisite: BIO 182.

110 BIOLOGICAL SCIENCES / BOTANY

415 Biometry. 4 F

Statistical methods applied to biological problems design of experiments estimation of significance, analysis of variance regression correlation chi square and bioassay the use of computers Does not satisfy laboratory requirements for the liberal arts General Studies program 3 hours lecture 3 hours lab Prerequisite: MAT 210 or equivalent [Satisfies General Studies Requirement, N2]

420 Computer Applications in Biology. 3 F

Computer analysis techniques in biology emphasizing data entry management and analysis and graphic portrayal Employs mainframe and microcomputers Prerequisites: BIO 182, MAT 117, 118 or instructor approval [Satisfies General Studies Requirement, N3]

426 Limnology. 4 S

Structure and function of aquatic ecosystems with emphasis on freshwater lakes and streams 3 lectures 3 hours lab or field trip Prerequisite: BIO 320 or instructor approval

428 Biogeography. 3 F

Environmental and historical processes determining distribution patterns of animals and plants emphasizing terrestrial life Prerequisites: BIO 182 or equivalent, junior standing

430 Advanced Developmental Biology. 3 S

Current concepts and experimental methods involving differentiation and biosynthetic activities of cells and organisms with examples from microorganisms, plants, and animals Prerequisite: ZOL 330

432 Biochemical Cytology. (3) S

Eukaryotic cell functions as effected by intracellular compartmentation Emphasis on the application of electron microscopic analyses cell fraction and selected biochemical procedures Prerequisites: BIO 332 or BOT 360 or ZOL 360 or equivalent, CHM 231 or 331 or equivalent.

435 Biomembranes. 3 N

Structure and function of biological membranes emphasizing synthesis fluidity, exocytosis endocytosis and cell responses to hormones and neurotransmitters Prerequisites: BIO 332 or equivalent CHM 231 or 331 or equivalent

441 Cytogenetics. (3) F 90

Chromosomal inheritance Prerequisite: BIO 340

442 Cytogenetics Laboratory. 2 F 90

Microscopic analysis of meiosis mitosis and aberrant cell division 6 hours lab Pre- or corequisite: BIO 441

443 Molecular Genetics. 3 F

Nature and function of the gene Prerequisites: BIO 340 a course in organic chemistry

445 Organic Evolution. 3 F

Processes of adaptive change and speciation in sexual populations Prerequisite: BIO 340 or ZOL 241 [Satisfies General Studies Requirement, L2]

464 Photobiology. 3 S

Principles underlying the effects of light on growth development and behavior of plants, animals and microorganisms Prerequisites: 12 hours of courses in life sciences CHM 231 or 331.

480 Methods of Teaching Biology. 3 S

Methods of instruction experimentation, organization and presentation of appropriate content in biology 2 lectures, 3 hours lab. Prerequisite: 20 hours in the biological sciences

512 Transmission Electron Microscopy. 4 F S

Theory, use and methods of preparing biological materials for transmission electron microscopy Materials fee 2 lectures 6 hours lab Prerequisite: instructor approval

515 Scanning Electron Microscopy. 2 SS

Theory and use of scanning electron microscope for biological materials intensive five week minimum course Materials fee 3 hours lecture 6 hours lab Prerequisite: instructor approval

520 Biology of the Desert. 2 N

Factors affecting plant and animal life in the desert regions and adaptations of the organisms to these factors Prerequisite: 10 hours of biological sciences or instructor approval

524 Ecosystems. 3 F '89

Structure and function of terrestrial and aquatic ecosystems, with emphasis on productivity, energetics biogeochemical cycling and systems integration Prerequisite: BIO 320 or equivalent

526 Quantitative Ecology. 3 N

Sampling strategies spatial pattern analysis species diversity classification and applications of multivariate techniques to ecology 2 lectures 3 hours lab Prerequisites: one course in ecology, BIO 415 or equivalent

529 Advanced Limnology. 3 N

Recent literature, developments, methods and micrographic theory field and laboratory application to some particular topic in limnology Prerequisite: BIO 426

Special Courses: BIO 294, 394 484 492 493 494 497 498 499 590 591 592 598, 599 See pages 43-44.

Botany

PROFESSORS:

SOMMERFELD (LS C-210) ARONSON,
BACKHAUS, NASH PATTEN,
PINKAVA, TRELEASE

ASSOCIATE PROFESSORS:

CLARK, KLOPATEK, STUTZ, SZAREK, TOW LL

ASSISTANT PROFESSORS:

NIEMIARA PIGG SWAFFORD VERMAAS

PROFESSOR EMERITUS:

CANRIGHT

Departmental Major Requirements

Bachelor of Science Degree Curriculum

Botany. Consists of a minimum of 41 semester hours in botany and approved related fields, and a minimum of 22 semester hours in supplemental courses. Required courses are BIO 181, 182, 320, 340, 420; BOT 350, 360, 370; MIC 205 (or 220), 206; and at least one of the following: BOT 410, 434 or 450, and laboratory or field experience in the form of BIO 310 or BOT 499 (three semester hours). Required supplementary courses CHM 113, 115 and 231, 361 or the sequence 331, 332, 335 and 336; MAT 210; STP 420 or BIO 415

Departmental Graduate Programs

The Department of Botany offers programs leading to the degrees of Master of Natural Science, Master of Science, and Doctor of Philosophy. Consult the *Graduate Catalog* for requirements.

BOTANY

- BOT 108 Plants and Society.** 4 F S SS
The study of plants in relation to human affairs. Emphasis on edible, medicinal, and commercially significant plants, how they live and grow and how mankind has applied knowledge to manipulate them. Not for majors in the biological sciences. 3 lectures, 3 hours. ab. [Satisfies General Studies Requirements S1, S2]
- 300 Survey of the Plant Kingdom.** 4 F
Systematic and evolutionary survey of the plant kingdom emphasizing diversity of gross and cellular structure, reproduction, life cycles and habitat. 3 hours lecture, 3 hours ab. Prerequisite: one of the following: BIO 100, 182, BOT 108, ZOL 110 or equivalent. [Satisfies General Studies Requirement S2]
- 301 Economic Botany.** 3 F
Plants and plant products used by man throughout the world including the cultivation, processing and uses in modern life. Fibers, medicinal, beverages, perfumes, foods. Prerequisite: BIO 100 or equivalent.
- 350 Plant Anatomy.** 4 F
Development and mature structure of tissues of vascular plants; patterns and modifications of leaf, stem, root and flower. 3 lectures, 3 hours ab. Prerequisite: BIO 182 or equivalent.
- 360 Plant Physiology.** 4 F, S
Plant growth and development, nutrition, water relations, reproduction, metabolism and photosynthesis. 3 lectures, 3 hours ab. Prerequisites: BIO 182 or equivalent, CHM 115.
- 370 The Flora of Arizona.** 4 S
Principles of taxonomy, identification of Arizona plants. 2 lectures, 6 hours ab. Prerequisite: BIO 182 or equivalent, or instructor approval.
- 410 Lichenology.** 3 F '90
Chemistry, ecology, physiology and taxonomy of lichens. 2 lectures, 3 hours ab. Prerequisite: BIO 182 or equivalent.
- 420 Plant Ecology.** 4 S
Plants in relation to environments. 3 lectures, 3 hours ab or field trip. 1 weekend field trip. Prerequisite: BIO 320 or equivalent.
- 425 Plant Geography.** 3 F 90
Plant communities of the world and their interpretation, emphasizing North American plant associations. Prerequisite: BIO 182 or equivalent or instructor approval.
- 434 General Mycology.** 3 F 90
Various groups of fungi, their morphology, identification procedures and economic significance. 2 lectures, 3 hours ab. Prerequisite: BIO 182 or equivalent, or MC 2 6.
- 445 Morphology of the Vascular Plants.** 4 N
Comparative form and evolutionary trends in the major groups of vascular plants. 3 lectures, 3 hours ab. Prerequisite: BOT 300 or equivalent.
- 448 Palynology.** 2 N
Importance of spores and pollen, both fossil and modern to systematics, evolutionary ecology and stratigraphy. Prerequisite: instructor approval.

- 450 Phycology.** 4 S
The algae, both freshwater and marine forms, emphasizing field collection and identification of local representatives. Morphology, ecology and economic aspects of the algae. 3 lectures, 3 hours ab. Prerequisite: BIO 182 or instructor approval.
- 461 Physiology of Lower Plants.** 3 N
Cellular physiology and biochemistry of algae and fungal responses of these organisms to chemical and physical stimuli and their process of morphogenesis. Prerequisites: BIO 182 or equivalent, CHM 231.
- 470 Taxonomy of Southwestern Vascular Plants.** 4 SS
Identification of the vascular plants of the Southwest and the principles underlying their classification. 3 lectures, 6 hours ab. 2 field trips. Not open to students who have had BOT 370.
- 475 Angiosperm Taxonomy.** 3 S 89
Principles underlying angiosperm phylogeny. 2 lectures, 3 hours ab. Prerequisite: BOT 370 or instructor approval.
- 480 Plants, Pleasures and Poisons.** 3 SS
Poisonous medicinal and the drug plants. Plant products and their effects on man: historical and modern perspectives. Prerequisites: BIO 100, 182, BOT 108 or equivalent, CHM 231 or equivalent.
- 490 Paleobotany.** 4 S 90
A broad survey of plant life of the past, including the structure of plant fossils, their geobotanical, geographical distribution and paleoenvironment. 3 lectures, 3 hours ab or field trip. Prerequisite: BIO 182 or equivalent.
- 510 Experimental Design.** 3 S 90
ANOVAS, one-way classification, factorial and partial hierarchical designs, introductory multivariate statistics. One 3-hour lecture at night. Prerequisite: BIO 415 or equivalent.
- 520 Biophysical Ecology.** 2 F 90
Principles of physical microenvironments and effects on plant growth. Analytical methods used in the study of energy exchange and soil-plant-atmosphere-water relations. Prerequisite: BIO 320 or equivalent.
- 525 Ecophysiology.** 3 F 89
Physiology of adaptation to environmental stress and its ecological significance for plant survival. Environmental and biological control of photosynthesis and transpiration. Prerequisite: BOT 360 or instructor approval.
- 564 Plant Metabolism.** 3 F 89
General plant metabolism and typical plant products, emphasizing biosynthesis and functions of storage products, cell wall constituents, plant pigments, hormones, and numerous secondary products. Prerequisites: BOT 360, CHM 231 or instructor approval.
- 570 Plant Secondary Chemistry.** 3 F 89
Biosynthesis and distribution of plant natural products within various plant taxa. 3 lectures. Prerequisites: CHM 331, 332 or equivalent.
- 591 Seminar.** 1 F S
Topics may be selected from the following:
a) Biosystematics
b) Nonvascular Plants Protists
c) Ecology
d) Plant Physiology
- Special Courses:** BOT 294, 394, 484, 492, 493, 494, 499, 498, 499, 500, 590, 591, 592, 598, 599, 700, 790, 791, 792, 799. See pages 43-44.

Chemistry

REGENTS' PROFESSORS:

EYRING LIN, C. MOORE

PROFESSORS:

GLAUNSENGER (PS D 102), ANGELL, B. EBER, BARK, BLANKENSHIP, T. BROWN, BUSECK, CRONIN, FUCHS, GUST, HARRIS, HOLLOWAY, JUVET, LIU, T. MOORE, MUNK, O'KEEFE, PETTIT, WAGNER, W. H. TEHURST, WILLIAMS, YUEN, ZASLOW

ASSOCIATE PROFESSORS:

BALASUBRAMANIAN, LOHR, McMILLAN, PETUSKEY, ROSE, SKIBO

ASSISTANT PROFESSORS:

STEMLE, WOLF, WOODBURY, ZIURYS

PROFESSORS EMERITI:

D. BROWN, BURGOYNE, BURKE, LUCHSINGER, MOELLER, SANDERSON, STUTSMAN, THOMSON

Departmental Major Requirements**Bachelor of Arts Degree Curriculum**

Chemistry. Consists of 45 semester hours, of which 30 must be in chemistry and 15 in closely related fields. Required courses are: CHM 113, 115 (117, 118 strongly recommended for qualified students), 225, 226, 331, 332, 335, 336 (317, 318, 319, 320 strongly recommended for qualified students), and 341, 343, 453. Related courses must include MAT 117, 118, 210 or equivalent; PHY 111, 112, 113, 114; or more advanced courses. The remaining courses to complete the major will be determined by students in consultation with their advisors.

Bachelor of Science Degree Curriculum

Chemistry. Consists of 42 semester hours in chemistry. Required courses are: CHM 113, 115 (117, 118 strongly recommended for qualified students), 331, 332, 335, 336 (317, 318, 319, 320 strongly recommended for qualified students), 425, 426, 427, 428 (or 225, 226, 421, 422), 441, 442, 444 and 453. In addition, MAT 290, 291 (or 270, 271, 272); PHY 121, 122, 131, 132, 241, MAT 274 and an appropriate course in computer language (CSC 181 or CSC 183) are strongly recommended. The remaining chemistry courses to complete the major will be determined by the student in consultation with an advisor. With the consent of the department chair, selected ad-

vanced courses from other related scientific disciplines may be accepted in lieu of elective chemistry courses to complete the major.

Transfer students will be interviewed and advised of possible preparatory work. They must contact the department to arrange for the interview in advance of registration. (See degree requirements, page 97.)

American Chemical Society Certification. A student who satisfactorily completes the Bachelor of Science degree program will be certified by the Department of Chemistry to the American Chemical Society as having met the specific requirements for undergraduate professional training in chemistry. Graduates meeting ACS guidelines can receive a certificate to indicate this fact.

Chemistry Exchange Program. Selected students during their junior year, in either the B.A. or B.S. program, have the opportunity to participate in a chemistry exchange program with the Fédération Universitaire et Polytechnique de Lille in France. In order to qualify for this program, the student must have a working knowledge of French, and for this purpose, two years of French or the equivalent is recommended. Students who wish to participate in this program are advised to begin or continue study of French in the freshman year.

Departmental Major Teaching Field Requirements**Bachelor of Arts in Education Degree**

Chemistry. Option One. Consists of 46 semester hours in chemistry and related fields. Required courses are: CHM 113, 115, 225, 226, 331, 332, 335, 336, 341 (or 441, 442, 361, 480) or PHY 480; MAT 117, 118, 210, and PHY 111, 112, 113, 114. The remaining courses to complete the major will be determined by students in consultation with their advisors.

Chemistry. Option Two. Consists of 31 semester hours of chemistry, which includes all of the required chemistry courses listed in option one, and selection of the corresponding option in either mathematics or physics; that is, completion of an additional 30 semester hours in the chosen area as specified by the department selected.

Departmental Minor Teaching Field Requirements**(Secondary Education)**

Chemistry. Consists of 24 semester hours in chemistry. Required courses are: CHM 113, 115;

225, 226; 231, 361 (or 331, 332, 335, 336) and 341. The remaining courses to complete the minor will be determined by students in consultation with their advisor.

Departmental Graduate Programs

The Department of Chemistry offers programs leading to the M.S. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

CHEMISTRY

CHM 101 Introductory Chemistry.* 4 F, S

Elements of general chemistry. Adapted to the needs of students in nursing, home economics, agriculture and physical education. Recommended for General Studies credit. Normatively followed by CHM 231. 3 lectures, 1 quiz, 2 hours ab. [Satisfies General Studies Requirements S1, S2]

113 General Chemistry.* 4 F, S, SS

Principles of chemistry. Adapted to the needs of students in the physical, biological and earth sciences. 3 lectures, 1 quiz, 2 hours ab. Prerequisite: 3 semesters of high school algebra or MAT 106; 1 year of high school chemistry recommended. [Satisfies General Studies Requirements S1, S2]

114 General Chemistry for Engineers.* 4 F, S

One semester college chemistry with emphasis towards engineering. 3 lectures, 1 quiz, 2 hours ab. Students without high school chemistry or chemical engineering majors must enroll in the CHM 113, 116 sequence instead of CHM 114. Prerequisite: 3 semesters of high school algebra or MAT 106; 1 year of high school chemistry. [Satisfies General Studies Requirements S1, S2]

115 General Chemistry with Qualitative Analysis.* 5 F, S, SS

Continuation of CHM 113. Equilibrium theory, chemistry of metals, nonmetals and metalloids. Introduction to organic chemistry. Laboratory includes qualitative analysis. 3 lectures, 2 quizzes, 4 hours ab. Prerequisite: CHM 113 or 2 years of high school chemistry. [Satisfies General Studies Requirements S1, S2]

116 General Chemistry.* 4 F, S

Continuation of CHM 113. Equilibrium theory, chemistry of metals, nonmetals and metalloids. Introduction to organic chemistry. 3 lectures, 1 quiz, 2 hours ab. Prerequisite: CHM 113 or 2 years of high school chemistry. [Satisfies General Studies Requirements S1, S2]

117 Advanced General Chemistry.* 4 F, S

Topics include atomic and molecular structure, properties and physical states of matter, thermodynamics, kinetics, acids and bases, chemical analysis and stoichiometry. 3 lectures, 1 conference, 2 hours ab. Prerequisite: Minimum of one year each of high school chemistry with a grade of B or better and physics three years of high school mathematics. [Satisfies General Studies Requirements S1, S2]

118 Advanced General Chemistry.* 5 F, S

Continuation of CHM 117. 3 lectures, 1 conference, 5 hours ab. Prerequisite: CHM 117. Corequisite: MAT 270 or 290. [Satisfies General Studies Requirements S1, S2]

225 Analytical Chemistry.* 3 F, S

Principles and methods of chemical analysis. Primarily for students in agriculture, premedical, pre-dentistry and medical technology. Prerequisite: CHM 115 or 116.

226 Analytical Chemistry Laboratory.* 2 F, S

Experiments in chemical analysis. 1 conference, 5 hours ab. Corequisite: CHM 225.

231 Elementary Organic Chemistry.* 4 F, S

Survey of organic chemistry with emphasis on the reactivity of basic functional groups. 3 lectures, 1 quiz, 2 hours ab. Prerequisite: CHM 101 or 114 or 115 or 116 or 117, or 1 year of high school chemistry with grades of "A" or "B" or instructor approval.

261 Elementary Biochemistry. 3 F, S

Structure, functions and metabolism of biomolecules. Adapted to students with limited training in chemistry and mathematics. Emphasis on examples from health sciences and agriculture. Not available to students with credit in CHM 331 or 361. Prerequisite: CHM 231; MAT 117.

301 Chemistry and Society. 3 S

A qualitative survey of chemistry and its impact on modern technology and the environment. May not be counted toward the chemistry major.

317 University Organic Chemistry.* 3 F

Structures, reactions, mechanisms and kinetics and systematic syntheses of organic compounds. Prerequisite: CHM 118. Corequisite: CHM 319.

318 University Organic Chemistry.* 3 S

Continuation of CHM 317. Prerequisite: CHM 317. Corequisite: CHM 320.

319 University Organic Chemistry Laboratory I.* 1) F

Emphasis on mechanisms, kinetics and products of organic reactions. 1 conference, 3 hours ab. Pre or corequisite: CHM 317.

320 University Organic Chemistry Laboratory II.* 2 S

Continuation of CHM 319. 1 conference, 7 hours lab. Pre or corequisite: CHM 318.

331 General Organic Chemistry.* 3) F, S, SS

Chemistry of organic compounds. Prerequisite: CHM 115, 116 or 118.

332 General Organic Chemistry.* 3 F, S, SS

Continuation of CHM 331. Prerequisite: CHM 331.

335 General Organic Chemistry Laboratory.* 1 F, S, SS

Microscale organic chemical experiments in separation technique, synthesis, analysis and identification and relative reactivity. 4 hours ab. Corequisite: CHM 331.

336 General Organic Chemistry Laboratory.* 1 F, S, SS

Continuation of CHM 335. 4 hours ab. Prerequisite: CHM 335. Corequisite: CHM 332.

341 Elementary Physical Chemistry.* 3 F

Thermodynamics, equilibrium states of matter, solutions, chemical kinetics. For students in premedical, biological and educational curricula. Not open to students who have taken CHM 441. Prerequisite: CHM 114, 118 or 225; CHM 231 or 331; MAT 210.

343 Physical Chemistry Laboratory.* 1 F

Physical chemistry experiments. 3 hours ab. Corequisite: CHM 341 or 441.

361 Principles of Biochemistry.* 3 F, S, SS

Structures, properties, and functions of proteins, enzymes, nucleic acids, carbohydrates, and lipids. The utilization and synthesis of these materials by living systems, and the relationship of these processes to energy production and utilization. Not open to students who have taken CHM 461. Prerequisite: CHM 231, 318 or 332.

114 CHEMISTRY

367 Elementary Biochemistry Laboratory. 1 F S

Experiments include qualitative and quantitative analyses of constituents of biological systems, measurement of enzyme activities and metabolic studies. 3 hours ab. Pre- or corequisite: CHM 361 or instructor approval.

392 Introduction to Research Techniques. 1 3 F S S

Instrumental methods and philosophy of research by actual participation in chemical research projects. May be repeated for a total of 6 credits. Prerequisites: approval of advisor and research supervisor.

421 Instrumental Analysis* 3 S

Principles of instrumental methods in chemical analysis: Electroanalytical and optical techniques. Prerequisites: CHM 225/226. Pre- or corequisite: CHM 442.

422 Instrumental Analysis Laboratory.* 1 S

Experiments in chemical analysis by electroanalytical and optical techniques. 3 hours ab. Corequisite: CHM 421.

424 Separation Methods and Quantitative Organic Analysis. 3 F

Theory and practice of gas-liquid exchange and gas-permeation chromatography, countercurrent distribution, electrophoresis, and distillation: qualitative and quantitative interpretation of IR, mass and NMR spectroscopy, quantitative methods of organic analysis via functional groups. 2 lectures, 4 hours ab. Prerequisites: CHM 318 or 332/442 or instructor approval.

425 Chemical Analysis. 2 F

Principles of chemical equilibria, separations, and analyses: chemical instrumentation. Pre- or corequisite: CHM 341 or 441.

426 Chemical and Instrumental Analysis.* 3 S

Instrumental techniques for chemical analysis, methods for the interpretation of analytical data. Prerequisite: CHM 425.

427 Chemical and Instrumental Analysis Laboratory.* 2 F S

Classical and instrumental techniques in chemical analyses with emphasis on accuracy and precision. 1 conference, 5 hours ab. Pre- or corequisite: CHM 425.

428 Chemical and Instrumental Analysis Laboratory.* 2) F S

Continuation of CHM 427. Pre- or corequisite: CHM 426.

431 Qualitative Organic Analysis. 3) F

Systematic identification of organic compounds. 1 lecture, 6 hours ab. Prerequisites: CHM 118 or 226/320 or 336 or instructor approval.

438 Polymers. 2 S

Chemistry and properties of natural and synthetic polymers. Prerequisite: CHM 318 or 332.

441 General Physical Chemistry. 3 F

Laws of thermodynamics and their applications, properties of gases, solids, liquids and solutions, reaction kinetics, wave mechanics, molecular spectroscopy, statistical thermodynamics. Prerequisites: MAT 272 or 291, PHY 241.

442 General Physical Chemistry. 3 S

Continuation of CHM 441. Prerequisite: CHM 441.

444 General Physical Chemistry Laboratory.* 2 S

Physical chemistry experiments. 1 conference, 5 hours ab. Prerequisite: CHM 441.

447 Radiochemistry.* 2 F

Radioactivity, natural and artificial radioisotopes, nuclear reactions, separation of isotopes, nuclear energetics, measurement of radioactivity, tracer techniques and other applications. Prerequisite: CHM 115/116 or 118 or instructor approval.

448 Radiochemistry Laboratory. (2) N

Radiation measurements, tracer methods, quantitative identification of isotopes, and other procedures applicable to chemical, physical, engineering and biological problems. 1 conference, 5 hours ab. Corequisite: CHM 447.

452 Inorganic Chemistry Laboratory. 2 S

Preparation and characterization of typical inorganic substances, emphasizing methods and techniques. 1 conference, 5 hours ab. Prerequisite: instructor approval.

453 Inorganic Chemistry. 3 F S

Principles and applications of inorganic chemistry. Prerequisite: CHM 341 or 441.

461 General Biochemistry. 3 F, S

Structure, chemistry and metabolism of biomolecules and their role in biochemical processes of living organisms. Prerequisites: CHM 318 or 332/341 or 441 or instructor approval.

462 General Biochemistry. 3 F, S

Continuation of CHM 461. Prerequisite: CHM 461 or instructor approval.

467 General Biochemistry Laboratory. 2 S

The application of modern chemical and physical methods to biochemical problems, purification and characterization of biological macromolecules, quantitative measurement of enzyme activity and properties, evaluation of metabolic processes. 1 conference, 5 hours ab. Prerequisite: CHM 461.

468 General Biochemistry Laboratory. 2 F

Continuation of CHM 467. Prerequisites: CHM 462/467.

471 Solid State Chemistry. 3 F

Crystal chemistry, thermodynamics and electrochemistry of solids, nonstoichiometric compounds, diffusion and solid state reactions, crystal growth and selected topics. Pre- or corequisite: CHM 441 or instructor approval.

480 Methods of Teaching Chemistry. 3 N

Organization and presentation of appropriate content of chemistry, preparation of reagents, experiments, demonstrations, organization of stock rooms, laboratories, experience in problem solving. Prerequisite: instructor approval.

481 Geochemistry. 3 F

Origin and distribution of the chemical elements, Geochemical cycles operating in the earth's atmosphere, hydrosphere and lithosphere. Cross-listed as GLG 481. Prerequisite: CHM 341, 441 or GLG 321.

485 Meteorites and Cosmochemistry. 3) N

Chemistry and mineralogy of meteorites and their relationship to the origin of the earth, solar system and universe. Cross-listed as GLG 485. Prerequisite: CHM 481.

501 Current Topics in Chemistry. 1) F, S

May be repeated for credit. Prerequisite: instructor approval.

521 Computer Interfacing to Chemical Instrumentation. 3 N

Assembly and machine language programming of laboratory size computers for data acquisition and online real-time control of chemical instrumentation. Digital logic and timing considerations in hardware interfacing of computers. No prior knowledge of computers or electronics assumed. Sound knowledge of chemical instrumentation desirable. 2 lectures, 4 hours lab.

523 Advanced Analytical Chemistry. 3 A

Theoretical principles of analytical chemistry. Prerequisites: CHM 225/442, or equivalents.

525 Spectrochemical Methods of Analysis. (4) N

Theoretical and practical considerations involving the use of optical instruments for chemical analysis emphasizing emission and absorption spectroscopy. 3 lectures, 3 hours lab. Prerequisite: CHM 442.

526 X-Ray Methods of Analysis. (4) N

Theoretical and practical considerations involving the use of X-ray diffraction and spectroscopy for chemical and structural analyses. 3 lectures, 3 hours lab. Prerequisite: CHM 442.

527 Electrical Methods of Chemical Analysis. (4) N

Theoretical and practical considerations of polarography, potentiometric, amperometric, and conductometric titrations. 2 lectures, 6 hours lab. Prerequisite: CHM 442.

531 Theoretical Organic Chemistry. (3) F

Reaction mechanisms, reaction kinetics, linear free energy relationships, transition state theory, molecular orbital theory, Woodward-Hoffmann rules. Prerequisites: CHM 318 or 332; 442.

532 Theoretical Organic Chemistry. (2) S

Continuation of CHM 531. Prerequisite: CHM 531.

537 Organic Reactions. (3) S

Important synthetic reactions of organic chemistry emphasizing recently discovered reactions of preparative value. Prerequisite: CHM 531.

541 Advanced Principles of Chemistry I. (3) F

Thermodynamics and kinetics as applied to various areas of chemistry. Prerequisite: CHM 442.

545 Advanced Principles of Chemistry II. (3) F

Basic quantum theory, chemical bonding and molecular structure. Prerequisite: CHM 442.

546 Quantum Chemistry. (3) S

Principles of quantum mechanics applied quantitatively to problems of chemical interest. Prerequisite: instructor approval.

548 Chemical Kinetics. (2) N

Kinetic theory and rate processes. Prerequisite: instructor approval.

553 Inorganic Chemistry. (3) F

Principles of modern inorganic chemistry and their applications over the entire periodic system. Prerequisites: CHM 442, 453; or equivalents.

556 Topics in Inorganic Chemistry. (3) N

May be repeated for credit. Prerequisites: CHM 553; instructor approval.

563 Biophysical Chemistry. (3) N

Physical chemistry of macromolecules, especially proteins, nucleic acids and polysaccharides. Thermodynamics, hydrodynamics, and spectroscopy of biopolymers and their relation to structure. Prerequisites: CHM 442, 462.

579 Topics in Solid State Chemistry. (2-4) N

May be repeated for credit. Prerequisite: instructor approval.

581 Isotope Geochemistry. (3) N

Geochemistry and cosmochemistry of stable and radioactive isotopes; geochronology; isotope equilibria. Cross-listed as GLG 581. Prerequisite: instructor approval.

582 Topics in Geochemistry and Cosmochemistry. (3) N

Topics of current interest for students in chemistry and other fields. Sampling of data and thought concerning phase equilibria, element distribution, meteorites, the Earth and other planets. May be repeated for credit. Cross-listed as GLG 582. Prerequisite: instructor approval.

583 Phase Equilibria and Geochemical Systems. (3) N

Study of natural reactions at high temperatures and pressures; silicate, sulfide and oxide equilibria. Cross-listed as GLG 583.

Special Courses: CHM 294, 298, 394, 484, 492, 493, 494, 498, 499, 590, 591, 592, 593, 594, 598, 599, 790, 792, 799. (See pages 43-44.)

* In each of the following groups, credit is allowed for only one course: CHM 101, 113, 114 or 117; CHM 114, 115, 116 or 118; CHM 225 or 425; CHM 226 or 427; CHM 231, 317 or 331; CHM 361 or 461; CHM 318 or 332; CHM 319 or 335; CHM 320 or 336; CHM 341 or 441; CHM 343 or 444; CHM 421 or 426; CHM 422 or 428.

Computer Science

A major in Computer Science is offered in both the College of Liberal Arts and Sciences and the College of Engineering and Applied Sciences. Faculty and course descriptions are listed on pages 334-340.

Departmental Major Requirements

Bachelor of Science Degree Curriculum

Computer Science. The major in Computer Science consists of 30 hours of core course work and 15 semester hours of senior-level breadth courses in the major. Also required are 18 semester hours of technical elective and mathematics courses approved by the department in addition to college algebra. The university requirement on literacy and critical inquiry is to be met in part by either ECE 400 or ENG 301.

A 2.50 cumulative grade point average is required to begin upper-division work in the major.



Economics

A major in Economics is offered in both the College of Liberal Arts and Sciences and in the College of Business. Faculty, course descriptions, and the major requirements in the College of Business are listed on pages 230–232.

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

Economics. The major in Economics consists of 45 semester hours of course work, 24 of which must be in economics and the remainder in closely related fields to be selected from the *Approved List of Related Field Courses* in consultation with the faculty advisor.

The following lower division courses are required and must be counted as part of the 45-hour major:

ECN 111	Macroeconomic Principles
ECN 112	Microeconomic Principles
MAT 270	Calculus with Analytic Geometry I
STP 226	Elements of Statistics

In order to qualify for upper division course work in economics, the Economics major must have earned a minimum grade of “C” in each of the above listed courses; must have junior class standing; and must have a cumulative GPA of 2.50. ECN 313, Intermediate Macroeconomic Theory, and ECN 314, Intermediate Microeconomic Theory, are required and must be taken after the completion of the above listed courses and prior to other upper division courses in economics.

Credit earned by an economics major in ECN 493 Honors Thesis and ECN 484 Economics Internship, whether as a legislative intern or through the Department of Economics Internship Program, may not be used to satisfy the 24 hours of economic course work requirement. However, up to six hours of ECN 493 and ECN 484 may be used to meet the related fields requirement. (See degree requirements, page 97.)

Bachelor of Science Degree Curriculum

Economics. The major in Economics consists of 45–55 semester hours of course work, 24 of which must be in economics and the remainder in closely related fields to be selected from the *Approved List of Related Field Courses* in consultation with the faculty advisor.

The following lower division courses are required and must be counted as part of the 45-hour major:

ECN 111	Macroeconomic Principles
ECN 112	Microeconomic Principles
MAT 270	Calculus with Analytic Geometry I
STP 226	Elements of Statistics

In order to qualify for upper division course work in economics, the Economics major must have earned a minimum grade of “C” in each of the above listed courses, must have junior class standing, and must have a cumulative GPA of 2.50. ECN 313, Intermediate Macroeconomic Theory, and ECN 314, Intermediate Microeconomic Theory, are required and must be taken after the completion of the above listed courses and prior to other upper division courses in economics.

Credit earned by an Economics major in ECN 493, Honors Thesis, and ECN 484, Economics Internship, whether as a Legislative Intern or through the Department of Economics Internship Program, may not be used to satisfy the 24 hours of economic course work requirement. However, up to six hours of ECN 493 and ECN 484 may be used to meet the related fields requirement. (See degree requirements, page 97.)

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

(Secondary Education)

Economics. The major in Economics consists of 45 semester hours of course work, 24 of which must be in economics and the remainder in closely related fields to be selected from the “Approved List of Related Field Courses” in consultation with the faculty advisor.

The following lower division courses are required and must be counted as part of the 45-hour major:

ECN 111	Macroeconomic Principles
ECN 112	Microeconomic Principles
MAT 270	Calculus with Analytic Geometry I
STP 226	Elements of Statistics

In order to qualify for upper division course work in economics, the economics major must have earned a minimum grade of “C” in each of the above listed courses; must have junior class standing, and must have a cumulative GPA of 2.50. ECN 313, Intermediate Macroeconomic

Theory, and ECN 314, Intermediate Microeconomic Theory, are required and must be taken after the completion of the above listed courses and prior to other upper division courses in economics.

Credit earned by an economics major in ECN 493 Honors Thesis and ECN 484 Economics Internship, whether as a legislative intern or through the Department of Economics Internship Program, may not be used to satisfy the 24 hours of economic course work requirement. However, up to six hours of ECN 493 and ECN 484 may be used to meet the related fields requirement (See degree requirements, page 97)

Departmental Minor Teaching Field Requirements

(Secondary Education)

Economics. Consists of 21 semester hours. ECN 111 and 112, and MAT 210 are required. Remainder to be approved by the advisor in consultation with the student.

Latin American Studies Emphasis. (See Latin American studies, page 102.) Consists of the Bache or of Arts degree requirements in Economics. At least 30 upper division semester hours of the total program must be in Latin American content courses, including 15 hours in economics and 15 hours in other disciplines. A reading knowledge of Spanish or Portuguese is required, and a reading knowledge of the other language is suggested. The program must be approved by the Center for Latin American Studies. Fulfillment of requirements is recognized on the transcript as a bachelor's degree with a major in Economics Latin American Studies emphasis.

Departmental Graduate Programs

The Department of Economics offers programs leading to the M.S. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

Faculty and course descriptions are listed on pages 230–232.

English

PROFESSORS:

BATAILLE LL B 504, BENDER, BRACK
J BRINK, BUCK NGHAM, D ANGELO,
B. DOEBLER, J. DOEBLER, DONELSON,
DUB E, EVANS, F SHER, HABERMAN,
M HARRIS, HELMS KEHL LATT N (ASU WEST
CAMPUS LIGHTFOOT, NEY, A. NILSEN,
D NILSEN, PECK, SALERNO, SANDS,
SHAFFER, SH NN

ASSOCIATE PROFESSORS:

AI, BJORK, BOYER D BRINK GELLER,
J. GREEN, M. GREEN GREENE JANSSEN,
JOHNSON MURRAY OJALA RIOS,
SCHWALM, SENSIBAR

ASSISTANT PROFESSORS:

ADAMS, BARODY, BROSE, CARLSON,
COLBY GUT ERREZ, HATTENHAUER (ASU
WEST CAMPUS), MILLER MORGAN,
NELSON, PEARSON, WILKINS

INSTRUCTOR:

K HARR S

INVITATIONAL LECTURER:

COOK

PROFESSORS EMÉRITI:

ERNO, FERRELL, FLETCHER, HAKAC,
HERMAN, LAMBERTS, NEBEKER PORTNOFF,
POWERS, RANDALL, TURNER

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

English. Consists of 45 semester hours; 36 of these hours must be in English, nine hours in a related field to be chosen in consultation with the student's departmental advisor. Required courses are ENG 200, 221 and 222, 421 or 422), 312 (or 314 or 413 or 424), a course in English literature before 1660, a course in English literature between 1660 and 1900, 341 or 342 or a course in American literature before 1900, and a course in 20th century British or American literature. *No course may be used to satisfy more than one requirement.* At least 18 hours must be in upper division courses (See foreign language requirement, page 97.)

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

English. Consists of 42 semester hours in English. Required courses are ENG 200, 212 (or one of the following: 215, 216, 217, 218, 221, 222, 312 (or 314, 341, 342, 421 or 422), 471, 480; and 12 hours of electives (all chosen from English department courses—nine of which must be upper division).

Departmental Minor Teaching Field Requirements

(Secondary Education)

(Recommended for Elementary Education)

English. Consists of 24 semester hours. Required courses are ENG 200, 212 (or one of the following: 215, 216, 217, 218, 221 (or 222, 341 (or 342), 312 (or 314), 471 and 480, and an additional upper division elective in English.

Minor in English for College of Liberal Arts and Sciences

The English minor for students in other disciplines in the College of Liberal Arts and Sciences shall consist of 24 hours in English. Eighteen hours must be selected as follows: ENG 200, 221 (or 222, 312 (or 314, 413 or 424), 341 (or 342), 421 (or 422), and one upper division course in English or American literature. Six further hours will be free electives chosen from the English Department's offerings at the 200 level or above.

Departmental Graduate Programs

The Department of English offers programs leading to the degrees of Master of Arts (with emphases in literature, comparative literature, the teaching of English as a Second Language, and linguistics); a Master of Fine Arts (fiction, poetry, non-fiction and screenwriting); and Doctor of Philosophy (with numerous emphases).

English faculty currently serve as editors of: *English Journal*, *Explorations in Ethnic Studies*, *Modern Scandinavian Literature in Translation*, *Studies in 18th Century Culture*, and *WHIMSY*. Other faculty serve on the editorial boards of *Age of Johnson*, *English Literature in Transition*, *MELUS*, *Metaphor and Symbolic Activity*, *An Interdisciplinary Journal of Empirical Inquiry*, *Modern Language Journal*, *Revista Argentina de Linguística*, *Rhetoric Review*, *Resources for American Literary Study*, *Dickinson Studies*, *18th*

Century: A Current Bibliography, and *Callaloo*. The Creative Writing faculty includes three Guggenheim fellows and a Pulitzer Prize winner. Among recent books published by the faculty are: *Continuities: Essays and Ideas in American Literature*, *G. B. Shaw: An Annotated Bibliography of Writings about Him*, *Giandomenico Falco: The Lime Orchard Woman*, *News of the World*, *The Old English Verse Saints' Lives*, *The Origins of Faulkner's Art*, *The Other Side of the House*, *Richard Brautigan*, *Sea Brothers*, *The Traditions of American Sea Fiction from Moby Dick to the Present*, *Screenwriting: A Method*, *Sin, Thematic Relations, Truants, Venus and Adonis: A Facsimile Edition*, *W. B. Yeats and His Contemporaries*, and *Worlds Within Women: Myth and Mythmaking in Fantastic Literature by Women*.

ENGLISH

ENG 101 First-Year Composition. 3 F S SS

Disciplined organizing and developing ideas in relation to the writer's purpose, subject, audience. Emphasis on modes of written discourse and effective use of rhetorical principles. Foreign students see ENG 107.

102 First-Year Composition. 3 F S SS

Critical reading and writing, emphasis on strategies of academic discourse. Research paper required. Foreign students see ENG 108. Prerequisite: ENG 101 with grade of C or better.

105 Advanced First-Year Composition. 3 F S

A concentrated composition course for students with superior writing skills. Intensive reading, research papers, organization, and rhetorical effectiveness. Not open to students with credit in First Year Composition. Prerequisite: see page 97.

107 English for Foreign Students. 3 F S

For students from non-English speaking countries who have studied English in their native countries, but who require practice in the domains of English. Intensive reading, writing, and discussion. Satisfies the graduation requirement of ENG 101.

108 English for Foreign Students. 3 F S

For foreign students. Critical reading and writing strategies of academic discourse. Research paper required. Satisfies graduation requirement of ENG 102. Prerequisite: ENG 107 with grade of C or better.

110 Introduction to Literature. 3 F S

Introduction to literature through literary types. *Satisfies General Studies Requirements HU H*

Completion of the First Year Composition requirement is a prerequisite for all English Department courses at the 200 level and above.

200 Critical Reading and Writing About Literature. 3 F S

Introduction to the terminology, methods, and objectives of the study of literature with practical interpretation and evaluation. *[Satisfies General Studies Requirements L1 HU]*

201 World Literature. 3 F

The classical and medieval periods. Sections from the great literature of the world in translation and lectures on the cultural background. *[Satisfies General Studies Requirements HU H]*

202 World Literature. (3) S

The Renaissance and modern periods. Selections from the great literature of the world in translation and lectures on the cultural background. [Satisfies General Studies Requirements HU H]

204 Literature of Today. (3) F, S

Poetry, short story novel and drama. Not for English majors. Not open to freshmen. [Satisfies General Studies Requirement HU]

210 Introduction to Creative Writing. (3) F, S

Beginning writing of poetry and fiction. Separate sections for each genre. May be taken once for poetry, once for fiction.

212 English Prose Style. (3) N

Analysis and practice of writing in various classical and modern prose styles. Prerequisites: grade of B⁻ in ENG 102 English major, or approval of advisor and instructor [Satisfies General Studies Requirement L1]

213 Introduction to the Study of Language. (3) F, S

Language as code: phonetics, phonology, morphology and syntax: the lexicon, language acquisition, and sociolinguistics.

215 Strategies of Academic Writing. (3) F, S

Advanced course in techniques of analyzing and writing academic expository prose. Writing will be research based. [Satisfies General Studies Requirement L1]

216 Persuasive Writing on Public Issues. (3) F, S

Advanced course in techniques of analyzing and writing persuasive arguments addressing topics of current public interest. Papers will be research based. [Satisfies General Studies Requirement L1]

217 Personal and Exploratory Writing. (3) F, S

Using writing to explore oneself and the world oneself. Emphasis on expository writing as a means of learning. [Satisfies General Studies Requirement L1]

218 Writing about Literature. (3) F, S

Advanced writing course requiring analytical and expository essays about fiction, poetry, and drama. For non-English majors. [Satisfies General Studies Requirement L1]

221 Survey of English Literature. (3) F, S

Medieval, Renaissance and Eighteenth Century literature. Emphasis on major writers and their works in the literary and historical contexts. [Satisfies General Studies Requirements. HU, H]

222 Survey of English Literature. (3) F, S

Romantic, Victorian and Twentieth Century literature. Emphasis on major writers and their works in the literary and historical contexts. [Satisfies General Studies Requirements. HU, H]

260 Film Analysis. (3) N

Understanding and enjoyment of film and its correlation to literature, art, music and other disciplines. [Satisfies General Studies Requirement: HU]

A term paper or equivalent out-of-class written work is required in a 1 upper-d vision (300–400 level) ENG courses

301 Writing for the Professions. (3) F, S

Advanced practice in writing and editing expository prose. Prerequisite for professional majors. [Satisfies General Studies Requirement: L1]

303 Classical Backgrounds of English Literature. (3) N

Selected readings of Greek and Latin literature in translation, emphasizing forms, ideas and myth, as they relate to literature in English. [Satisfies General Studies Requirement: HU]

307 Utopian Literature. (3) N

Selected works from the present to the classical period including *Walden*, *Utopia* and *The Republic*. Prerequisite for nonmajors. [Satisfies General Studies Requirement: HU]

310 Intermediate Creative Writing. (3) F, S

Lectures, writing assignments, discussion on criticism. Separate sections for fiction and poetry. May be taken once for poetry, once for fiction. Prerequisite: ENG 210 or instructor approval.

312 English in Its Social Setting. (3) F, S

Introduction to the sociolinguistic study of the English language. Prerequisite: junior or standing or instructor approval. [Satisfies General Studies Requirement HU]

314 Modern Grammar. (3) F, S

Modern descriptive modes of English grammar. Prerequisite: junior or standing or instructor approval. [Satisfies General Studies Requirement HU]

321 Introduction to Shakespeare. (3) F, S

Shakespeare's major comedies, histories and tragedies. Not open to English majors. [Satisfies General Studies Requirement HU]

341 American Literature. (3) F, S

From Colonial times to the Civil War, including the growth of nationalism and romanticism. [Satisfies General Studies Requirements HU, H]

342 American Literature. (3) F, S

From the Civil War to the present. Development of realism, naturalism and modernism and contemporary trends in prose and poetry. [Satisfies General Studies Requirements HU, H]

345 Selected Authors or Issues. (3–4) N

Different topics may be offered. Film topics with lab may carry 4 credits. Repeat credit for different topics.

352 Short Story. (3) F, S

Development of the short story as a literary form. Analysis of its technique from the work of representative authors. [Satisfies General Studies Requirement HU]

355 History of the Drama. (3) S

Development of European drama from the Greek to the Romantic Period. [Satisfies General Studies Requirements. HU, H]

356 Biblical Backgrounds of Literature. (3) F, S

Readings in Old and New Testaments emphasizing ideas, literary types and sources as they appear in literature. [Satisfies General Studies Requirements: HU, H]

357 Introduction to Folklore. (3) N

Survey of the history, genres and dynamics of folklore with emphasis on oral traditions. [Satisfies General Studies Requirement: HU]

358 Afro-American Literature. (3) N

Thematic and cultural study of Afro-American literature. [Satisfies General Studies Requirements L2, HU, H]

359 American Indian Literatures. (3) S

Selected oral traditions of American Indians and their influences on contemporary Native American literary works. [Satisfies General Studies Requirements HU, H]

360 History of Film. (4) N

Emphasis on American film with some study of European film. 3 lectures, 4 hours of screening. [Satisfies General Studies Requirements HU, H]

120 ENGLISH

361 Silent Film. 4) F

Development of motion pictures from 1850 through 1930. 3 lectures, screenings. [Satisfies General Studies Requirements HU H]

362 Sound Film Genres. 4) S

Examination of the Western, the horror film, the comedy and other genres. 3 lectures, screenings [Satisfies General Studies Requirement HU]

400 History of Literary Criticism. 3) S

Major critics and critical traditions in the western world. Prerequisite: 6 hours of literature or instructor approval [Satisfies General Studies Requirements L2 HU H]

405 Style and Stylistics. 3) N

Linguistic, rhetorical and literary approaches to the analysis of style in poetry, fiction and other forms of written discourse

409 Writing for Film. 3) N

Fiction writing with a screenplay format. Lectures, conferences, film viewing, exemplary screenplays and visiting writers from the film community

411 Advanced Creative Writing. 3) F S

Separate poetry and fiction workshops for experienced writers emphasizing individual style. May be taken once for poetry, once for fiction. Prerequisite: ENG 310 or instructor approval

412 Professional Writing. 3) N

Lectures and conferences concerning techniques of writing for publication. Prerequisite: ENG 310 or instructor approval

413 History of the English Language. 3) F S

Development of English from the earliest times to the modern period. Prerequisite: junior or standing or instructor approval [Satisfies General Studies Requirements HU, H]

415 Medieval Literature. 3) F

Medieval English literature in translation, from *Beowulf* to *Mary*, excluding Chaucer, emphasizing culture and intellectual backgrounds, including contemporary works [Satisfies General Studies Requirement HU]

418 Renaissance Literature. 3) F

Poetry and prose, 1485–1603, excluding the drama. Humanism, major genres, More, Spenser and other representative writers. Prerequisite: ENG 221 or instructor approval. [Satisfies General Studies Requirement HU]

419 English Literature in the Early Seventeenth Century. 3) S

Prose and poetry, exclusive of Milton and the drama. Metaphysical, Cavalier, neoclassical verse, Donne, Jonson, Bacon and other representative writers. Prerequisite: ENG 221 or instructor approval [Satisfies General Studies Requirements L2, HU, H]

420 Renaissance Drama. 3) S

Sixteenth and seventeenth century drama. Marlowe, Kyd, Jonson and other representative writers, exclusive of Shakespeare. Prerequisite: ENG 221 or instructor approval [Satisfies General Studies Requirements HU, H]

421 Shakespeare I. 3) F S

A selection of comedies, histories and tragedies, including *Midsummer Night's Dream*, *Henry IV*, *Hamlet* and *Macbeth*. [Satisfies General Studies Requirements HU, H]

422 Shakespeare II. 3) F S

A selection of comedies, histories and tragedies, including *Twelfth Night*, *King Lear*, *The Tempest* and *Othello*. [Satisfies General Studies Requirement HU]

423 Milton. 3) F S

Selected prose and poetry, emphasizing *Paradise Lost*, *Paradise Regained* and *Samson Agonistes*. Prerequisite: ENG 221 or instructor approval [Satisfies General Studies Requirement HU]

424 Chaucer. 3) F S

Chaucer's language, poetry and intellectual background [Satisfies General Studies Requirement HU]

425 Romantic Poetry. 3) F

Poetry of Wordsworth, Coleridge, Shelley, Keats, Byron [Satisfies General Studies Requirements L2 HU]

426 Victorian Poetry. 3) S

Poetry of the second half of the 19th century. Special study of Tennyson, Browning, Arnold [Satisfies General Studies Requirements L2 HU H]

427 Age of Johnson. 3) S

Chief writers, movements and books during Johnson's career as a dominating literary figure, together with the most important relationships to predecessors and followers [Satisfies General Studies Requirements L2 HU, H]

428 Age of Dryden, Swift and Pope. 3) F

Chief writers and movements in the nondramatic literature of the Restoration and early 18th century [Satisfies General Studies Requirements L2 HU H]

430 19th-Century British Cultural Backgrounds. 3) N

Selected works by writers such as Burke, Lamb, Carlyle, Ruskin, Mill, Morris, Darwin, Pater and Yeats. Prerequisite: ENG 222 or instructor approval [Satisfies General Studies Requirements L2, HU, H]

435 19th-Century American Poetry. 3) S

Themes and developments in American poetry to 1900, including Poe, Whitman and Dickinson [Satisfies General Studies Requirements HU H]

439 Drama from Dryden to Sheridan. 3) S 90

English drama of the Restoration and 18th century, especially critical theories and social forces affecting the stage. [Satisfies General Studies Requirements L2, HU]

440 American Literature to 1815. 3) N

Thought and expression from the time of the first English speaking colonies to 1815 [Satisfies General Studies Requirements HU H]

441 20th-Century American Drama. 3) N

American drama since World War I, especially experimental techniques [Satisfies General Studies Requirements L2, HU]

442 20th-Century British Poetry. 3) F

Major British poets of the period, techniques, aims and significance

443 American Poetry, 1900–1945 3) F

Developments in theory and practice of major poets [Satisfies General Studies Requirements HU H]

444 American Romanticism, 1830–1860. 3) F

Art and ideas of major American transcendentalists and romantics [Satisfies General Studies Requirements HU H]

445 American Realism, 1860–1900. 3) S

Writers and influences that shaped the development of literary realism. [Satisfies General Studies Requirements HU H]

- 448 20th-Century British Novel.** (3) S
Twentieth century British novel since 1914 [Satisfies General Studies Requirement. HU]
- 451 The Novel to Jane Austen.** (3) F
From origins of prose fiction through the 18th century [Satisfies General Studies Requirements L2, HU, H]
- 452 The 19th-Century Novel.** (3) S
From Scott to Conrad. [Satisfies General Studies Requirements L2 HU H]
- 453 The American Novel to 1900.** (3) F
The rise and development of the novel to Dreiser [Satisfies General Studies Requirements L2 HU H]
- 454 The American Novel, 1900–1945.** (3) F
Developments in theory and practice of major novelists [Satisfies General Studies Requirements HU, H]
- 455 The Form of Verse: Theory and Practice.** (3) N
Types history criticalism and schools of theory of metric form. Analysis of lyric narrative and dramatic poetry
- 457 American Poetry Since 1945.** (3) S
Major American poets of the period developments in theory and practice [Satisfies General Studies Requirement HU]
- 458 American Novel Since 1945.** (3) S
Major novelists of the period: developments in theory and practice. [Satisfies General Studies Requirements L2 HU]
- 460 Western American Literature.** (3) S
Critical examination of ideas and traditions of the literature of the western United States including the novel [Satisfies General Studies Requirements HU H]
- 461 Women and Literature.** (3) N
Selected topics in literature by or about women. May be repeated for credit when topics vary [Satisfies General Studies Requirements: HU H]
- 462 20th-Century Women Authors.** (3) F
Critical examination of literature by women writers who reflect twentieth century perspectives in British American and world literature. Prerequisite instructor approval [Satisfies General Studies Requirement HU]
- 463 European Drama from Ibsen to 1914.** (3) N
Chief continental and British dramatists of the period the beginnings and development of realism [Satisfies General Studies Requirements: HU H]
- 464 European Drama from 1914 to the Present.** (3) N
Chief continental and British dramatists of the period, emphasizing experimental techniques [Satisfies General Studies Requirements HU H]
- 471 Literature for Adolescents.** (3) F S
Prose and poetry which meet the interests and capabilities of junior high and high school students Recent literature stressed Required with a passing grade of at least "C" before students will be permitted to student teach in English [Satisfies General Studies Requirement HU]
- 480 Methods of Teaching English.** (3) F, S
Methods of instruction organization and presentation of appropriate content in English Required with a passing grade of at least "C" before students will be permitted to student teach in English. Prerequisite ENG 312 314 or 413
- 485 Teaching of English as a Second Language.** (3) F
Nature of language learning, testing analysis of differences between two languages as a basis of instruction Problems of cultural orientation. Prerequisite teaching experience or instructor approval
- 500 Research Methods.** (3) F
Methodology and resource materials for research Analysis of criticism and scholarship including evaluation of sources Special sections for literature and for linguistics
- 501 Introduction to Comparative Literature.** (3) N
Problems methods and principles illustrated by selected critical essays and literary texts.
- 505 American English.** (3) S
Development of the English language in America including a survey of geographical and social effects
- 507 Old English.** (3) F
Elements of Old English grammar with selected readings
- 508 Old English Literature.** (3) N
Intensive literary linguistic and cultural study of Old English literature with special emphasis on *Beowulf*. Prerequisite ENG 507
- 509 Middle English.** (3) S
A study of the principal aspects of the language with selected readings Prerequisite graduate standing.
- 510 English Linguistics.** (3) F
Current approaches to the study of the English language.
- 511 English Phonetics and Phonology.** (3) S
Current trends in phonological theory and its basis in acoustic and articulatory phonetics Prerequisite ENG 510 or equivalent, or instructor approval.
- 512 The Teaching of Composition.** (3) N
The theory and practice of teaching writing at all levels. Emphasis on current research Prerequisites teaching experience, instructor approval
- 513 Semantic Theory.** (3) F
Current approaches to linguistic meaning with particular attention to English. Prerequisite ENG 510 or equivalent or instructor approval
- 514 Advanced Grammar.** (3) S
The analysis of English grammatical structure with contemporary theoretical models Prerequisite ENG 510 or equivalent or instructor approval.
- 515 Middle English Literature.** (3) N
English literature from the 12th through the 15th century, exclusive of Chaucer Prerequisite ENG 509 or instructor approval
- 520 Renaissance Literature.** (3) S
Poetry and prose of the English Renaissance, excluding drama.
- 521 Shakespeare.** (3) F
A selection of comedies histories and tragedies presented in the context of literary history and critical theories, with an emphasis on class and medieval backgrounds
- 525 American Literary Criticism.** (3) N
Analysis and discussion of leading historical and critical interpretations of American literature from the beginnings to the present.
- 530 Classical Rhetoric and Written Composition.** (3) F
Relationship of major texts in classical rhetoric to developments in composition theory, literary theory and practice through the nineteenth century.
- 531 Rhetorical Theory and Literary Criticism.** (3) S
Intensive study of major rhetorical theorists of the 20th century in such areas as literary criticism discourse theory and composition theory
- 532 Composition Theory.** (3) N
Intensive study in the rhetorical categories of invention arrangement, style, aims, modes and forms of written discourse

The following courses 545–549 offer selected authors or issues. May be repeated for credit.

545 Studies in English Literature. (3) N

547 Studies in American Literature. (3) N

548 Studies in English Language. (3) N

549 Studies in Comparative Literature. (3) N

550 Contemporary Comparative Literature. (3) F

Comparative studies in modern literature in English and other literatures in translation. May be repeated for credit when content varies.

571 Advanced Study in Literature for Adolescents. (3) N

History and criticism of adolescent literature. Prerequisite: ENG 471 or instructor approval.

572 Language Acquisition in Reading and Writing. (3) F

Studies in the application of research in language acquisition to the teaching of language, reading and writing.

573 Censorship and Literature. (3) N

The history of censorship, primarily in the United States and significant court decisions that affected writers and books.

591 Seminar. (3) F, S

Selected topics regularly offered in the various areas of English studies.

Special Courses: ENG 294, 298 484 492 493 494, 497 498 499, 580 584 590, 592 593, 594 598, 599 790 791 792 799 (See pages 43–44)

HUMANITIES

HUM 110 Contemporary Issues in Humanities. (3) F, S
Contemporary issues and problems as reflected primarily in literature. [Satisfies General Studies Requirements. HU, G, H]

301 Humanities in the Western World. (4) F

Interaction of arts and ideas in Western Civilization. Heoric through Medieval. 3 lectures, 1 discussion meeting per week. [Satisfies General Studies Requirements. HU, H]

302 Humanities in the Western World. (4) S

Interaction of arts and ideas in Western Civilization from Renaissance to the present. 3 lectures, 1 discussion meeting per week. [Satisfies General Studies Requirements. HU, H]

413 Comedy: Meaning and Form. (3) S

Nature and characteristics of the experience of comedy. Classical, Renaissance and modern. [Satisfies General Studies Requirement. HU]

414 Tragedy: Meaning and Form. (3) A

Nature and characteristics of literary and artistic expressions called tragic. Prerequisites: HUM 301, 302 or equivalent. [Satisfies General Studies Requirement. HU]

Special Courses: HUM 294, 394 492 493 494 497, 499, 590, 591, 592 598 599 (See pages 43–44)

Family Resources and Human Development

PROFESSORS:

PETERSON (HEC 106) HOOVER, MORGAN

ASSOCIATE PROFESSORS:

BAKER, BOULIN, JOHNSON, FABES
HUGHSTON, MONTE, ROOSA, VAUGHAN

ASSISTANT PROFESSORS:

CHRISTOPHER, GRIFFIN, HUNTER
JOHNSTON, MANORE, MARTIN
PETERS, WILSON

LECTURER:

ZYLLA

PROFESSORS EMERITI:

BARKLEY, BRESINA, CREIGHTON,
ELLSWORTH, KAGY, O'CONNOR,
STANGE, WOOLDRIDGE

Departmental Major Requirements

For either the B.A. or B.S. degree (see CLAS requirements, page 97), students must select one of the following areas of concentration:

Family Resources and Human Development in Business with an option in:

1. Food Service Management,
2. Consumer Service in Foods, or
3. Textiles and Clothing

Family Studies/Child Development

Human Nutrition—Dietetics with an option in:

1. Nutritional Science, or
2. Dietetics

Home Economics Education

Family Studies/Child Development. Consists of 33 hours of core family studies/child development classes plus 15 hours of classes within one of two options: family interaction or child development. Required core courses include: CDE 232, 337; FAS 330, 331, 361, 435, 436, 454; and one of the following statistics courses: EDP 454, PSY 230 or SOC 390.

Family interaction option. Requires FAS 330, 430, 431, 432 and 440. FAS 332 and FRD 451 are recommended.

Child development option. Requires CDE 430, 437, 498; FAS 430 and 431.

Human Nutrition—Dietetics. The American Dietetic Association (ADA) has accredited the

general, management, clinical and community options of the dietetics concentration as meeting their Plan IV requirements. In addition to the required courses specified below, 18 hours consisting of EDP 310 or equivalent; MGT 301 or equivalent, MIC 205, 206, and ZOL 201, 202 are required by both the ADA and the Department of Family Resources and Human Development. Additional courses required by the American Dietetic Association for completion of Plan IV requirements are to be selected upon consultation with advisor. Most of the Plan IV requirements also satisfy College of Liberal Arts and Sciences graduation requirements. Completion of any of these four options prepares the student for an accredited dietetics internship.

There are 22 hours of required departmental courses: FON 142, 241, 440, 441, 442, 444 and FRD 451 (maximum three semester hours).

General dietetics option. Additional departmental courses, totaling 19 hours, which are required are FON 341, 343, 344, 445, 446 and 448.

Management dietetics option. Additional departmental courses, totaling nine hours which are required are FON 341, 343 and 344.

Clinical dietetics option. Additional departmental courses, totaling seven hours, which are required are FON 446 and 448.

Community dietetics option. Additional departmental courses, totaling 10 hours, which are required are FON 341, 446 and 448.

Human nutrition option. Additional departmental course, totaling four hours, which is required is FON 446.

Family Resources and Human Development in Business

Food service management option. Consists of 18 hours of required departmental courses: FON 142, 241 or equivalent, 341, 343, 344 and 445. In addition, credits are required from the following: ACC 211, 212; AGB 364; HES 494; Food-Borne Diseases or Micro Ecology of Foods, MGT 301 or equivalent, 311, 413 (or 422 or 468), 423; and MIC 205, 206. Additional business courses are to be selected upon consultation with advisor.

Consumer service in foods option. Consists of 19 hours of required departmental courses: FAS 354, FON 142, 241 or equivalent, 341, 442; FRD 451. Other courses required for this degree totaling 24 semester hours are: ACC 498 or equivalent; AGB 364; HES 494; Food Borne Diseases or Micro Ecology of Foods; MGT 301 or equivalent; and MKT 300, 304, 310, 424.

Textiles and clothing option. Consists of 21 hours of required courses: TXC 122, 123, 223, 323, 424, 425 and 426. The student, with approval of the advisor must select at least 14 semester hours from the following: one COM course; FRD 451; TXC 221; 327; 423, 429; 494, 498. A minimum of four courses must be from TXC. In addition, 15 semester hours will be selected with approval of advisor from the following: ACC 211, ADV 301; ECN 111 (or FAS 354), GNB 233, MGT 301, 311, 440; MKT 300, 302, 304, 310, 325, 424.

Departmental Minor Requirements

The department minor in Family Resources and Human Development consists of 18 semester hours in which students must specialize in one of four emphases. These emphases consist of: (1) foods and nutrition in business, (2) nutrition, (3) family studies child development, and (4) textiles and clothing. Each of these emphases requires that at least 12 of the 18 hours must be upper division courses.

Specific requirements for each emphasis are as follows: (1) The foods and nutrition in business emphasis requires that students take FON 142; 343, 344, 442, 445, and FRD 451. (2) The nutrition emphasis requires that students take FON 241; 440, 441, 444 (please note that FON 440, 441 and 444 have prerequisites). This emphasis also requires that two courses (or six credit hours) be selected from the following: FON 446, 448; 450, 451; 531, 532, and 533 (please note that FON 531, 532, and 533 have prerequisites). (3) The family studies child development emphasis requires that students take CDE 232; 337; FAS 331; 357. This emphasis also requires that two courses (or six credit hours) be selected from the following: CDE 430, 437, 498, FAS 430, 431, 432. (4) The textiles and clothing emphasis requires that students take TXC 122; 223. This emphasis also requires that four courses (or 12 credit hours) be selected from the following: TXC 221, 323, 327; 424, 425, 426, 429.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree

Family Resources and Human Development. Consists of 51 semester hours in family resources and human development. Major courses required are: CDE 232, 337; DSC 223, 318, FAS 330, 331, 354, 357; FON 100, 142 or equivalent, FRD 451,

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472; HEE 461, 480, 481; POS 110 (or 310), 311; and TXC 122 or 123, 223.

Departmental Graduate Programs

The Department of Family Resources and Human Development offers programs leading to the M.S. degree. Consult the *Graduate Catalog* for requirements.

CHILD DEVELOPMENT

CDE 232 Human Development. 3 F, S

Life span development from conception through adulthood with emphasis on family influences. Recognition of individuality within the universal pattern of development. Prerequisites: PGS 100, SOC 101. [Satisfies General Studies Requirement SB]

337 Guided Interaction with Children. 3 F, S

Discussion and application of methods for communicating with children and for guiding young children in cognitive and social learning experiences. Participation in the child development laboratory. 1 lecture, 6 hours lab. Prerequisite: CDE 232 or equivalent.

430 Infant/Toddler Development in the Family. 3 F

An examination of the development of infants/toddlers, the socialization processes of families, and the interactions of these processes. Prerequisite: CDE 337 or equivalent. [Satisfies General Studies Requirement SB]

437 Observational and Naturalistic Methods of Studying Children. 3 S

In-depth examination of implementing observational and naturalistic studies of children in a variety of settings. 2 lectures, 3 hours lab. Prerequisites: CDE 430, 6 hours of psychology. [Satisfies General Studies Requirement SB]

531 Theoretical Issues in Child Development. 3 F

Major developmental theories, related research, and their application to family interaction. Prerequisites: CDE 430, 437; or instructor approval.

533 Research Issues in Child Development. (3 S)

An in-depth exploration and critique of research focusing on child development in a family setting. Prerequisites: CDE 531, FRD 500.

534 Integration of Child Development Research and Theory. (3 F)

Integrated approach to understanding the developmental, familial, and environmental influences on children's behavior. Prerequisites: CDE 531, FRD 500.

Special Courses: CDE 498, 498, 590, 592, 599. See pages 43–44.

FAMILY STUDIES

FAS 330 Personal Growth in Human Relationships. (3 F, S)

Personal development and behavior as related to competency in interpersonal relationships within the family. Processes of family interaction. Prerequisites: PGS 100, SOC 101 or equivalent. [Satisfies General Studies Requirement SB]

331 Family Relationships. 3 F, S

Issues, challenges and opportunities relating to present day family living. Factors influencing interrelations within the family. Prerequisite: course in psychology or sociology. [Satisfies General Studies Requirement SB]

332 Human Sexuality. 3 F, S

Relationship of sexuality to family life and to major societal issues. Emphasis on developing healthy, positive, and responsible ways of integrating sexual and other aspects of human living. Prerequisite: PGS 100.

354 Consumer Economics: Issues. 3 F, S

Relationship of the consumer to the economy as a determinant of the family pattern of living. Current consumer problems and sources of protection. [Satisfies General Studies Requirement SB]

357 Family Resource Management. 3 F, S

Management as a means to realization of individual and family values and goals, creation, allocation and use of resources. Focus on decisions on making. Prerequisites: PGS 100, SOC 101, or equivalent. [Satisfies General Studies Requirement SB]

361 Introduction to Family Child Research Methods. (3 S)

Examines basic methods applied to family child research, critiques current research literature, applies methods in current topics. Prerequisites: CDE 232, FAS 331, FRD 357.

390 Supervised Research Experience. 1-3 F, S, SS

Practical, first-hand experience with current faculty research projects in family studies or child development. Yearly grade on Y; may be repeated for total of 6 hours. Prerequisites: FAS 361, 3.00 GPA in major; approval of supervising faculty member prior to registration.

430 Parent-Child Relationships. 3 S

Needs of parents and children and the dynamics of parent-child interaction, centering on the years in the family life cycle through the children's elementary school experiences. Prerequisite: CDE 232, FAS 330 or 331.

431 Parent-Adolescent Relationships. 3 F

Dynamics of the relationships between parents and adolescents. Developmental characteristics of adolescence and the corresponding adult stage. Prerequisites: CDE 232, FAS 331.

432 Family Development. 3 N

Normative changes in families over time, from formation until dissolution. Emphasis on the marital subsystem in middle and later years. Prerequisites: CDE 232, FAS 331 or instructor approval.

435 Advanced Family Relationships. 3 F

Recent research issues and trends relating to family interaction, influence of family composition, physical environment, family patterns and values on family dynamics. Prerequisite: FAS 331. [Satisfies General Studies Requirement SB]

436 Conceptual Frameworks in Family Studies. 3 S

Significant organizing approaches to study of the family with particular focus on the ecosystem, interactional and developmental frameworks. Application to diverse individual and family situations. Prerequisites: CDE 232, FAS 331, 357 or 454.

440 Fundamentals of Counseling. (3 S)

Counseling in relation to family interaction, attention to communication skills relevant to a variety of helping relationships.

454 Consumer Economics: Family Finance. 3 S

Major family income and expenditure alternatives in attainment of family goals.

494 Special Topics: Third-World Women. 3 F

Economic, sociopolitical, and demographic context for understanding the roles of third-world women in health, family work, education and community. Prerequisite: 6 hours

of social science credit or instructor approval. Cross listed as NUR 457 SPF 457 WST 457. [Satisfies General Studies Requirements SB G]

531 Family Theory Development. (3 S)
Historical and current approaches to theory development, evaluation and application in family studies. Prerequisite: FAS 435 or instructor approval.

535 Family Relationships in the Middle and Later Years. (3) N
Developmental processes and generational relationships of the family in the middle and later stages of the family life cycle. Prerequisites: CDE 232 FAS 331, or instructor approval.

536 Family Crises and Resources. (3 N)
Special problems encountered in the family. Individual and community resources for approaching them. Prerequisites: CED 522 FAS 330 or equivalent.

537 Interpersonal Relationships. (3 F)
Critical examination of current theoretical and research developments in the area of interpersonal relationships. Applications for research and intervention emphasized. Prerequisite: FAS 435 or equivalent; or instructor approval.

538 Approaches to Marriage and Family Counseling. (3) N
Methods currently used in marriage and family counseling and consideration of theoretical bases underlying the methods. Prerequisite: instructor approval.

539 Research Issues in Family Interaction. (3 F)
Critical review of current and past research in the area of family dynamics. Emphasizes interactional processes within the family. Prerequisite: FAS 435 or equivalent or instructor approval.

551 Family Decision-Making. (3 F)
Theory and research focusing on centrality of decisions to management in family settings. Ecological systems approach to family decisions. Prerequisite: FAS 357 or instructor approval.

554 Family Economics. (3 N)
Analysis of public policy affecting family economic behavior with respect to divorce, taxation, credit, population, and other issues. Prerequisite: ECN 201 500 or FAS 354.

Special Courses: FAS 294 484, 494 498 499, 500 580, 584, 590 591 592 593 594, 598, 599. See pages 43-44.)

FOOD AND NUTRITION

FON 100 Introductory Nutrition. (3 F, S, SS)
Basic concepts of human nutrition. Alternative diets and how food choices affect personal health. Prerequisite: nonmajor.

142 Applied Food Principles. (3) F S
Applied scientific principles of food preparation and production. 2 lectures 3 hours lab.

241 Human Nutrition. (3 F, S, SS)
Principles of human nutrition relative to health. Emphasis on nutrients and the factors affecting their utilization in the human body. Prerequisite: CHM 101 or equivalent.

341 Food: Management and the Consumer. (3 S)
Factors affecting the food supply, consumer protection, buying and management of human and material resources. Laboratory. Planning, organizing, preparing and serving food. Management of time, money and energy. Consideration of nutrient needs, food quality and con-

sumer acceptability. 2 lectures, 3 hours lab. Prerequisites: FON 142, 241 or equivalent.

343 Food Service Systems Procurement. (3 F)
Food purchasing for institutions. Cost factors, food laws, quality standards, and basic manufacturing processes. 2 lectures, 3 hours lab. Field trips may be taken. Prerequisite: FON 341 or instructor approval.

344 Food Service Systems Management. (3) S
Organization, administration and management of food service in hospitals and other institutions. 2 lectures, 3 hours lab. Field trips may be included. Prerequisite: FON 343 or instructor approval.

440 Advanced Human Nutrition I. (3) F
Metabolic reactions and interrelationships of vitamins, minerals, and water. Prerequisites: CHM 361, FON 241 or equivalent. ZOL 202 CHM 332 recommended.

441 Advanced Human Nutrition II. (3) S
Metabolic reactions and interrelationships of carbohydrate and protein. Prerequisites: CHM 361, FON 241 or equivalent. ZOL 202. CHM 331 332 recommended.

442 Experimental Foods. (4) F
Food product development techniques, food evaluation and testing and investigation of current research into food composition. 2 lectures, 6 hours lab. Prerequisites: CHM 231, FON 142.

444 Diet Therapy. (3) S
Principles of nutritional support for prevention and treatment of disease. Prerequisites: FON 241 or equivalent. ZOL 202.

445 Quantity Food Production. (3) S
Standard methods of food preparation in quantity operation of institutional equipment. Menu planning for institution. Experience in quantity food service. 1 lecture, 6 hours lab. May require field trips. Prerequisites: FON 241 or equivalent. 343 344; or instructor approval.

446 Human Nutrition Assessment Laboratory. (4) S
Clinical and biochemical evaluation of nutritional status. 1 lecture 9 hours lab. Prerequisites: CHM 367 FON 440 or 441.

448 Community Nutrition. (3 F)
Food-related behaviors, community organization and delivery of nutrition services, program design, implementation, and evaluation strategies and nutritional assessment of population groups. Prerequisite: FON 241 or equivalent. SOC 101 and PGS 100 are recommended.

450 Nutrition in the Life Cycle I. (3 F)
Emphasis on nutritional needs and problems during pregnancy, lactation, infancy, and childhood. Prerequisite: FON 241 or equivalent.

451 Nutrition in the Life Cycle II. (3) S
The nutritional requirements and nutrition related disorders of adolescence, middle adulthood, and later life. Prerequisite: FON 241 or equivalent.

462 Consumer Service in Foods. (3) N
Organization, economics and marketing as related to the food and equipment industries. Prerequisite: FON 142.

531 Recent Developments in Nutrition. (3) N
Survey of research. Prerequisites: one course in advanced nutrition and one in biochemistry.

532 Current Research in Nutrition I. (3) S
Vitamins and minerals. Prerequisites: one course in advanced nutrition and one in biochemistry.

533 Current Research in Nutrition II. (3) F
Carbohydrates, lipids and proteins. Prerequisites: one course in advanced nutrition and one in biochemistry.

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538 Recent Developments in Foods. (3) N
Discuss and critique of current research. Prerequisites: CHM 232 FON 142

540 Advanced Micronutrient Metabolism. (3) F
The metabolism of vitamins and minerals primarily as applied to humans with research literature emphasized. Prerequisites: one course in basic nutrition and one in biochemistry

541 Advanced Macronutrient Metabolism. (3) S
The metabolism of protein, fat and carbohydrate, primarily as applied to humans with research literature emphasized. Prerequisites: one course in basic nutrition and one in biochemistry

542 Advanced Food Product Development. (4) F
Principles of food product development and testing including current government regulations. 2 lectures, 6 hours lab. Prerequisites: FON 142, inorganic chemistry

544 Therapeutic Nutrition. (3) S
Current theories of the nutritional prevention or treatment of various diseases. Prerequisites: one course in basic nutrition and one in physiology

545 Recent Developments in Institutional Feeding. (3) S
Current practices in institutional feeding including supervised practicum with on-campus quantity food operation. 1 hour lecture, 6 hours lab. Prerequisites: FON 142, 343, 344 or instructor approval

546 Assessment Techniques in Nutrition Research. (3) S
Current techniques in human nutrition research will be explored. Research literature will be reviewed and critiqued. Prerequisites: advanced nutrition and biochemistry

546L Laboratory Techniques in Nutrition Research. (2) S
Laboratory techniques required in nutrition research including spectroscopy, chromatography and RIA will be taught. Prerequisites: advanced nutrition and biochemistry

548 Nutrition Program Development. (3) F
The planning, development, implementation and evaluation of community nutrition programs including the process of grant applications. Prerequisites: one course in basic nutrition and one in sociology

550 Advanced Maternal and Child Nutrition. (3) F
Metabolic characteristics and nutritional needs of the pregnant woman, lactating woman, infant and child will be reviewed in depth. Prerequisites: one course in basic nutrition, physiology and biochemistry

551 Advanced Geriatric Nutrition. (3) S
Metabolic characteristics and nutritional requirements of the elderly will be reviewed in depth. Prerequisites: one course in basic nutrition, physiology and biochemistry, or instructor approval.

Special Courses: FON 294, 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599 (See pages 43-44)

FAMILY RESOURCES AND HUMAN DEVELOPMENT

FRD 330 Research Issues in the Family. (3) N
Study of current research issues in various areas which affect family life and individuals within families. Prerequisites: major junior standing or above.

451 Field Experience. (1-12) N
Supervised study in the area of student's specialization (CDE, FAS, FON, HEE, TXC) in cooperation with community

business institutions. Students must make arrangements with instructor one semester in advance of enrollment. FAS majors may repeat for a total of 3 hours. Prerequisites: completion of 60 hours, instructor approval. Prerequisite: family management [FAS] majors: FAS 357. Prerequisite: textiles and clothing [TXC] majors: intern program [12 semester hours], ECN 111 or 112, MKT 300; TXC 122 grade point average of 3.00; senior or standing the semester of program participation.

472 Housing and Society. (3) SS
Family housing as affected by legislation with application to contemporary housing.

500 Research Methods. (4) F
Purposes of research. Experimental design methods of data collection in thesis proposal development. Includes practical application on research laboratory. 3 hours lecture, 3 hours lab.

Special Courses: FRD 294, 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599 (See pages 43-44)

HOME ECONOMICS EDUCATION

HEE 461 Presentations in Home Economics. (3) F
Presentation and demonstration techniques in teaching home economics. Development of audio visual materials for home economics content areas. Prerequisites: junior or standing and instructor approval.

480 Methods of Teaching Home Economics. (3-4) F
Instruction, organization, presentation and evaluation of subject matter in home economics. HEE students register for 4 semester hours. Detached students register for 3 semester hours.

481 Teaching Occupational Home Economics. (3) S
Career orientation related to home economics, cooperative work related instruction, programs and youth club development associated with secondary home economics programs. May include field trips. Prerequisite: home economics major or minor.

582 Program Planning in Home Economics. (3) S
Planning and development of home economics programs.

583 Program Evaluation in Home Economics. (3) F
Theories and processes of program evaluation. Prerequisite: HEE 582.

585 Administration and Supervision of Home Economics Education. (3) N
Development of individual studies for state, city, school and college leadership roles. Emphasis on supervision of student teachers.

586 Current Trends of Teaching Home Economics. (3) N
Focus on teaching home economics related to current issues and problems facing families and society. Prerequisite: home economics major or minor.

Special Courses: HEE 294, 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599 (See pages 43-44)

TEXTILES AND CLOTHING

TXC 122 Clothing and Human Behavior. (3) F, S
Emphasizes cultural influences, human behavior and design. [Satisfies General Studies Requirement. SB]

123 Clothing Construction. (3) F, S
Construction processes related to fabrics, design and fashions. Course may be waived on successful completion

tion of a placement test given each semester during orientation week. 1 lecture, 4 hours studio

221 Pattern Designing. (3) S

Fat patterns used to develop fundamental principles in design. Individualized garments. 1 lecture, 4 hours studio. Prerequisites: TXC 122, 123

223 Introduction to Textiles. (3) F, S

Basic properties, processing, end uses, and care of textile products.

323 Advanced Textiles. (3) F, S

Textile technology, fiber science, dyeing, finishing, and other topics. 2 lectures, 3 hours lab. May include field trips. Prerequisites: CHM 101; TXC 223. CHM 231 recommended.

327 Analysis of Ready-to-Wear. (3) F, S

Analysis and evaluation of ready-to-wear apparel with emphasis on standards of quality for design, fabrication, production, and fit. Prerequisites: TXC 123, 223

423 Apparel Analysis. (3) F, S

Specialized processes used with a wide variety of apparel fabrics. Interrelationships between fabric properties and apparel design. 2 lectures, 2 hours studio. May include field trips. Prerequisite: TXC 321

424 History of Costume. (3) F, S

Evolution of costume from ancient Egypt to the 20th century. May include field trips. Prerequisites: an ARS course, TXC 122. *[Satisfies General Studies Requirements SB H]*

425 Twentieth Century Apparel. (3) F, S

Culture, decorative, and functional influences on clothing. Prerequisite: TXC 424

426 The Clothing and Textile Industries. (3) F, S

Organization and marketing problems and practices specific to the textile and clothing industries. May include field trips. Prerequisites: ECN 112, TXC 122, 223

429 Textile Analysis. (3) F, S

Introduction to textile testing equipment and evaluation of data. 2 lectures, 3 hours lab. May include field trips. Prerequisite: TXC 323

433 Sociopsychological Aspects of Clothing. (3) N

Sociopsychological theories applied to the selection and use of clothing. May include field trip. Prerequisites: ECN 111, SOC 101, TXC 122.

524 Evolution of Costume. (3) N

Evolution of costume from ancient Egypt to 20th century. Individual investigation of certain periods and cultures. May include field trips. Not open to students with credit in TXC 424. Prerequisite: upper division ARS course

525 Costume in the 20th Century. (3) N

Culture, decorative and functional influences on clothing. Individual investigation of certain periods and cultures. May include field trips. Not open to students with credit in TXC 425. Prerequisite: TXC 424

526 Clothing and Textile Economics. (3) N

A profile of textiles-related industries, government and labor demands, consumer expectations, and new products and markets. Prerequisites: ECN 111, two textile courses

529 Experimental Textile Analysis. (3) N

Current textile research and methods. Individual projects relating to textile performance. May include field trip. Prerequisite: TXC 323.

533 Theoretical Approaches to Clothing. (3) N

Theoretical approaches to the study of clothing. Individual investigation of selected theories. May include field trip

Not open to students with credit in TXC 433. Prerequisites: ECN 111, SOC 101, TXC 122

Special Courses: TXC 294, 394, 484, 494, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599. See pages 43-44

Foreign Languages

REGENTS' PROFESSOR:

KELLER

PROFESSORS:

HORWATH (LL B 404), AHERN, ALARCON (ASU WEST CAMPUS), ALEXANDER, CARLSON, COUCH, CURRAN, EKMAN S, FLYS, FOSTER, FRIDMAN, VALDIVIESO, VIRGILLO, VOLEK, WIXTED

ASSOCIATE PROFESSORS:

BALDIN, CARDENAS (ASU WEST CAMPUS), CARVER, COTA, CARDENAS, CROFT, GUNTERMANN, HENDRICKSON, KNOWLTON, LAFFORD, LOSSE, RADKE, REIMAN, RIEGELHAUPT, RODD, SENNER, VASQUEZ, WOLLAM

ASSISTANT PROFESSORS:

BOYER, BURTON, CACHEY, GRUZINSKA, LAETZ, NIGRO, SMMONS, TIPTON, WILLIAMS

INSTRUCTORS:

HABERMAN, MORGAN, OSSIPOV, TU

LECTURER:

SAEGUSA

PROFESSORS EMERITI:

ACEVEDO, BNINGER, BOWMAN, GROBE, LANDEIRA, LOWE, LUENOW, MARTINEZ, SCHUBACK, SHEPPARD, VON DER HEYDT, WILSON, WIRTZ

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

Asian Languages (Chinese or Japanese), French, German, Italian, Russian, Spanish.

Consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the advisor in consultation with the student. Of the 30 hours required for the major, a minimum of 24 hours must be taken above the 200 level and must include at least nine hours at the 400 level or above. Specific required courses for each major area are listed in a brochure available in the department. (See degree requirements, page 97.)

Departmental Minor Requirements

Asian Languages (Chinese or Japanese), French, German, Italian, Russian, Spanish

Consists of 18 hours, of which 12 hours must be upper division. Specific required courses for each area are listed in a brochure in the department.

Asian Studies Emphasis. Consists of the B.A. requirements in Asian Languages. In addition to the required 45 semester hours, 15 hours of Asian content courses selected with the approval of the student's advisor must be completed. Fulfillment of these requirements will be recognized on the transcript as a major in Asian Languages (Chinese or Japanese)—Asian studies emphasis. (For an Asian studies emphasis in other disciplines, see Asian studies, page 101.)

Latin American Studies Emphasis. (See Latin American studies, page 102.) Consists of the B.A. requirements in Spanish. At least 30 upper division semester hours of the total program must be in Latin American content courses including 15 hours in Spanish and 15 in other disciplines. A reading knowledge of Spanish or Portuguese is required, and a reading knowledge of the other language is suggested. The program must be approved by the Center for Latin American Studies. Fulfillment of requirements is recognized on the transcript as a bachelor's degree with a major in Spanish Latin American studies emphasis.

Mexican American Studies Emphasis. Consists of 45 semester hours, of which 30 hours must be in Spanish to include SPA 421, 464 and 471 and 15 hours in Mexican American content courses as related fields. Fulfillment of requirements is recognized on the transcript as a major in Spanish Mexican American studies emphasis.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Asian Languages (Chinese or Japanese), French, Italian, German, Russian, Spanish. Consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the advisor in consultation with the student. Of the 30 hours required for the major a minimum of 24 hours must be taken above the 200 level and must include at least nine hours at the 400 level or above. Specific required courses for each major area are listed in a brochure available in the department.

Departmental Minor Teaching Field Requirements

(Secondary Education)

Consists of a minimum of 24 semester hours in one foreign language of which at least 18 hours must be taken above the 200 level. See departmental brochure for listing of required courses in each minor area.)

Departmental Graduate Programs

The Department of Foreign Languages offers programs leading to the degrees of M.A. in French, German and Spanish, and the Ph.D. in Spanish. Consult the *Graduate Catalog* for requirements.

Foreign Languages for International Professions

The sequence of two semesters, listed under numbers 107 and 207 in four languages (Chinese, French, Japanese, and Spanish), integrates an accelerated study, a functional approach to course design, and preparation for international professions (e.g., business, diplomacy, international political economy). It is parallel to the traditional sequence of 101 through 202 and will also satisfy the Liberal Arts foreign language requirement for the B.A. degree. The sequence differs from traditional basic language programs in that all aspects of the language—vocabulary, grammar, and skill development—are practiced within the context of authentic communication for social and professional purposes in the target culture. Classes meet eight hours weekly, for eight semester hours in each of two semesters (10 hours weekly), for 10 semester hours in Chinese and Japanese.

Those who have had success in learning one foreign language are encouraged to join this program in a second language. Students should contact the Department of Foreign Languages prior to registration.

Certificate Program in Translation

The Certificate Program in Translation is designed to provide the advanced training required for professional translation in both public and private sectors, preparation for the rigorous examinations required by national and international agencies, and training as an ancillary skill for professional fields, such as international business, public health and medicine, law, etc., in accordance with guidelines recommended by the American Translators' Association. The certificate is a nondegree program consisting of 15 semester hours of course work and two hours of in

service practicum primarily into the receptor language of English from the source languages of French and Spanish. It may be taken simultaneously with course work leading to an undergraduate or graduate degree, as a related area sequence, or as the sole program of study for members of the community who meet the admission requirements of the certificate program, but who are not enrolled in a degree program.

Admission Requirements. Since entrance to professional translation is through work, and cultural experience and examination, the two entrance requirements to this certificate program are: (1) A written proficiency examination in the source and the receptor languages at the level of completion of the fourth year or most advanced composition course in French or Spanish, which at Arizona State University are FRE 412 and SPA 412 (2) One of the following: (a) an academic year at a university in a French speaking or Spanish speaking country; (b) extensive work experience using French or Spanish, or (c) demonstrated bilingual facility, both written and oral, in English and either French or Spanish.

Certificate Requirements. The certificate program consists of 15 semester hours of required courses: six hours general theory of linguistics and translation as a profession (FLA 400, 401), nine hours of applied translation electives in specialized areas (FLA 481, 482, 483, 485), and two hours of in service practicum (FLA 484).

Foreign Language Requirement and Placement

The College of Liberal Arts and Sciences requires knowledge of one foreign language equivalent to the completion of two years' study at the college level. This normally includes a sequence of courses numbered 101, 102, 201 and 202 or 107 and 207. For important exceptions in French, Greek and Portuguese, see statement at head of respective course descriptions.

Students who have completed their secondary education in a school where a foreign language was the official language of instruction will be considered as having satisfied the foreign language requirement. (See page 98.)

Languages not taught at Arizona State University will be accepted only as transfer credit, or upon successful passing of a proficiency examination from an approved university. (See page 97.)

Ordinarily, no placement or proficiency examination is administered to students who wish to continue studying a foreign language for which

high school credits have already been received. Students should be guided by the following principles of equivalency:

1. One unit (one academic year of high school level study will be considered, for placement purposes only, to equal one semester of study of the same language at the university level. Thus, students with one year of high school study would enroll in the second semester course (102); with two years of high school study, in the third semester course (201), etc.
2. Students who feel that their high school language preparation was inadequate may choose to place themselves on a lower level, but not lower than 111 with two or three years of high school study and 201 with four years of high school study.

Students with prior knowledge of a language may have all or part of their requirement waived in any one of the following ways: (1) by satisfactory results in a departmental proficiency examination; (2) by achieving a grade of at least "C" in the last course of the required sequence; or (3) by achieving a grade of at least "C" in a course at the next higher level.

If college transfers are uncertain about course equivalencies, they should contact the Department of Foreign Languages.

Language Laboratory Requirement

All students enrolled in 101, 102, 201 and 202 language courses are expected to spend a minimum of one hour per week in the language laboratory in addition to the regular class periods.

FOREIGN LANGUAGES

FLA 150 Introduction to East Asian Culture. 3 S
An introduction to the cultures of China, Japan and Korea [Satisfies General Studies Requirements HU, G]

323 Survey of Soviet Literature in Translation. 3 F, S
Knowledge of Russian is not required. Survey of the major literary movements, prominent authors and the most significant works of prose, poetry and drama of the Soviet period (1917 to present) [Satisfies General Studies Requirement. HU]

400 Linguistics. 3 S
Surveys major theories of current linguistic study and explores their application to specific issues of English and the Romance Languages, and language teaching. Open to sophomores and juniors with instructor approval. [Satisfies General Studies Requirement. SB]

401 Translation Theory and Practice. 3 N
Translation theories and professional practices and ethics, bibliography, computer technology and sample texts for natural and social sciences and humanities. Prerequisite: fourth year composition or instructor approval in respective language area.

130 FOREIGN LANGUAGES

415 Bilingualism and Languages in Contact. 3 F

Analysis of linguistic aspects of bilingualism e.g. pidgins and creoles code switching and other contact phenomena simultaneous or sequential bilingual language acquisition Prerequisite: FLA 400 or equivalent, or instructor approval [Satisfies General Studies Requirement SB]

420 Foreign Literature in Translation. 3 F S

Not for language majors except in Asian languages and Russian open to language majors as a related area course Graduate students by permission No prerequisite

a Brazilian	h Latin
b Chinese	Portuguese
c French	(j) Russian
d German	k Soviet
e Greek	Spanish
f Italian	m Spanish American
g Japanese	

[Satisfies General Studies Requirements HU G H]

425 Cultural Heritage. 3 F SS

Aspects of political, cultural, social and artistic development of a foreign culture Not for language majors except as a related area course Graduate students by permission

480 Methods of Teaching Foreign Languages. 3 F

Teaching foreign languages and literatures at secondary and college levels This course will not meet the Liberal Arts and Sciences General Studies requirement for humanities and fine arts Required for admission to SED 433 Prerequisite: 12 hours of upper division courses in one foreign language [Satisfies General Studies Requirement SB]

481 Technical and Scientific Translation. 3 N

Resources practices strategies and excon for translation of professional texts engineering architecture agriculture computer technology electronics physics and biological sciences etc Prerequisite: FLA 401

482 Business and Financial Translation. 3 N

Resources practices strategies and excon for translation of professional texts economics finance insurance, management marketing accounting, advertising real estate etc Prerequisite: FLA 401

483 Medical and Legal Translation. 3 N

Resources and strategies for translation of professional texts medicine nursing public health criminal justice, international law etc May be repeated for a total of 6 semester hours Prerequisite: FLA 401

485 Problems of Literary Translation. 3 N

Theory and practice with emphasis on application through individual translation projects May be repeated for a total of 6 semester hours Prerequisite: FLA 401 or instructor approval in the respective language area

515 Second Language Acquisition. 3 S

Description and analysis of second language acquisition and learning simultaneous or sequentially in natural and artificial settings Prerequisite: FLA 400 or equivalent or instructor approval

525 Trends and Issues in Foreign Language Teaching. 3 N

Advanced methods seminar designed for experienced teachers

Special Courses: FLA 294 394 484 494, 497 498 499 590 591, 594 594 598 See pages 43–44

CHINESE

CHI 101 Elementary Chinese. 5 F

Pronunciation grammar elementary conversation, development of basic reading and writing skills Standard dialect 5 class hours

102 Elementary Chinese. 5 S

See CHI 101 Prerequisite: CHI 101 or equivalent

107 Chinese for International Professions I. (10 F

Accelerated program alternative to CHI 101, 102 sequence Functional approach to needs of international professions Ten class hours

201 Intermediate Chinese. 5 F

Systematic review of grammar Development of vocabulary through reading writing Dramatic oral skills 5 class hours Prerequisite: CH 102 or equivalent [Satisfies General Studies Requirement G]

202 Intermediate Chinese. 5 S

See CHM 201 Prerequisite: CH 102 or equivalent [Satisfies General Studies Requirement G]

205 Chinese Calligraphy. 1 F S

An introduction to styles and techniques of Chinese writing Knowledge of Chinese or Japanese is not required.

207 Chinese for International Professions II. 10 S

Continuation of CH 107, an alternative to CHI 107 sequence Expansion of communicative proficiency in specific areas of international professions Ten class hours Prerequisite: CH 107 or instructor approval [Satisfies General Studies Requirement G]

309 Chinese Conversation. 2 F

Aural oral drills using contemporary stories, articles and essays For students with lower level proficiency Prerequisite: CH 202 [Satisfies General Studies Requirement G]

310 Chinese Conversation. 2 S

See CHI 309 Prerequisite: CH 202 [Satisfies General Studies Requirement G]

311 Chinese Conversation. 2 F

Intensive aural oral practice toward fluency in Modern Chinese, dealing with contemporary plays and/or radio and movie scripts Prerequisite: CH 202 [Satisfies General Studies Requirement G]

312 Chinese Conversation. 2 S

See CHI 309 Prerequisite: CH 202. [Satisfies General Studies Requirement G]

313 Advanced Chinese. 3 F

The modern language in general, or specific areas depending on the student's needs or interests 3 lectures plus arranged lab Prerequisite: CH 202 or equivalent. [Satisfies General Studies Requirement G]

314 Advanced Chinese. 3 S

Continuation of CH 313 Prerequisite: CH 313 [Satisfies General Studies Requirement G]

321 Chinese Literature. 3 F

Selected representative works of the various genres and periods Prerequisite: CH 202 or instructor approval

322 Chinese Literature. (3 S

See CHI 321 Prerequisite: CH 202 or instructor approval [Satisfies General Studies Requirement G]

413 Introduction to Classical Chinese. (3 F

Reading in various genres of pre 20th century literature wen yan with analysis of the structure of the class characters Prerequisite: CHI 202 or equivalent

414 Introduction to Classical Chinese. (3 S

Continuation of CHI 413 Prerequisite: CHI 413

Special Courses: CH 294 394 492 493 494 499 590 See pages 43–44

FRENCH

Any two of the 200 eve courses may be taken in any order or simultaneously to satisfy the Liberal Arts and Sciences language requirements

FRE 101 Elementary French 4 F S SS
Intensive audio-oral instruction in class and laboratory basic grammar supplemented by sample prose readings 4 lectures 1 hour lab Not open to students with credit in FRE 111

102 Elementary French. 4 F S, SS
See FRE 101 Prerequisite: FRE 101 or equivalent

107 French for International Professions I. 8 F
Accelerated alternative to FRE 101, 102 Functions approach Emphasis on speaking understanding, writing reading for communicative competence for international professions

111 Fundamentals of French 4 F S
Prerequisite for students with two years of high school French who need review to enter second year study Not open to students with credit in FRE 101 or 102 4 lectures 1 hour lab

201 Intermediate Grammar Review. 4 F S SS
A thorough review of French grammar including functional usage 4 lectures Prerequisite: FRE 102 111 or equivalent [Satisfies General Studies Requirement G]

203 French Conversation 4 F S SS
Current usage in expression of ideas Especially recommended for students who plan to travel in French speaking countries or who desire supplementary practice in speaking and understanding before advancing to 300 level courses. 1 hour lab required Prerequisite: FRE 102 111 or equivalent [Satisfies General Studies Requirement G]

205 Intermediate Reading. 4 F S
Extensive reading in 19th and 20th century literary and cultural texts Designed to increase the student's vocabulary and to teach prompt recognition of stylistic usages and grammatical structures Prerequisite: FRE 102 111 or equivalent [Satisfies General Studies Requirement HU, G]

207 French for International Professions II. 8 S
Continuation of FRE 107, alternative to FRE 201, 203 sequence Expansions of communicative proficiency in specific areas of international professions. Prerequisite: FRE 107 or instructor approval [Satisfies General Studies Requirement G]

311 French Conversation. 3 F, S
Further practice speaking French emphasizing current usage and promoting facility in the expression of ideas Prerequisites: FRE 203 and 201 or 205, or equivalent [Satisfies General Studies Requirement G]

312 French Composition. 3 F S
Further practice in writing French emphasizing current usage and promoting facility in the expression of ideas Prerequisite: 8 hours of 200 level French, or equivalent [Satisfies General Studies Requirement G]

319 Business Correspondence and Communication. 3 S
Organization and presentation of clear, effective business communications vocabulary applicable to modern business usage Prerequisite: FRE 312 or instructor approval [Satisfies General Studies Requirement G]

321 French Literature. 3 F, S
Representative masterpieces and significant movements of French literature of the middle ages through the 18th century Prerequisites: FRE 205 plus either FRE 203 or FRE 311 or equivalent [Satisfies General Studies Requirement L2 HU H]

322 French Literature. 3 F, S
Literature of the 19th and 20th centuries Prerequisites: FRE 205 plus either FRE 203 or FRE 311 or equivalent [Satisfies General Studies Requirement L2 HU H]

410 French Phonetics and Diction. 2 F
Theory and practical application Prerequisite: FRE 311 312 or equivalent

411 Advanced Spoken French. 3 F
Improvement of spoken French Prerequisites: 9 hours of 300 level French including FRE 311 or equivalent. [Satisfies General Studies Requirement G]

412 Advanced Written French. 3 S
Improvement of composition skills Prerequisites: 9 hours of 300 level French, including FRE 312 or equivalent [Satisfies General Studies Requirement G]

415 French Civilization. 3 S
Political, intellectual, social, economic and artistic development of the French nation from its origins to the present Prerequisite: 6 hours of upper division French [Satisfies General Studies Requirement HU G]

441 French Literature of the 17th Century. 3 N
From 1600 to 1660 Prerequisite: 9 hours of 300 level French including FRE 321 or instructor approval [Satisfies General Studies Requirement HU H]

442 French Literature of the 17th Century. 3 N
From 1660 to 1700 Prerequisite: 9 hours of 300 level French including FRE 321 or instructor approval [Satisfies General Studies Requirement HU H]

445 French Literature of the 18th Century. 3 N
Contributions of the philosophers development of the novel and drama Prerequisite: 9 hours of 300 level French, including FRE 321 or instructor approval [Satisfies General Studies Requirement L2 HU]

451 French Poetry of the 19th Century. 3 N
From Romanticism to Parnassian poetry to Symbolism Prerequisite: 9 hours of 300 level French including FRE 322, or instructor approval

452 French Novel of the 19th Century. 3 N
From Constant Hugo Balzac Stendhal and Sand to Flaubert and Zola with emphasis on major literary movements Prerequisite: 9 hours of 300 level French including FRE 322, or instructor approval [Satisfies General Studies Requirement HU H]

453 Theater of the 19th Century. 3 N
From Romantic drama to the Symbolist Theater. Representative plays of Hugo Musset, Victor Hugo, Dumas, Becque, Rostand, Feydeau and Molière Prerequisite: 9 hours of 300 level French, including FRE 322 or instructor approval

461 Pre-Atomic Literature. 3 F
Representative authors from Proust, Mauriac to Sartre, from 1900 to 1945 Prerequisite: 9 hours of 300 level French, including FRE 322 or instructor approval [Satisfies General Studies Requirement HU]

462 Post-Atomic Literature. 3 S
Representative authors including Camus, Duras and Robbe-Grillet, from 1945 to present. Prerequisite: 9 hours of 300 level French including FRE 322, or instructor approval [Satisfies General Studies Requirement HU]

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471 The Literature of Francophone Africa and the Caribbean. 3 N

Selected prose poetry and drama of Black authors from Africa and the Caribbean. Prerequisite: 9 hours of 300-level French including FRE 322 or instructor approval. [Satisfies General Studies Requirement L2 HU]

500 Bibliography and Research Methods. 3 F

Required of all graduate students

510 Explication de Textes 3 N

Detailed analysis of literary texts

515 Intellectual Currents in France, from the Middle Ages to the 18th Century. 3 N

Significant social, aesthetic, philosophical and scientific ideas as presented by major writers of fiction and nonfiction

516 Intellectual Currents in France, from the 19th Century to the 20th Century. 3 N

See FRE 515

521 History of the French Language. 3 N

Principal phonological morphological semantic developments of French from antiquity to present with emphasis on old and middle French. Prerequisite: some familiarity with Latin recommended

531 Medieval French Literature. 3 F

Readings in the epic, early drama, roman courtois and other representative literary genres of the Middle Ages

535 French Literature of the 16th Century. 3 S

Reading in French Renaissance literature with special attention to the humanist movement and to Rabelais, Montaigne and the Pléiade

591 Seminar. 3 N

Topics may be selected from the following:

- a. French Literary Criticism
- b. Corneille, Molière and Racine
- c. Diderot, Voltaire and Rousseau
- d. Balzac
- e. Romanticism
- f. Proust
- g. Realism and Naturalism
- h. French Existential Literature
Advanced Problems in French Literature
Faubert
- k. Stendhal and Zola

Special Courses: FRE 294, 394, 492, 493, 494, 498, 499, 590, 592, 598, 599. See pages 43–44

GERMAN

GER 101 Elementary German. 4 F S SS

Reading, writing, speaking and understanding of basic German with emphasis on pronunciation and grammar. 4 lectures, 1 hour lab. Not open to students with credit in GER 111

102 Elementary German. 4 F S SS

See GER 101. Prerequisite: GER 101 or equivalent

111 Fundamentals of German. 4 F, S

Primarily for students with two years of high school German who need review to enter second year study. 4 lectures, 1 hour lab. Not open to students with credit in GER 101 or 102

201 Intermediate German. 4 F, S, SS

Intensive review of grammar with emphasis on the development of the skills of speaking, listening, comprehension, reading, and writing. 4 lectures, 1 hour lab. Prerequisite: GER 102 or 111 or equivalent. [Satisfies General Studies Requirement G]

202 Intermediate German. 4 F S SS

See GER 201. Prerequisite: GER 102 or 111 or equivalent. [Satisfies General Studies Requirement G]

303 Scientific German. 3 N

Acquisition of a specialized vocabulary through the reading of German scientific publications. Prerequisite: GER 102 or 111

304 Scientific German. 3 N

See GER 303. Prerequisite: GER 102 or 111.

311 German Conversation. 3 F

Expansion of domain through oral practice dealing with contemporary articles, essays and stories. 3 semester hours, met for majors. Prerequisite: GER 202 or equivalent. [Satisfies General Studies Requirement G]

312 German Conversation. 3 S

See GER 311. Prerequisite: GER 202 or equivalent. [Satisfies General Studies Requirement G]

313 German Composition. 3 S

Intensive practice in writing, emphasizing style and grammar. Prerequisite: GER 202 or equivalent. [Satisfies General Studies Requirement G]

314 Introduction to German Literature. 3 F

Beginning study of German poetry, drama, the novel and the *Novelle*. Prerequisite: GER 202 or equivalent

319 Business Correspondence and Communication. 3 N

Organization and presentation of clear, effective business communications. Vocabulary applicable to modern business usage. Prerequisite: GER 313 or instructor approval. [Satisfies General Studies Requirement G]

321 German Literature. 3 F

From the beginning to the present. Prerequisite: GER 202 or instructor approval. [Satisfies General Studies Requirement HU]

322 German Literature. 3 S

From romanticism to the present. Prerequisite: GER 202 or instructor approval. [Satisfies General Studies Requirements L2 HU]

411 Advanced Grammar and Conversation. 3 F

Improvement of diction and domain through intensive oral review. Prerequisite: GER 311 or 312 or equivalent. [Satisfies General Studies Requirement G]

412 Advanced Grammar and Composition. 3 S

Improvement of writing ability. Prerequisite: GER 313 or equivalent. [Satisfies General Studies Requirement G]

415 German Civilization. 3 F

Aspects of political, social and cultural life of the German speaking world from the beginning through 1600. Prerequisite: any 300-level course in German or instructor approval. [Satisfies General Studies Requirements HU, H]

416 German Civilization. 3 S

From 1600 through 1945. Prerequisite: any 300-level course in German or instructor approval

445 German Literature: Enlightenment to Classicism. 3 N

Major works of the literary epochs in the 18th century. Prerequisite: GER 321 or instructor approval

451 German Literature: Biedermeier to Naturalism. 3 N

Representative works of prose and poetry from 1820 to 1890. Prerequisite: GER 322 or instructor approval

461 Contemporary German Literature. 3 S SS

German writers since 1945. Prerequisite: GER 322 or instructor approval

- 500 Bibliography and Research Methods.** 3 N
Required of a graduate students
- 511 German Stylistics.** 3 N
Art of writing literary German comparative stylistics
- 521 History of German Language.** 3 N
Linguistic development of German from the earliest records to the present.
- 523 German Drama.** 3 N
Drama of the 19th and 20th centuries
- 525 German Novel.** 3 N
Special studies in the German novel
- 527 The Novelle.** 3 N
Special studies in the German short story
- 531 Middle High German Language and Literature.** 3 N
Reading and discussion of specimens of the Middle High German epic romances and other literary genres
- 541 Baroque.** 3 N
Studies in poetry, prose and drama of the 17th and early 18th centuries
- 551 Romanticism.** 3 N
Treatment of early and late Romanticism
- 555 Modern German Literature.** 3 N
Major works from the period of Expressionism to 1945
- 591 Seminar.** 3 N
Special topics are concerned with a figure, theme or work in German literature or Germanic studies. Topics may be selected from the following:
- | | |
|-----------|----------------------|
| a) Goethe | e) Kafka |
| b) Faust | f) Hesse |
| c) Scher | g) Grass and Bö |
| d) Kest | (h) Germanic Studies |
- Special Courses:** GER 294, 394, 492, 493, 494, 498, 499, 590, 592, 598, 599. See pages 43–44

GREEK

Competence of GRK 101, 201, 301, and 302 will satisfy the Liberal Arts and Sciences language requirements

- GRK 101 Elementary Greek.** 4 F
For beginning students only
- 201 Intermediate Greek.** 4) S
Continuation of GRK 101. Prerequisite: GRK 101 or instructor approval
- 301 Greek Literature.** 3 F,
Readings in the masterpieces of ancient Greek literature advanced grammar. Authors read are changed each year in accordance with needs of the class. May be repeated for credit. Prerequisite: GRK 201 or instructor approval [Satisfies General Studies Requirement: HU]
- 302 Greek Literature.** 3 S
See GRK 301. Prerequisite: GRK 201 or instructor approval. [Satisfies General Studies Requirement: HU]
- Special Courses:** GRK 294, 394, 492, 493, 494, 499
See pages 43–44

ITALIAN

- ITA 101 Elementary Italian.** 4 F, S
Aural oral drill in class and laboratory and basic grammar supplemented by sample prose readings. 4 lectures, 1 hour lab
- 102 Elementary Italian.** 4 F, S
See ITA 101. Prerequisite: ITA 101 or equivalent

- 201 Intermediate Italian.** 4 F, S
Intensive review of the fundamentals of Italian grammar: case structure to increase the student's ability in composition, translation and dramatic expression. 4 lectures, 1 hour lab. Prerequisite: ITA 102 or equivalent [Satisfies General Studies Requirement: G]
- 202 Intermediate Italian.** 4 F, S
See ITA 201. Prerequisite: ITA 102 or equivalent [Satisfies General Studies Requirement: G]
- 311 Italian Composition and Conversation.** 3 F, S
Development of writing ability and oral expression. Prerequisite: ITA 202 or equivalent [Satisfies General Studies Requirement: G]
- 312 Italian Composition and Conversation.** (3 F, S
See ITA 311. Prerequisite: ITA 202 or equivalent [Satisfies General Studies Requirement: G]
- 314 Advanced Italian.** 3 N
An advanced grammar and composition course with readings of selected literary works. Prerequisite: ITA 202 or instructor approval [Satisfies General Studies Requirement: G]
- 325 Introduction to Italian Literature.** 3 F
Italian literature through the interpretation of representative works in drama, poetry and novel. Prerequisite: ITA 312 or instructor approval [Satisfies General Studies Requirement: HU]
- 415 Italian Civilization.** (3) N
A general survey of the history, literature, art and music emphasizing Italian cultural contribution to Western civilization. Prerequisite: 6 hours of upper division Italian [Satisfies General Studies Requirements: HU, G, H]
- 430 Italian Literature of the Middle Ages.** 3 N
Emphasis on St. Novo, Dante's minor works, Petrarch and Boccaccio. Prerequisite: ITA 325 or instructor approval [Satisfies General Studies Requirements: HU, H]
- 441 Dante: Divina Commedia.** 3 N
Critical reading of the three *Cantiche*: *Inferno*, *Purgatorio*, *Paradiso*. Prerequisite: ITA 325 [Satisfies General Studies Requirement: HU]
- 443 Italian Literature of the Renaissance.** 3 N
Emphasis on Lorenzo de Medici, Poliziano, Castiglione, Machiavelli, Ariosto and Tasso. Prerequisite: ITA 325 or instructor approval [Satisfies General Studies Requirements: HU, H]
- 446 Italian Literature of the 18th and 19th Century.** 3 N
Gordon Parinafer the poetry of Foscolo and Leopardi and the socio-historical novel of Foscolo, Manzoni and Verga. Prerequisite: ITA 325 or instructor approval [Satisfies General Studies Requirements: HU, H]
- 449 20th-Century Italian Literature.** (3) N
Major works, figures and movements of contemporary Italian literature. Prerequisite: ITA 325. [Satisfies General Studies Requirements: HU, G]
- Special Courses:** ITA 294, 394, 492, 493, 494, 499
See pages 43–44

JAPANESE

- JPN 101 Elementary Japanese.** 5 F
Communication skills: basic grammar, basic reading and writing skills including hiragana, katakana, and about 250 kanji. 5 class hours

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102 Elementary Japanese. 5 S

See JPN 101 Prerequisite JPN 101 or equivalent

107 Japanese for International Professions I. 10 F

Accelerated program alternative to JPN 101 102 sequence Functional approach to needs of international professions. Ten class hours

201 Intermediate Japanese. 5 F

Continued development of communication skills Increased emphasis on reading and writing Review of fundamentals of structure to increase students abilities in composition and translation 5 class hours Prerequisite JPN 102 or equivalent [Satisfies General Studies Requirement G]

202 Intermediate Japanese. 5 S

See JPN 201 Prerequisite JPN 102 or equivalent [Satisfies General Studies Requirement G]

206 Calligraphy. 1 N

Introduction to the practice of calligraphy Japan with emphasis on the derivation of Japanese kana syllabaries from Chinese characters Prerequisite CH 205 or JPN 101

207 Japanese for International Professions II. 10 S

Continuation of JPN 107 alternative to JPN 201 202 sequence Expansion of communicative proficiency in specific areas of international professions Ten class hours. Prerequisite JPN 107 or instructor approval [Satisfies General Studies Requirement G]

309 Intermediate Japanese Conversation. 2 F

Practice in correct usage and expression of ideas Recommended especially for those who have not had the opportunity to practice Japanese in Japan Prerequisite JPN 202 [Satisfies General Studies Requirement G]

310 Intermediate Japanese Conversation 2 S

Continuation of JPN 309 Prerequisite JPN 309 Satisfies General Studies Requirement G]

311 Japanese Conversation and Composition. 3 F

Intensive audio practice leading toward conversational fluency Practice in writing Japanese emphasizing current usage Prerequisite JPN 22 [Satisfies General Studies Requirement G]

312 Japanese Conversation and Composition. 3 S

See JPN 311 Prerequisite JPN 202 [Satisfies General Studies Requirement G]

313 Advanced Japanese 3 F

Continued development in ability to communicate orally and in writing Exposure to the variety of Japanese written styles Prerequisite JPN 202 or equivalent [Satisfies General Studies Requirement G]

314 Advanced Japanese. 3 S

See JPN 313 Prerequisite JPN 313 or instructor approval [Satisfies General Studies Requirement G]

321 Japanese Literature. 3 N

Readings in representative masterpieces of modern Japanese literature Authors read change each year in accordance with the needs of the class May be repeated for credit Prerequisite JPN 313 or instructor approval [Satisfies General Studies Requirements L2, G]

414 Introduction to Classical Japanese. 3 S

Readings from various genres of pre 20th century literature with analysis of the structure of the classical language Prerequisite JPN 313 or instructor approval [Satisfies General Studies Requirement H]

Special Courses: JPN 294 394 492 493 494 499 590 See pages 43-44

LATIN

LAT 101 Elementary Latin. 4 F, S

For beginning students only

102 Elementary Latin. 4 F, S

See LAT 101 Prerequisite LAT 101 or equivalent

201 Intermediate Latin. 4 F, S

Selected Latin literature both classical and post classical Virgil's *Aeneid* advanced grammar Prerequisite LAT 102 or instructor approval [Satisfies General Studies Requirement HU]

202 Intermediate Latin. 4 F, S

See LAT 201 Prerequisite LAT 102 or instructor approval [Satisfies General Studies Requirement HU]

421 Roman Literature. 3 F

Readings in the Latin masterpieces Authors read change each year in accordance with needs of the class May be repeated for credit Prerequisite LAT 202 or instructor approval

422 Roman Literature. 3 S

See LAT 421 Prerequisite LAT 202 or instructor approval

Special Courses: LAT 294 394 492 493 494 499

See pages 43-44

PORTUGUESE

Completion of POR 101 201 313 and 314 will satisfy the Liberal Arts and Sciences language requirements.

POR 101 Elementary Portuguese. 5 F

Basic grammar with intensive drill in class and laboratory directed toward conversational fluency 5 lectures, 1 hour lab Prerequisite 1 year of Spanish French or Italian or instructor approval

201 Intermediate Portuguese. 5 S

Continuation of POR 101. Intensive drill of fundamentals in class and laboratory directed toward conversational fluency 5 lectures 1 hour lab Prerequisite POR 101 or instructor approval [Satisfies General Studies Requirement G]

313 Portuguese Composition and Conversation. 3 F

Designed to develop skill in written Portuguese and corrected oral expression Must be taken in sequence. Prerequisite POR 201 or instructor approval [Satisfies General Studies Requirement G]

314 Portuguese Composition and Conversation. 3 S

Continuation of POR 313 Prerequisite POR 313 or instructor approval [Satisfies General Studies Requirement G]

321 Luso-Brazilian Literature. 3 N

Representative masterpieces of Portuguese and Brazilian literature from the beginning to the present Prerequisite POR 313 or instructor approval [Satisfies General Studies Requirement HU]

472 Luso-Brazilian Civilization. 3 N

Lectures readings and discussion of important aspects of Luso-Brazilian civilization Topics from music, art, folklore, literature, history and politics. Prerequisite POR 313 or instructor approval [Satisfies General Studies Requirements HU, G]

Special Courses: POR 294, 394, 492, 493 494 499 590 See pages 43-44

RUSSIAN

RUS 101 Elementary Russian. 4 F S SS

Structural grammar and basic vocabulary Introduction and reinforcement of aural oral reading and writing skills 4 lectures 1 hour ab

102 Elementary Russian. 4 S SS

See RUS 101 Prerequisite RUS 101 or equivalent

201 Intermediate Russian. 4 F SS

Systematic review of grammar Development of vocabulary through reading writing Dr. oral skills 4 lectures 1 hour ab Prerequisite RUS 102 or equivalent. [Satisfies General Studies Requirement. G]

202 Intermediate Russian. 4 S SS

See RUS 201 Prerequisite RUS 102 or equivalent [Satisfies General Studies Requirement. G]

211 Basic Russian Conversation. 3 F

Intensive aural oral drills to supplement reading and grammatical skills acquired in RUS 101 102, 201, and 202 Required of Russian majors Prerequisite RUS 102 [Satisfies General Studies Requirement. G]

212 Basic Russian Conversation. 3 S

See RUS 211 Prerequisite RUS 102 [Satisfies General Studies Requirement. SB G]

303 Scientific Russian. 3 F

Acquisition of scientific vocabulary through reading from current Soviet scientific publications Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree Prerequisite. RUS 102.

304 Scientific Russian. 3 S

See RUS 303 Prerequisite RUS 102.

311 Russian Composition and Conversation. 3 F

Development of writing ability and oral expression Prerequisite RUS 202 [Satisfies General Studies Requirement. G]

312 Russian Composition and Conversation. 3 S

See RUS 311 Prerequisite RUS 202 [Satisfies General Studies Requirement. G]

321 Survey of Russian Literature. 3 A

The main literary movements prominent authors and the most significant works of prose, poetry and drama of the 1917 revolution Prerequisite RUS 202 or equivalent [Satisfies General Studies Requirement. L2 HU H]

322 Survey of Russian Literature. 3 A

See RUS 321 Prerequisite RUS 202 or equivalent [Satisfies General Studies Requirement. L2 HU H]

323 Survey of Soviet Literature. 3 A

The main literary movements prominent authors and the most significant works of prose, poetry and drama of the Soviet period 1917 to present Prerequisite. RUS 202 or equivalent [Satisfies General Studies Requirement. L2 HU G]

411 Advanced Composition and Conversation I. (3 F

Designed to improve aural description, self-expression in oral and written skills emphasis on vocabulary building Subject materials drawn from current Soviet publications Prerequisite RUS 312 [Satisfies General Studies Requirement. G]

412 Advanced Composition and Conversation II. 3 S

See RUS 411 Prerequisite: RUS 312. [Satisfies General Studies Requirement. G]

417 Applied Russian Phonetics I. (2 N

General improvement in the student's language skills through aural oral training in Russian phonology and an analysis of Russian orthography Prerequisite RUS 102 [Satisfies General Studies Requirement. SB]

418 Applied Russian Phonetics II. 2 N

See RUS 417 Prerequisite RUS 102 [Satisfies General Studies Requirement. SB]

420 Russian Poetry. 3 N

Development of Russian poetry from its beginnings to the present including both native and emigre poets Topics in criticism and the study of poetries Prerequisite RUS 312 or instructor approval [Satisfies General Studies Requirement. L2 HU H]

421 Pushkin. 3 N

Pushkin's poetry plays and prose fiction including *Eugene Onegin*, *The Little Tragedies* *Tales of Beekun* *Queen of Spades* and *The Captain's Daughter* Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree. [Satisfies General Studies Requirement. L2. HU]

423 Dostoyevski. 3 N

Dostoyevski's major works of fiction including *Crime and Punishment* and *Brothers Karamazov* Taught in English Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree [Satisfies General Studies Requirement. L2. HU]

424 Tolstoy. 3 N

Tolstoy's major works, including *War and Peace* and *Anna Karenina* Taught in English Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree [Satisfies General Studies Requirement. L2 HU]

425 Chekhov. 3 N

Chekhov's major works representative short stories and major plays including *The Cherry Orchard* and *Three Sisters* Taught in English Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree [Satisfies General Studies Requirement. L2 H]

426 Soviet Dissident Literature (1917 Present). 3 N

Including such authors as Khvyovy Pasternak, Solzhenitsyn, Danilov, Novich, Zinoviev, Beiseva, Vencova and others Prerequisite RUS 312 or instructor approval [Satisfies General Studies Requirement. L2 HU G]

430 Russian Short Story. 3 N

Detailed study of representative works of the Russian short story genre Authors included are from both Imperial and Soviet Russia. Prerequisite RUS 312 or instructor approval [Satisfies General Studies Requirement. L2 HU H]

440 History of the Russian Language. 3 N

Principles of historical linguistics presented through the evolution of the Russian language from Proto Indo European to the present Readings of historical documents in Old Russian and Old Church Slavonic Prerequisite RUS 312 or instructor approval. [Satisfies General Studies Requirement. SB]

441 Survey of Russian Culture. 3 N

Interplay of artistic social and political forces in the development of Russian culture from the Kievan period to the present Exclusive use of Russian language source materials Prerequisite RUS 312 or instructor approval [Satisfies General Studies Requirement. HU G H]

591 Seminar. 3 N

Topics may be selected from the following Topics may be selected from the following.

- Pre 19th Century Russian Literature
- 19th Century Russian Literature
- Russian Poetry to 1890
- Russian Poetry 1890 to Present
- Russian Literary Criticism
- Soviet Socialist Realism
- Contemporary Soviet Authors

136 FOREIGN LANGUAGES

Special Courses: RUS 294 394 492 493 494 499 590 See pages 43–44

SPANISH

SPA 101 Elementary Spanish. 4 F S SS

Fundamentals of the language Emphasis on listening, speaking reading and writing 4 lectures, 1 hour lab Not open to students with credit in SPA 111

102 Elementary Spanish. 4 F S, SS

See SPA 101 Prerequisite SPA 101 or equivalent Not open to students with credit in SPA 111

107 Spanish for International Professions I. 8 F

A accelerated program alternative to SPA 101 102 sequence Functional approach to needs of international professions

111 Fundamentals of Spanish. 4 F S

Primarily for students with two years of high school Spanish who need review to enter second year study 4 lectures, 1 hour lab Not open to students with credit in SPA 101 or 102

201 Intermediate Spanish. 4 F, S SS

Continuation of fundamentals Emphasis on the development of the skills of reading listening comprehension speaking writing and culture 4 lectures 1 hour lab Prerequisite SPA 102 or 111 [Satisfies General Studies Requirement G]

202 Intermediate Spanish. 4 F S SS

See SPA 201 Prerequisite SPA 102 111 or 201 [Satisfies General Studies Requirement G]

203 Intermediate Spanish for Bilinguals. 4 F

Designed to meet the needs of the Spanish speaking student May be taken in lieu of 201 202 Emphasis on composition literature, conversation and review of grammar fundamentals 4 lectures 1 hour lab Prerequisite SPA 102 or 111 or placement [Satisfies General Studies Requirement G]

204 Intermediate Spanish for Bilinguals. 4) S

See SPA 203. Prerequisite SPA 102 111, 203 or placement [Satisfies General Studies Requirement G]

207 Spanish for International Professions II. 8) S

Continuation of SPA 107 alternative to SPA 201 202 sequence Expansion of communicative proficiency in specific areas of international professions Prerequisite SPA 107 or instructor approval. [Satisfies General Studies Requirement G]

311 Spanish Conversation. 3 F, S

Designed primarily for nonmajors to promote vocabulary building and communicative expression in Spanish through discussions based on cultural readings Prerequisite SPA 202 or equivalent [Satisfies General Studies Requirement G]

312 Spanish Conversation. 3 F, S

See SPA 311 Prerequisite SPA 202 or equivalent [Satisfies General Studies Requirement G]

313 Spanish Conversation and Composition. 3 F, S, SS

Designed to develop skill and accuracy in spoken and written Spanish Required of majors to be taken in sequence Prerequisite SPA 202 or equivalent [Satisfies General Studies Requirement G]

314 Spanish Conversation and Composition. (3) F, S, SS

See SPA 313 Prerequisite SPA 202 or equivalent [Satisfies General Studies Requirement G]

315 Spanish Conversation and Composition for Bilinguals. 3 F

Emphasis on comparing standard Spanish with regional Southwest Spanish May be taken in lieu of 313–314 Prerequisite 202 or 204 or instructor approval

316 Spanish Conversation and Composition for Bilinguals. 3 S

See SPA 315 Prerequisite 202 or 204; or instructor approval

319 Business Correspondence and Communication. 3 N

Organization and presentation of clear effective business communications vocabulary applicable to modern business usage Prerequisite SPA 314 or 316 or instructor approval [Satisfies General Studies Requirement G]

325 Introduction to Hispanic Literature. 3 F, S

Critical approach to and analysis of literary types: poetry drama, short story and novel Required of a majors Prerequisite SPA 202 or 204 [Satisfies General Studies Requirement HU]

412 Advanced Conversation and Composition. 3 F, S

Oral and written Spanish communication skills with particular attention given to developing fluency and facility Required of majors Prerequisite SPA 314 or 316 or instructor approval [Satisfies General Studies Requirement G]

413 Advanced Spanish Grammar. 3 F

Intensive analysis of the Spanish language Required of teaching majors Prerequisite SPA 314 or 316 or instructor approval. [Satisfies General Studies Requirement G]

417 Spanish Phonetics and Phonology. 3 F

Introduction to the theory and practice of Spanish phonetics and phonology. Prerequisite SPA 314 or 316

420 Applied Spanish Linguistics. 3 S

Application of linguistic principles to the acquisition analysis and teaching of Spanish Prerequisite FLA 400 or any other introductory linguistics course. [Satisfies General Studies Requirement SB]

421 Spanish in the Southwest. 3 F

Analysis of Southwest spoken and written Spanish as compared to standard Spanish Designed for students preparing for bilingual/cultural work Prerequisite SPA 314 or 316 or instructor approval [Satisfies General Studies Requirement SB]

424 Masterpieces of Hispanic Literature. 3 N

Selections from the literature of the Hispanic world and discussion of its cultural background Required of but not limited to teaching majors. Prerequisite SPA 325 [Satisfies General Studies Requirement HU]

425 Spanish Literature. (3) F, S

Survey of Spanish literature from its beginning to the 18th century. Prerequisite: SPA 325 [Satisfies General Studies Requirement HU]

426 Spanish Literature. (3) F S

Survey of Spanish literature from the 18th century to the present. Prerequisite SPA 325 [Satisfies General Studies Requirement HU]

427 Spanish-American Literature. (3) F, S

Survey of major works, figures and movements from Colonial period to 1880 Prerequisite SPA 325.

428 Spanish-American Literature. (3) F S

Survey of major works, figures and movements from 1880 to the present Prerequisite: SPA 325.

- 429 Mexican Literature.** (3 N)
Selected readings from pre-Colombian writers/poets (e.g., Macu xochitl) through the Revolution to the present. Prerequisite: SPA 325
- 434 Drama of the Golden Age.** (3) S
Dramatic works of Lope de Vega, Calderón de la Barca and the 17th-century contemporaries. Prerequisite: SPA 325
- 435 Cervantes—*Don Quixote*.** (3) F
Don Quixote and the development of the novel. Prerequisite: SPA 325.
- 436 Generation of 1898.** (3) S
Works of Unamuno, Baroja, Azorín and the 17th-century contemporaries studied against the ideological background of the turn of century in Spain. Prerequisite: SPA 325
- 437 20th-Century Spanish Poetry.** (3) F
Major trends in Spanish poetry from Modernism to present. Prerequisite: SPA 325
- 454 19th-Century Spanish American Narrative.** (3) F
Principal works in the novel, short story, narrative fiction and narrative Gauchescque poetry. Prerequisite: SPA 325
- 455 Spanish American Modernism.** (3) S
Principal works and figures of literary Modernism, 1880–1920; emphasis on international literary context of the movement. Prerequisite: SPA 325
- 456 20th-Century Spanish American Fiction.** (3) S
Major works and movements. Prerequisite: SPA 325
- 457 Contemporary Spanish American Poetry.** (3) F
Major works and problems in contemporary poetry and poetics with emphasis on Paz, Parra, Cardena and new poetry since 1960. Prerequisite: SPA 325
- 464 Mexican American Literature.** (3) F
Representative literature in Spanish and English by Mexican Americans emphasizing socio-cultural aspects. Prerequisite: SPA 325. [Satisfies General Studies Requirement. HU]
- 471 Civilization of the Spanish Southwest.** (3) S
The political, intellectual, social, economic and artistic development of the Spanish speaking people of the Southwest. Prerequisite: SPA 314 or 316 or instructor approval. [Satisfies General Studies Requirement. HU]
- 472 Spanish-American Civilization.** (3) F
Growth of the institutions and cultures of Spanish American people. Prerequisite: SPA 314 or 316 or instructor approval. [Satisfies General Studies Requirements. HU, G, H]
- 473 Spanish Civilization.** (3) S
Political, intellectual, social, economic and artistic development of the Spanish nation from its origin to the present. Prerequisite: SPA 314 or 316 or instructor approval. [Satisfies General Studies Requirements. HU, SB, G]
- 485 Mexican American Short Story.** (3) N
Critical study of contemporary short stories by Mexican American authors with emphasis on their Spanish language writings. Prerequisite: SPA 325 or instructor approval
- 486 Mexican American Novel.** (3) N
Social and literary contexts of representative novels with emphasis on their Spanish language writings. Prerequisite: SPA 325 or instructor approval
- 487 Mexican American Drama.** (3) N
Representative dramatic works with emphasis on the history and development of this genre from its origins to the present. Prerequisite: SPA 325 or instructor approval
- 500 Bibliography and Research Methods.** (3) F
Required of all graduate students
- 540 History of the Spanish Language.** (3) S
Linguistic development of the Spanish language from the epoch of Vulgar Latin to the present day
- 541 Spanish Language in America.** (3) F
The major dialects of Spanish in the Americas and their historical, social and cultural development. Prerequisite: SPA 540 or instructor approval
- 542 Studies in the Spanish of the Southwest.** (3) S
Examination of bilingualism and the social and regional dialects of Spanish in the Southwest. Prerequisite: FLA 400 or equivalent
- 543 Structure of Spanish.** (3) S
Analysis and discussion within the framework of contemporary linguistic theories of selected problems in Spanish morphology, syntax and semantics. Prerequisite: FLA 400 or equivalent
- 545 Concepts of Literary Criticism.** (3) S
Aims and methods of modern literary scholarship. Discussion of major theories of literary analysis
- 560 Medieval Spanish Literature.** (3) N
Major figures and works of the Middle Ages in Spain
- 561 Golden Age Spanish Prose Fiction.** (3) N
Major figures and works of the 16th and 17th centuries with emphasis on the picaresque novel
- 562 Golden Age Spanish Poetry.** (3) N
Major figures and works of the 16th and 17th centuries, with emphasis on lyric poetry.
- 563 Spanish Romanticism.** (3) N
Principal figures and works of the Spanish Romanticism, with emphasis on international literary context of the movement.
- 564 19th-Century Spanish Prose Fiction.** (3) N
Principal figures and works of Realism in the 19th-century novel with emphasis on Galdós
- 565 20th-Century Spanish Drama.** (3) N
Principal figures and works of Spanish dramatic literature from the Generation of 1898 to the present
- 566 Generation of 1927.** (3) N
Major poets of the Generation of 1927 with emphasis on works of Lorca, Guillén, Sainas and Aléxandre
- 567 Contemporary Spanish Novel.** (3) N
Major works of post-Civil War Spanish fiction
- 570 Indigenous Literatures of Spanish America.** (3) N
The indigenous literary traditions with emphasis on Nahuatl, Mayan and Quechua literatures through readings in Spanish translations.
- 571 Colonial Spanish American Literature.** (3) N
The major figures and works from Conquest to Independence
- 572 Spanish American Drama.** (3) N
Major contributions of Spanish American drama with emphasis on contemporary dramatists
- 573 Spanish American Essay.** (3) N
Major works of the essay within the framework of intellectual history and literary movements
- 574 Spanish American Vanguard Poetry.** (3) N
Examination of poetic developments 1920–1940 with emphasis on Hu Dobro, Vallejo, Neruda and the international context of their works
- 575 Contemporary Spanish American Novel.** (3) N
Principal novels of the *Nueva Narrativa Hispanoamericana*, within the context of contemporary theories of the narrative

576 Contemporary Spanish American Short Story. 3 N

Principal short stories of the *Nueva Narrativa Hispanoamericana* within the context of contemporary theories of the narrative

577 Regional Spanish American Literature. 3 N

The figures and works of major national Peru, Argentina, Chile, Mexico, and regional Caribbean literatures. Topics offered on a rotating basis. May be repeated for different topics

578 Novel of the Mexican Revolution. 3 N

Representative work and authors of this genre: Guzmán, Azuela, Urquiza, Muñoz Romero, including related or peripheral offshoots and indigenous novels

581 Latin American Popular Culture. 3 N

Studies in selected topics of Latin American popular culture with emphasis on appropriate academic modes for the critical analysis of the materials

591 Seminar. 3 N

Spanish and Spanish American literary, cultural, and linguistic topics

691 Figures and Works Seminar. 3 N

Topics may be selected from Spanish and Spanish American literatures

Special Courses: SPA 294, 394, 298, 484, 492, 493, 494, 497, 498, 499, 580, 590, 592, 594, 598, 599, 600, 684, 690, 692, 792, 799. See pages 43–44

At least 18 hours must be in upper division courses.

Area Studies Emphasis. (See certificate programs, pages 101–102.) Consists of the B.A. requirements in Geography, along with additional requirements in the fields of Latin American studies or Asian studies.

For the *Latin American studies emphasis*, at least 30 upper division semester hours of the program must be in Latin American content courses, including 15 hours in geography (or in courses approved by the geography advisor) and 15 in other disciplines. A reading knowledge of Spanish or Portuguese is required and a reading knowledge of the other language is suggested. The program must be approved by the Center for Latin American Studies. Fulfillment of requirements is recognized on the transcript as a bachelor's degree with a major in Geography Latin American studies

For the *Asian studies emphasis*, the program requires 30 semester hours of wholly Asian content courses, selected from the list drawn up by the Center for Asian Studies. Also required is knowledge of an Asian language; this is deemed to be fulfilled by 16 semester hours or the equivalent in Chinese, Japanese, or any other Asian language approved by the center in respect of any individual program.

Geography

PROFESSORS:

GOBER, COB 338, BRAZEL, BURNS,
COMEAX, GRAF, MARCUS
McTAGGART, WE GEND

ASSOCIATE PROFESSORS:

ALDRICH, MINGS, PASQUALETTI, SARGENT

ASSISTANT PROFESSORS:

BALL, NG, CERVENY, DORN, HENKEL, KUBY,
McHUGH, O'HUALLACHAN, SHAW

PROFESSORS EMERITI:

DURRENBERGER, FROST,
LOUNSBURY, PARKER

Departmental Major Requirements**Bachelor of Arts and Bachelor of Science Degree Curricula**

Geography. Consists of 45 semester hours. The required courses are GCU 102, 121, 375, 495; GPH 111 (or 411), 371, 491; an additional three or four hour course in GPH, and an additional three hour course in GCU. A further four to six hours of electives must be chosen, for a total of 36 hours in geography. The remaining nine hours are to be made up of electives from related fields of study, chosen in consultation with an advisor.

Special Emphasis Programs

Two special emphasis programs, urban studies and meteorology—climatology, are optional. Students who wish to graduate with a B.A. or B.S. in Geography are not obligated to choose one of these emphases

Urban Studies Emphasis. The required courses are GCU 102, 121, 357, 359 (or 360), 361, 375, 444, 495, and GPH 111 (or 411), 371, 491. In addition, students must select one from the following list of options: GCU 351, 364, 453, 461, and GPH 481. If GPH 481 is not selected, a further three hour course in GPH is required. At least nine of the 15 hours in fields related to geography must be in urban oriented course work.

Meteorology—Climatology Emphasis. The required courses are GCU 102, 121, 375 (or 495); GPH 212, 213, 214, 215, 371, 409, 410, 412, 413, 491. Students must also choose one other three hour course in GCU. Also required are the following related courses: MAT 270, 271, 272 (or 290, 291); PHY 111, 112, 113 and 114. Completion of this program satisfies the criteria for employment with the National Weather Service.

Laboratory of Climatology

Dr. R. C. Balling is director of the Laboratory of Climatology. The laboratory performs pure and applied climatic research and supports both undergraduate and graduate students at Arizona State University. The laboratory maintains an extensive archive of climatic and meteorologic information on Arizona and the western United States of America.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Geography. Consists of 45 semester hours, of which a minimum of 30 must be in geography and 15 in a related teaching field or fields. Departmental minor teaching field requirements (Elementary and Secondary Education) consists of a minimum of 24 semester hours. Courses GCU 121 and GPH 111 (or 411) are required. The remaining hours are to be selected in consultation with an advisor.

Departmental Graduate Programs

The Department of Geography offers programs leading to the M.A. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

CULTURAL GEOGRAPHY

GCU 102 Introduction to Human Geography. (3 F S) Systematic study of human use of the earth. Spatial organization of economic, social, political and perceptual environments. [Satisfies General Studies Requirement SB]

121 World Geography. (4 F, S) Description and analysis of area variations in social, economic and political phenomena in major world regions. [Satisfies General Studies Requirements SB, G]

141 Introduction to Economic Geography. (3 F, S) Production, distribution and consumption of various types of commodities of the world and relationships to the activities of man. [Satisfies General Studies Requirement SB]

253 Introduction to Cultural and Historical Geography. (3) A

Cultural patterns, including such phenomena as language, religion and various aspects of material culture. Origins and diffusion and division of the world into cultural areas. [Satisfies General Studies Requirements SB, H]

294 Special Topics. (4 3 A)
(a) Global Awareness [Satisfies General Studies Requirements SB, G]
(b) Introduction to Southeast Asia [Satisfies General Studies Requirement G]

322 Geography of Anglo-America. (3 F) Spatial distribution of relevant physical, economic and cultural phenomena in the United States and Canada. [Satisfies General Studies Requirement SB]

323 Geography of Latin America. (3 F) Spatial distribution of relevant physical, economic and cultural phenomena in South, Middle and Caribbean America. [Satisfies General Studies Requirements SB, G]

325 Geography of Europe. (3 S) Spatial distribution of relevant physical, economic and cultural phenomena in Europe. Recommended for social studies teachers and students of European history. [Satisfies General Studies Requirement SB]

326 Geography of Asia. (3 S) Spatial distribution of relevant physical, economic and cultural phenomena in Asia, excluding the USSR. [Satisfies General Studies Requirements SB, G]

327 Geography of Africa. (3 F) Spatial distribution of relevant physical, economic and cultural phenomena in Africa. [Satisfies General Studies Requirements SB, G]

328 Geography of Middle East and North Africa. (3 A) Spatial distribution of relevant physical, economic and cultural phenomena in the Middle East and North Africa. Prerequisite: GCU 121 or instructor approval. [Satisfies General Studies Requirements SB, G]

332 Geography of Australia and Oceania. (3 A) Spatial distribution of relevant physical, economic and cultural phenomena in Australia, New Zealand and the Pacific Islands. [Satisfies General Studies Requirement G]

350 The Geography of World Crises. (3) F Contemporary world crises viewed from a perspective of geographic concepts and techniques. [Satisfies General Studies Requirements SB, G]

351 Population Geography. (3 F) Demographic patterns, spatial-temporal and structural investigation of the relationship of demographic variables to cultural, economic and environmental factors. [Satisfies General Studies Requirement SB]

352 Political Geography. (3 S) Relationship between the socio-physical environment and the state. [Satisfies General Studies Requirements SB, G]

357 Social Geography. (3 A) Environmental perception of individuals and groups. The spatial aspect of social and physical environments stressed. [Satisfies General Studies Requirement SB]

359 Cities of the World I. (3 F) Historical evolution of urban patterns and structures in the Middle East, India, Southeast Asia, China, Japan and Europe. [Satisfies General Studies Requirement G]

360 Cities of the World II. (3 S) Historical evolution of urban patterns and structures in Latin America, Anglo-America, Sub-Saharan Africa and Australasia. [Satisfies General Studies Requirement G]

361 Urban Geography. (3 F, S) External spatial relations of cities, internal city structure and spatial aspects of urban problems in various parts of the world, particularly in the United States. [Satisfies General Studies Requirement SB]

364 Geography of Energy. (3 F) Production, transportation and consumption of energy, emphasizing the electric power industry and its environmental problems. [Satisfies General Studies Requirement SB]

140 GEOGRAPHY

375 Introduction to Geographic Research Methods. 3 F

Scientific techniques used in geographic research. Prerequisite: instructor approval.

401 Topics in Human Geography. 1 3 N

Open to students qualified to pursue independent studies. Field trips may be required. Prerequisite: instructor approval. [Satisfies General Studies Requirement SB]

The following courses 421–431 concern spatial distribution of relevant physical, economic and cultural phenomena in the area designated.

421 Geography of Arizona and Southwestern United States. 3 F

423 Geography of South America. 3 F

Prerequisite: GCU 323 or instructor approval. [Satisfies General Studies Requirements SB G]

424 Geography of Mexico and Middle America. 3 S

Central America and Mexico. Prerequisite: GCU 323 or instructor approval. [Satisfies General Studies Requirements SB G]

426 Geography of the Soviet Union. 3 S

Prerequisite: GCU 121 or instructor approval. [Satisfies General Studies Requirements SB G]

431 Geography of the Far East. 3 N

Japan, China, Korea, excluding the U.S.S.R. Prerequisite: GCU 326 or instructor approval.

441 Economic Geography. 3 F S

Spatial distribution of primary, secondary and tertiary economic and production activities. Prerequisite: GCU 141 or instructor approval.

442 Geography of Transportation. 3 N

Geographic analysis of world trade routes and transportation systems. Prerequisite: GCU 141 or 441.

444 Applied Urban Geography. 3 N

Designed to prepare the student for employment in planning agencies. Includes application of urban geographic principles to present day planning problems. Prerequisite: GCU 361.

453 Recreational Geography. 3 S

Examination of problems surrounding the organization and use of space for recreation. Introducing geographic field survey methods of data collection and analysis. Saturday field trips may be required.

455 Historical Geography of Anglo-America. 3 N

Changing geography of the United States and Canada from pre-Columbian times to about 1900. Emphasis on evolving economic patterns. Recommended for social studies teachers and students of American history.

461 Geographic Applications of Urban and Regional Planning. 3 N

Philosophy of the planning concept, nature and function of planning commissions and development of comprehensive plans. Prerequisite: GCU 361, 444 or instructor approval.

462 Geography of Food and Famines. 3 N

Spatial distribution of relevant physical, economic and cultural factors influencing production and consumption of foodstuffs. Field trips may be required.

474 Federal Public Land Policy. 3 F

Geographic aspects of federal public lands policy management, and issues. Emphasis on western wilderness and resource development problems.

495 Quantitative Methods in Geography. 3 S

Statistical techniques applied to the analysis of spatial distributions and relationships. Introduction to models and theory in geography. Prerequisite: MAT 106 or instructor approval.

526 Spatial Land Use Analysis. 3 S

Determination, classification, and analysis of spatial variations and use patterns. Examination of the processes affecting land use change. Prerequisite: 15 hours of geography or instructor approval.

529 Contemporary Geographic Thought. 3 N

Comparative evaluation of current philosophy concerning the nature and trends of geography. Prerequisites: 15 hours of geography. Instructor approval.

585 Advanced Research Methods in Geography. 3 F

Specialized research techniques and methodologies in economic, political or cultural geography.

591 Seminar. 1 3 F S SS

Selected topics in economic, political or cultural geography. Field trips may be required.

596 History of Geographic Thought. 3 N

Development of geographic thought from Herodotus and Strabo to Humboldt and Ritter.

Special Courses: GCU 294, 484, 492, 494, 497, 498, 499, 500, 580, 584, 590, 591, 592, 594, 598, 599, 600, 680, 683, 684, 690, 691, 692, 700, 780, 784, 790, 791, 792, 799. See pages 43–44.

PHYSICAL GEOGRAPHY

GPH 111 Introduction to Physical Geography. 4 F S

Spatial and functional relationships among climates and forms, soils, water and plants. 3 lectures, 3 hours laboratory. Field trips are required. [Satisfies General Studies Requirements, S1 S2]

210 Physical Environment. 3 F

Principles of physical geography relating to environmental problems pertinent to contemporary society. Pollution, maladjusted and unresource exploitation.

211 Landform Processes. 3 S

Geographic characteristics of landforms and earth surface processes. Emphasis on erosion, transportation, deposition and implications for human management of the environment. Prerequisite: GPH 111.

212 Introduction to Meteorology I. 3 F

Fundamentals of weather and climate, including basic atmospheric processes and elements. Students whose curriculum require a laboratory course must also register for GPH 214. Prerequisite: GPH 111 or instructor approval. [Satisfies General Studies Requirement S2]

213 Introduction to Meteorology II. 3 S

Fundamentals of meteorological analysis, including basic terminology and symbology. Prerequisite: GPH 212 or instructor approval.

214 Introduction to Meteorology Laboratory I. 1) F

Introduction to basic meteorological and climatological measurements. 3 hours lab. May be taken concurrently with GPH 212. [Satisfies General Studies Requirement S2]

215 Introduction to Meteorology Laboratory II. 1 S

Basic meteorological map analysis and interpretation. 3 hours lab. May be taken concurrently with GPH 213.

271 Maps and Map Reading. 3 F

Techniques of interpretation of different types of maps and map projections. History of mapping. 2 lectures, 3 hours lab.

371 Cartography. (3) F, S

Basic map drafting, grid compilation, simple design and use of cartographic instruments. Field trips are required. 6 hours lab. Prerequisites: GPH 111, 271; or instructor approval.

372 Air Photo Interpretation. (3) S

Aerial photographs as a means of determining topography, vegetation and culture; scale, use of index, vertical and oblique photographs and stereoscopes. Prerequisites: GPH 111, 211.

373 Cartographic Design. (3) A

Optimizing the communication of spatial information and concepts. Includes cartographic decision making, symbolism, perceptions, color, topography, projections, and scale. Prerequisites: GPH 371; instructor approval.

381 Geography of Natural Resources. (3) A

Nature and distribution of natural resources and the problems and principles associated with their use. [*Satisfies General Studies Requirement: SB*]

401 Topics in Physical Geography. (1-3) A

Open to students qualified to pursue independent studies. Field trips may be required. Prerequisite: instructor approval.

405 Energy and Environment. (3) S

Sources, regulatory and technical controls, distribution, and consequences of the supply and human use of energy. Prerequisite: courses in the physical or life sciences; or instructor approval. [*Satisfies General Studies Requirement: SB*]

409 Synoptic Meteorology I. (4) F '89

Fundamentals of operational weather forecasting and interpretation of National Weather Service forecast products. 3 lectures, 3 hours lab. Prerequisites: GPH 212, 213; and MAT 270; or instructor approval.

410 Synoptic Meteorology II. (4) S '90

Techniques of weather analysis and detailed discussion of forecasting specific weather phenomena. 3 lectures, 3 hours lab. Prerequisite: GPH 409 or instructor approval.

411 Physical Geography. (3) A

Introduction to physiography and the physical elements of the environment. Open only to students who have not taken GPH 111. Field trips are required.

412 Physical Climatology. (3) A

Physical processes in the earth-atmosphere system on regional and global scales; concepts and analysis of energy, momentum and mass balances. Prerequisites: GPH 212, 213 or 310; or instructor approval.

413 Meteorological Instruments and Measurement. (3) A

Design and operation of ground-base and aerological weather measurement systems. Collection, reduction, storage, retrieval and analysis of data. Field trips are required. Prerequisites: GPH 212, 213; or instructor approval.

414 Climatic Analysis. (3) F

Processes that produce variations in climate over time and space. Includes changes in climate produced by human and natural forces and involves the analysis of climatic data to identify temporal and spatial variations. Prerequisite: GPH 212 or instructor approval.

433 Alpine and Arctic Environments. (3) F

Regional study of advantages and limitations of the natural environment upon present and future problems involving resource distribution, human activities and regional and interregional adjustments. Field trips are required. Prerequisite: GPH 111 or instructor approval.

471 Geographic Information Systems. (3) A

GIS as a basis for microcomputer spatial analysis and synthesis. Includes digitizing, database organization, spatial retrieval, and graphics. Prerequisite: instructor approval.

474 Dynamic Meteorology I. (3) F '90

Large-scale atmospheric motion, kinematics, Newton's laws, wind equation, baroclinics, vorticity, the mid-latitude depression. Prerequisites: GPH 212, 213, 214, 215, 310 (or 311); MAT 270, 271; PHY 111, 112; or instructor approval.

475 Dynamic Meteorology II. (3) S '91

Topics in climate dynamics. General circulation, numerical modeling, teleconnection phenomena, surface-atmosphere interaction. Prerequisite: GPH 474 or instructor approval.

481 Environmental Geography. (3) S

Problems of environmental quality including uses of spatial analysis, research design and field work in urban and rural systems. Field trips are required. Prerequisite: instructor approval.

491 Geographic Field Methods. (6) SS

Field techniques including use of aerial photos, large-scale maps, fractional code system of mapping; urban and rural field analysis to be done off campus. Travel fees required. Prerequisite: instructor approval.

511 Fluvial Processes. (3) A

Geographic aspects of fluvial geomorphology with emphasis on river channel change, fluvial erosion, and sedimentation in the present environment. Prerequisites: GLG 101 (or GPH 111), 362 (or GPH 211).

571 Computer Mapping and Graphics. (3) F

Utilization of the digital computer in analysis and mapping of geographic data. Includes plotting, surficial display, compositing and graphics. Field trips are required. Prerequisites: GPH 371; instructor approval.

575 Geographic Applications of Remote Sensing. (3) S

Use of imaging and non-imaging methods of remote acquisition of data, including satellite sensors, airborne radar, multiband scanning, conventional photographic sensors and ground-based equipment. Field trips are required. Prerequisites: GCU 585 (or GPH 491); GPH 372.

591 Seminar. (1-3) F, S

Selected topics in physical geography. Field trips may be required.

Special Courses: GPH 294, 484, 492, 494, 497, 498, 499, 500, 580, 584, 590, 592, 598, 599, 600, 680, 683, 684, 690, 691, 692, 700, 780, 784, 790, 791, 792, 799. (See pages 43-44.)



Geology

REGENTS' PROFESSOR:

MOORE

PROFESSORS

GREELEY PS F 686 BURT BUSECK,
HOLLOWAY, K EFFER KNAUTH KR NSLEY,
LARIMER LUND N MALIN, RAGAN
SHER DAN STUMP

ASSOCIATE PROFESSOR:

FNK

ASSISTANT PROFESSORS:

CHR STENSEN, PEACOCK, TYBURCZY

PROFESSORS EMERITI:

DETZ PEWÉ

Departmental Major Requirements**Bachelor of Science Degree Curriculum**

Geology. 37 semester hours are required, including the following "core courses" or their equivalent: GLG 100 (or 101 and 103), 102 and 104, 310, 321, 322, 400 (two semesters) and 450. In addition, three of the following four "branch courses" must be taken: 335, 418, 424, 435. It is strongly recommended that the fourth branch course is also taken. Supporting courses required in related fields are CHM 113, 116; MAT 290, 291 (or 270, 271, 272, or 270, 271, 274) PHY 121, 122, 131, 132. To complete the total required hours other courses in geology or in related fields listed as approved by the department may be taken. French, German, or Russian is strongly recommended to fulfill foreign language requirement. (See degree requirements, page 97.)

Bachelor of Arts in Education Degree Curriculum**Departmental Teaching Major**

Geology. Consists of 42 semester hours of which a minimum of 30 will be in geology. The following courses in geology or their equivalents are required: GLG 100 (or 101 and 103), 102, 310, 321, 322, 335, 336, 362 (or 435). Additional courses and substitutions that are necessary to complete the major will be selected from geology and closely related fields as approved by the student's advisor. Supporting courses required in related fields are: CHM 113, 116; MAT 270; PHY 111, 112, 113, 114.

Departmental Teaching Minor

Twenty four semester hours will be selected from courses below. The following courses or their equivalent are recommended for a teaching minor in Geology (earth science: GLG 0) (or 101), 102, 103. Any of the following courses or their equivalent may be used to complete a minor in Geology (earth science: GLG 310, 321, 322, 335, 336, 362, 400, 418, 424, 435 and 436. Any substitutions for the above courses must be approved by the advisor.

Departmental Graduate Programs

The Department of Geology offers programs leading to the M.S. and Ph.D. degrees. Consult the *Graduate Catalog* for requirement.

GEOLOGY**GLG 100 General Geology.** 4 F S SS

Non laboratory introduction to physical and historical geology. The earth's origin, processes that affect its sequence of events, its evolution and succession of life upon it. GLG 100 and 101 may not both be taken for credit. Possible field trips.

101 Introduction to Geology I (Physical). 3 F S

Basic principles of geology, geochemistry and geophysics. Rocks, minerals, weathering, earthquakes, mountain building, volcanoes, water, and glaciers. 3 lectures. Possible weekend field trips. [Satisfies General Studies Requirements S1, S2 if taken with GLG 103.]

102 Introduction to Geology II. (Historical) 3 S

Basic principles of applied geology and the use of these principles in the interpretation of geological history. 3 lectures. Possible weekend field trips. Prerequisite: GLG 101. [Satisfies General Studies Requirements S1, S2 if taken with GLG 104.]

103 Introduction to Geology I Laboratory. 1 F S

Three hours lab. Some field trips. Corequisite: GLG 101. [Satisfies General Studies Requirements S1, S2 if taken with GLG 101.]

104 Introduction to Geology II-Laboratory 1 S

Laboratory techniques involving map interpretation, cross sections, fossils. 3 hours lab. Possible field trips. Prerequisite: GLG 103, or equivalent. Corequisite: GLG 102. [Satisfies General Studies Requirements S1, S2 if taken with GLG 102.]

105 Introduction to Planetary Science. 3 F

Planets, asteroids, comets and meteorites, their geological evolution, surfaces, interior, atmospheres, exobiology, Terraforming and space colonies.

300 Geology of Arizona. 3 F S

Basic and historical geology, fossils, mineral energy resources, environmental problems, landscape development and meteorites, case studies from Arizona. Majors who have taken GLG 101 for credit may not enroll.

302 Man and Geologic Environment. 3 N

Geological hazards, problems of waste disposal and land use planning, environmental problems related to soil and earth.

304 Geology of the Grand Canyon. 2 N

Review of the discovery history of the Grand Canyon of the Colorado River in Arizona. Six day field trip down the river. First 6 days after commencement in May. Required at student's expense. Field research and term paper on trip also required.

305 Geology of the Earth, Moon and Planets. 3 S

Geological studies of the planets and satellites through the analysis of spacecraft data and field studies. Weekend field trips. Prerequisites: GLG 100, 101, 105 300 or equivalent

310 Structural Geology. 3) S

Geologic structures and the mechanical processes involved in their formation. 2 lectures, 3 hours lab. Possible field trips. Prerequisites: MAT 270 or 290, GLG 101 or 301.

321 Mineralogy. (3 F

Crystallography, crystal chemistry and crystal physics as applied to minerals, determinative methods, origin and occurrence. 3 lectures, possible field trips. Prerequisite: MAT 270 or 290. Pre- or corequisite: CHM 116. Corequisite: GLG 322

322 Mineralogy Laboratory. 2 F

Hand specimen identification, polarizing microscopy, optical techniques. 6 hours lab. Corequisite: GLG 321

335 Principles of Paleontology. 2 F

Emphasis on preservation, growth, species concept and evolution as demonstrated by the fossil record. 2 lectures. Prerequisites: MAT 270 or 290. GLG 102 or instructor approval.

336 Invertebrate Paleontology. 3 F

Biology, skeletal morphology and systematics of fossil invertebrates. 6 hours of lecture. Possible field trips. Prerequisite: GLG 102 or instructor approval. Pre- or corequisite for geology majors: GLG 335

362 Geomorphology. (3 N

Land forms and processes which create and modify them. Laboratory and field study of physiographic features. 2 lectures, 3 hours lab. Some field trips during lab. Possible weekend field trips. Prerequisites: GLG 101, 310 424 or concurrent enrollment.

400 Geology Colloquium. (1) F, S

Presentation of recent research by faculty and guests. Written assignments required. One semester hour for 2 semesters attendance. One semester hour required for geology majors. May be repeated for a total of 2 semester hours (4 semesters). Prerequisite: Two courses in the department or instructor approval.

405 Geology of the Moon. 3 N

Current theories of the origin and evolution of the moon through photogeological analyses and consideration of geochemical and geophysical constraints. Possible weekend field trip. Prerequisite: GLG 105 or 305 or instructor approval.

406 Geology of Mars. (3 N

Geological evolution of Mars through analyses of spacecraft data, theoretical modeling, and study of terrestrial analogs. Emphasis on current work. Possible weekend field trip. Prerequisite: GLG 105 or 305 or instructor approval.

412 Geotectonics. (3) F

Origin of continents and ocean basins. Evolution of the crust in time. Drifting sea floor spreading and other large scale movements of the earth's crust. Upper mantle processes. Emphasis on current work. Prerequisite: GLG 310

418 Geophysics. 3 F

Solid earth geophysics: geomagnetism, gravity, seismology, heat flow. Emphasis on crust and upper mantle. 2 lectures. 3 hours lab. Field trips during lab. Possible weekend field trips. Prerequisites: GLG 101 or 301. MAT 272 or 291. PHY 121, 131. Instructor approval.

419 Thermal-Mechanical Processes in the Earth. 3) S

Emphasis on applied mathematical techniques: heat conduction problems in geology, thermal convection stresses in the lithosphere, viscous asthenospheric processes in the Earth. Prerequisites: PHY 121, 131

420 Volcanology. 3 A

Distribution of past and present volcanism, types of volcanic activity, mechanisms of eruption, form and structure of volcanoes, geochemistry of volcanic activity. Possible weekend field trips. Prerequisite: GLG 424

424 Petrology-Petrography. 4 S

Theoretical and laboratory study of the origin and classification of igneous and metamorphic rocks. Hand specimen and thin section study of rocks. 3 lectures. 3 hours lab. Possible weekend field trips. Prerequisites: GLG 321, 322

435 Sedimentology. 3 S

Origin, transport, deposition and diagenesis of sediments and sedimentary rocks. Physical analysis, hand specimen examination and interpretation of rocks and sediments. 2 lectures. 3 hours lab. Possible weekend field trips. Prerequisites: GLG 102, 321 322

436 Principles of Stratigraphy. 3 S

Sources of sediments, depositional environments and the principles of determining correlation and naming of stratigraphic units. 3 lectures. Possible weekend field trips. Prerequisites: GLG 102 and instructor approval.

441 Ore Deposits. 3 N

Origin, occurrence, structure and mineralogy of ore deposits. 3 lectures. Possible weekend field trips. Prerequisite: GLG 424 or instructor approval.

450 Geology Field Camp. 6 SS

Geological mapping techniques on aerial photos and topographic maps. Field based with excursions. Prerequisites: GLG 310, 321

455 Advanced Field Geology. 4 F, S

Geological mapping in igneous, sedimentary and metamorphic terranes of the Basin and Range province of Arizona. Weekend field trips. May be repeated for credit. Prerequisite: GLG 450 or instructor approval.

456 Cordilleran Regional Geology. 3 F

Systematic coverage through space and time of the geological development of Western North America. Emphasis on the Western United States. Prerequisite: senior major or graduate student in geology or instructor approval.

462 Environmental Geology of Cold Regions. 3 N

Geological and engineering importance of seasonal and perennially frozen ground (permafrost). Properties, distribution, origin of ice in the ground and its application to engineering and utilization problems. Possible weekend field trips. Prerequisites: GLG 101 435. PHY 111 and 113, or instructor approval.

481 Geochemistry. 3 F

Origin and distribution of the chemical elements. Geochemical cycles operating in the earth's atmosphere, hydrosphere and lithosphere. Cross-listed as CHM 481. Prerequisite: CHM 341 or 441 or GLG 321

485 Meteorites and Cosmochemistry. 3 N

Chemistry of meteorites and their relationship to the origin of the earth's atmosphere and universe. Cross-listed as CHM 485. Prerequisite: GLG 481 or 482

144 GEOLOGY / HEALTH AND PHYSICAL EDUCATION

490 Topics in Geology. 1 3 F S, SS

Special topics in a range of fields in geology. May be repeated for credit. Prerequisite: instructor approval.

500 Geology Colloquium. 1 F S

Presentation of recent research by faculty and invited guests. One semester required for all geology graduate students. May be repeated for total of 2 semesters. Research paper required. Prerequisite: instructor approval.

501 Geology of Arizona. 3 F, S

Basic and historical geology, fossil mining, energy resources, environmental problems, and landscape development and meteorites. Case examples from Arizona. 3 lectures. Research paper required.

504 Geology of the Grand Canyon. 2 S

Review of the discovery, history, origin, and geology of the Grand Canyon of the Colorado River in Arizona. 6-day field trip down the river, first 6 days after commencement in May, required at student's expense. Field research and term paper on trip also required.

510 Advanced Structural Geology. 3 N

Mechanics of rock deformation, emphasizing rate of strain between field observation, theory, and experiment. Stress-strain, simple constitutive relationships, failure criteria, and the basis of continuum methods. Possible field trips. Prerequisites: GLG 310, 424 or instructor approval.

520 Advanced Physical Volcanology. 2 3 A

Selected volcanologic topics, including explosive eruptive processes, lava flow mechanics, and intrusive mechanisms. Field trips possible. Prerequisite: GLG 420 or instructor approval.

523 Advanced Mineralogy-Crystallography. 3 S

Crystallography, principles of X-ray and electron diffraction, defects in crystals, electron microscopy of minerals. 3 lectures. Prerequisite: GLG 321 or CHM 441 or equivalent.

524 Advanced Igneous Petrology. 3) N

Theoretical and practical aspects of the genesis of igneous rocks. Study of selected sites. Modern laboratory techniques. 2 lectures, 3 hours lab. Possible weekend field trips. Prerequisite: GLG 424.

525 Advanced Metamorphic Petrology. 3 N

Theoretical and laboratory study of metamorphic rocks. Processes of contact and regional metamorphism. Advanced methods and instrumentation. 2 lectures, 3 hours lab. Possible weekend field trips. Prerequisite: GLG 424.

561 Glacial Geology. 3 N

Properties, distribution, and origin of glacial deposits, including principles of the stratigraphy and correlation. Environmental geology problems in glaciated regions. 2 lectures, 3 hours lab. Some field trips during lab, possible weekend field trips. Prerequisite: GLG 362.

562 Quaternary Geology. 3 N

Geology of the Quaternary Period in both glaciated and unglaciated areas. Stratigraphy, correlation, and environmental application of Quaternary deposits. Special reference to the Southwest. 2 lectures, 3 hours lab. Some field trips during lab; possible weekend field trips. Prerequisite: GLG 362 or instructor approval.

581 Isotope Geochemistry. 3 N

Geochemistry and cosmochemistry of stable and radioactive isotopes, geochronology, isotope equilibria. Cross-listed as CHM 581. Prerequisite: instructor approval.

582 Physical Geochemistry. 3) N

Application of thermodynamic and kinetic principles to geochemical processes. Cross-listed as CHM 582. Prerequisite: CHM 341, 417 or 441 or GLG 321.

583 Phase Equilibria and Geochemical Systems. 3) N

Natural reactions at high temperatures and pressures, silicate, sulfide, and oxide equilibria. Cross-listed as CHM 583. Prerequisites: GLG 582, instructor approval.

591 Seminar. 1 3 F S, SS

Topics in a range of fields in geology. May be repeated for credit. Prerequisite: instructor approval.

598 Special Topics. 1 3 F, S, SS

Special topics in geology. May be repeated for credit. Prerequisite: instructor approval.

Special Courses: GLG 484, 492, 493, 494, 497, 498, 499, 590, 591, 592, 593, 599, 690, 691, 692, 783, 790, 791, 792, 799. See pages 43-44.

Health and Physical Education

PROFESSORS:

THOMAS (PEBW M 201), BURKETT, CORBEN, CORDER, DARST, KRAHENBUHL, LANDERS, ODENKIRK, OSTERHOUDT, PANGRAZI, SHIRREFFS (ASU WEST CAMPUS), SKINNER, STONE, WELLS

ASSOCIATE PROFESSOR:

DEZELSKY

ASSISTANT PROFESSORS:

GRIER, HNRCHS, LARISH, MART N, MYERS, TRAN, VAN DER MARS, VOGLER

INSTRUCTORS:

H LGERS, NORRID

PROFESSORS EMERITI:

BRYANT, DEACH, KAJIKAWA, KLANN, MAARSINGH, McFARLAND, MURPHY, PACKER, PTTMAN, RICHARDSON, STEVERSON, STEWART, THOMSON, WEGNER, WULK

Departmental Major Requirements

All Department of Health and Physical Education majors are required to complete a core sequence in physical education (21 semester hours: PED 110, 335, 340, 345, 450 and 494); a MAT class (three semester hours: 106 or 117), either a HIS class (three semester hours: 100, 101 or 102), or a PHI class (three semester hours); and ZOL 201 and 202 (eight semester hours). All PED courses must be completed with a minimum grade of "C."

Bachelor of Science Degree Curriculum

Candidates for the B.S. may elect to study either in an exercise and sport studies option or in a fitness leadership option.

Exercise and Sport Studies Option. Candidates must complete 24 semester hours in the major field, at least nine of which must carry PED prefixes, be upper division experiences and concern the theoretical subjects of the core. The remaining 15 semester hours may carry either PED prefixes or prefixes from related disciplines selected with the advice and consent of a faculty advisor. No more than three of these 15 semester hours may be in activity courses which must be different from those taken in the core, and no more than six may be in independent study courses.

Fitness Leadership Option. Candidates must complete 24 semester hours in the major field, PED 325, 420, 425 (three semester hours each), PED 484 (three to six semester hours), and 12 semester hours carrying either PED prefixes or prefixes from related disciplines selected with the advice and consent of a faculty advisor. No more than three of these 12 hours may be in activity courses which must differ from those taken in the core, and no more than six may be in independent study courses.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Candidates for the B.A. are required to complete 19 additional semester hours in physical education (PED 110, 361, 375, 376, 382 and 483) and a four-semester professional sequence in the College of Education (32 semester hours). Entry into this degree program requires passing scores on a Pre Professional Skills Test (PPST), 56 semester hours of completed university study and a 2.50 grade point average. (See the College of Education for additional requirements.)

Departmental Minor Teaching Field Requirements

(Secondary Education)

Coaching of Athletics (Men and Women). Consists of 32 semester hours. Courses PED 335, 340, 346, 383 and 486; ZOL 201, 202 are required; plus nine hours from PED 291 and electives selected by the student in consultation with an advisor.

Athletic Trainer's Certificate (Men and Women) Consists of 41 semester hours. Courses FON 241, HES 100, PED 270, 335, 340, 382, 383, 485, 486; PGS 100; ZOL 201, 202 are required; plus electives selected by the student in

consultation with an advisor. Note: Six semester hours or two years' equivalent work of 600 clock hours of internship. Contact Intercollegiate Athletic Department to enroll in this program.

Departmental Graduate Programs

The Department of Health and Physical Education offers programs leading to the Master of Science degree in Physical Education, Master of Education—Secondary Education (Physical Education), Education Specialist—Secondary Education (Physical Education), Doctor of Philosophy in Exercise Science, Doctor of Education—Secondary Education (Physical Education) and Doctor of Philosophy—Secondary Education (Physical Education). Consult the *Graduate Catalog* for requirements.

HEALTH SCIENCE

HES 100 Personal Health. (3) F, S, SS

Human struggle for achieving harmony between the slowly changing inner environment and the rapidly changing outer environment. Some sections may be offered with discussion groups. Consult *Schedule of Classes*.

305 Substance Abuse. (3) F

General properties, principles of action and behavioral effects of psychoactive drugs. Focuses on how substances affect health of humans.

382 Introduction to Public Health. (3) N

Public and community health examined including governmental, voluntary and community agency activities which promote health among populations.

483 Supervised Field Training. (3-6) N

Opportunities to observe and work in public and voluntary agencies either in preparation for beginning employment or better understanding of the interrelationships in community health programs. May be repeated for a total of 9 hours. Prerequisite: 24 hours of required health science courses.

505 Drug Dependency: Perspectives and Approaches. (3) S

Classification of mood modifying substances in terms of effects. Motivational and social forces contributing to the dynamics of the problem, control and treatment.

Students who complete satisfactorily selected HES 494 courses are eligible to qualify for a certificate of accomplishment from the Center for Disease Control, U.S. Department of Health and Human Services.

Special Courses: HES 494 (See pages 43-44.)

PHYSICAL EDUCATION

A \$5.00 towel and locker fee is required each semester by students using towel and locker facilities for physical education classes and intramural activities.

Physical Education activity classes (PED 105, 205, 305, 310) may not be taken for audit.

PED 105 Physical Education Activity. (1) F, S, SS

Beginning instruction in adapted physical activities and a variety of sports: golf, scuba, karate, judo, handball, equi-

146 HEALTH AND PHYSICAL EDUCATION

tation tennis swimming weight training gymnastics and other activities 3 hours a week May be repeated for credit

110 Professional Activities, Individual and Team Sports. 1 2 F S

Skills, strategies and knowledge of selected physical activities May be repeated in different sports, for credit Prerequisite: Physical Education major

170 Introduction to Physical Education. 1 F S SS

Oriented to and exploration of the field of physical education to be taken in the freshman year First Aid certificate required prior to completion of class Required of students majoring in Physical Education

175 Occupational and Physical Therapy. 2 S

Backgrounds purposes and functions of the professions of physical therapy and occupational therapy, their relationships to health professions and community agencies

183 Introduction to Athletic Training. 3 F

The role and responsibility of the athletic trainer daily training room procedures and basic taping and wrapping skills

205 Physical Education Activity. 1 F S, SS

Intermediate level Continuation of PED 105 3 hours a week May be repeated for credit

270 Instructorship in Standard First Aid. 2 F S

For individuals seeking the Standard First Aid Certificate, leading to qualification as a first aid instructor Prerequisite: must be 18 years of age

283 Prevention and Care of Athletic Injuries. 3 F

Taping injury recognition emergency care and observation procedures in athletic training Prerequisites: ZOL 201 202.

290 Sports Officiating. 3 F

Rules and mechanics of officiating used in football basketball and volleyball

291 Theory of Coaching. 3 F S

Theory of coaching competitive sports Each class meets 3 hours per week Prerequisites: Physical Education major and coaching minor or approval of area chair

292 Sports Officiating. 3 S

Rules and mechanics of officiating used in softball soccer and fast pitch baseball and track and field

305 Physical Education Activity. 1 F S

Advanced levels Continuation of PED 205. Includes Red Cross Senior Life Saving Red Cross Water Safety Instructorship 3 hours a week May be repeated for credit Prerequisite: current Senior Red Cross Life Saving Certificate, and other aquatic activities

310 Collegiate Sports. 1 F S

Credit may be given for participation in competitive sports For men and women. May be repeated for a total of 4 semester hours Time arranged "Y" grade on y

325 Fitness for Life. 3 F S

Physical fitness and benefits of exercise with emphasis on self evaluation and personalized program planning for a lifetime

335 Biomechanics. 3 F, S SS

Basic mechanical and anatomical principles applied to human movement Emphasis is placed on kinematic and kinet concepts Prerequisites: MAT 117 ZOL 201

340 Physiology of Exercise. 3 F, S SS

Nature and scope of physiological responses and adaptations to exercise in the human body Prerequisite: ZOL 202.

345 Motor Learning. 3 F, S SS

Principles of information processing and learning and their relationship to understanding the performance and learning of motor skills Prerequisite: PGS 100

346 Psychology of Coaching. 3 F S SS

Principles of learning applied to coaching sports Psychological and social problems of coaching Prerequisite: PGS 100

348 Psychological Skills for Optimal Performance. (3) F, S

Application of psychological techniques and their use to improve effectiveness and performance in sport and related areas

361 Physical Education in the Secondary School. 3 F, S, SS

Current trends and theories such as elective programs coed classes equity issues, contract teaching curriculum and administration

375 Movement Concepts and Experiences for Children. 3 F, S, SS

Introduction to basic movement concepts activities and experiences related to physical education for elementary aged children

376 Physical Education for the Elementary School. 3 F S SS

Scope and values of physical education in the elementary school Methods, materials and practical teaching activities for primary intermediate and upper grades

382 Physical Education for the Atypical Student. 3 F, S SS

Survey course of handicapping conditions and adaptation activities to meet the needs of the hand capped Prerequisite: PED 335 or instructor approval

383 Advanced Techniques and Evaluation of Athletic Injuries. 3 S

Evaluation of athletic injuries recognition of the importance of physical exams Conditioning programs and distinguishing factors in athletics Designed for students seeking NATA certification. Prerequisite: PED 283

420 Exercise Testing. 3 F

Theoretical basis and practical application of screening exercise testing estimates of energy expenditure and interpretation of results Prerequisite: PED 340

425 Exercise Prescription. (3) S

Theoretical bases for and application of general principles of exercise prescription to various ages fitness levels and health states Prerequisite: PED 420

441 Physiology of Women in Sport. 3 S

Physiological aspects of females engaging in physical activity throughout her lifetime. Factors affecting performance and health will be emphasized Prerequisite: PED 340

450 History and Philosophy of Physical Education. (3) F S SS

Nature purpose and development of sporting and related activity from ancient primitive to twentieth century civilization

480 Methods of Teaching Physical Education. 3 F, S

Methods of instruction organization and presentation of appropriate content in elementary and secondary physical education Concurrent with student teaching or permission of instructor.

483 Evaluation in Physical Education. 3 F S, SS

Analysis and construction of tests Statistics as applied to tests and measurement in school based and non-school based settings

485 Rehabilitation of Athletic Injuries. 3 S

App cat on of princ ples and pract ces regarding the use of moda tes and rehab tat on techn ques n the ath et c tra n ng techn ques to pract ca app cat on of coach ng and or ath et c tra n ng techn ques Y^g grade on y Pre requ s te PED 383

486 Coaching Athletic Training Internship. 1-6 F S

Relat onsh p of theory of coach ng athlet cs and ath et c tra n ng techn ques to pract ca app cat on of coach ng and or ath et c tra n ng techn ques Y^g grade on y Pre requ s te approva by d sc p ne cha r

500 Research Methods. 3 F

An ntroduct on to the bas c aspects of research nc ud ng problem se ect on terature rev ew nstrumentat on data hand ng methodology and the wr t ng of research reports and art ces

501 Research Statistics. 3 S

Stat stca procedures samp ng techn ques exerc se test ng exerc se presc pt on hypothes s test ng and exper menta des gns as they relate to stud es reported n re search pub cat ons. Pre equ s te PED 340

505 Research Laboratory. 3 F

Advanced research techn ques n use and ca brat on of laboratory equipment ut zed n c nematograph c ana lys s card oresp ratory test ng and motor earn ng exper menta t on

510 Introduction to Biomechanics Research Methods.

3 F
App cat on of mechanics to human movement ana lys s Includes cons derat on of mot on ana lys s techn ques seg ment nert a propertes and data process ng methods.

520 Psychology of Exercise and Sport. 3 F

Current research n psycho ogy of exerc se, motor earn ng contro and sport psycho ogy nc udes psychophys o ogy ca and behav ora research techn ques Prerequ s te: PED 345 or 346

530 Exercise Physiology. 3 F

Immed ate and ong term adaptat ons to exerc se with spec a reference to tra n ng and the ro e of exerc se n cardiovascular hea th

534 Sports Conditioning. 3 F

Bases of sports cond t on ng nc ud ng, aerob c and an aerobic power strength flex b ty ana lys s of cond t on ng components for sports

536 Fitness Program Development. 3 S

Pann ng organ zat on and adm n strat on of ftness pro grams Exerc se test ng and presc pt on Programs for spec a groups

541 Physiology of Women in Sport. 3 S

Phys o ogy ca aspects of fema es engag ng n phys ca ac t v ty throughout her fet me Factors affect ng perform ance and hea th w be emphas zed Prerequ s te PED 340

542 Environmental Aspects of Human Performance.

3 N
Mechan sms of phys o ogy ca response of hea thy human be ngs to desert arct c, mounta n and undersea env ronments w th emphas s on the effect of env ronmental stresses upon exerc se performance. Prerequ s te PED 530

550 Historical Bases of Physical Education. 3 F S

SS
Go den Age of Greece Rena ssance and modern Europe Ctura econom c and educat ona forces whch nflu enced the deve opment of phys ca educat on dance and ath et cs n the Un ted States

555 Sport and the American Society. 3 F, S, SS

mpact of sports upon the Amer can cu ture, w th focus on compet t on, econom cs, myths m nor tes and the O ym p c syndrome

560 Theory of Administration. 3 F S SS

Adm n strative ph osophes deve opment of concepts re lated to processes of adm n strat on, types of adm n strat ve behav or tasks and respons b tes of the adm n strator eva uat on of the effect veness of adm n strat on

561 Administration of Athletics. 3 F SS

Manag ng an ath et c program fnanc ng, budget po ces, stag ng and promot on of ath et c contests schedu es travel nsurance and current ath et c trends

562 Facility Development. 3 F S

Prnc ples standards personne des gns and equipment ut zed n the pann ng construct on and ma ntenance of ndoor outdoor fac tes

565 Improving Sport Sk lls. 3 N

Factors n successfu motor performan e n sk s used n nd v dua dua and team sports

570 Adapted Physical Education 3 S SS

Contemporary adapted deve opmenta remeda and or rect ve phys ca educat on programs nderstand ng of princ ples prob ems and recent deve opments n th s area

572 Trends and Issues in Physical Education. 3 F S

SS
L terature research and pract ces n contemporary phys ca educat on nc ud ng fnances, Tte X, teach ng and coach ng ph losoph es schoo organ zat on and nonteach ng phys ca educat on programs

573 Curriculum Construction in Physical Education.

(3) F S SS

App cat on of princ ples pract ces and funct ona ph osoph es of curr cu um mak ng n phys ca educat on Pre requ s te major n Phys ca Educat on or tea h ng exper ence

574 Behavioral Analysis in Sport and Physical Education. 3 N

The app cat on of behav ora princ ples, pract ces ph losoph es and research to teach ng phys ca educat on and coach ng ath et cs.

575 Teaching Lifetime Fitness. 3 S, SS

Organ z ng and mp ement ng phys ca ftness programs n the schoo s w th emphas s on nd v dua prob em so v ng

576 Physical Education for Elementary School Children. 3 S SS

Current pract ces and research perta n ng to e elementary school phys ca educat on programs

577 Movement Experiences for Preschool Children.

3 N

Movement act v tes for preschoolers based on the needs and character st cs of young ch dren

610 Biomechanics. 3 S

Advanced top cs n bomechan cs research nc ud ng m ag ng techn ques, samp ng theory k net cs and musc mechanics, eva uat on of current research terature Pre requ s te PED 510 or nstructor approva

620 Psychomotor Development. 3 S, SS

Ana ys s and d scuss on of current research resu ts nc ud ng theoret ca mode s for conduct ng research Prerequ s tes PED 500 501 520

621 Motor Learning. 3 F

D scuss on of contemporary research sues n motor earn ng and contro Includes behav ora and neurophys o ogy ca ssues. Prerequ s te PED 520 521 or equ va ent

622 Sport Psychology. 3 S SS

Contemporary research and theory as related to human performance in sport and exercise settings Prerequisites PED 500 501, 520.

Special Courses: PED 394 484 494 498 499 500, 580 584, 590 591 592, 593 594, 598 599 680 683, 684 690 691 692 780, 783 784, 790 791, 792 799. See pages 43–44

History

PROFESSORS:

TRENNERT SS 204) BARLOW, BURG GIFFIN
HUBBARD VERNON, KLEINFELD,
LUCKENHAM, MACNON, PAULSEN
TAMBS, TILLMAN, WARNCKE

ASSOCIATE PROFESSORS:

ADELSON, BATALDEN, CONNELL (ASU WEST
CAMPUS), DELLHEM, FRANKLIN,
FULLNWIDER GRATTON, KAHN KEARNEY
PYNE (ASU WEST CAMPUS), ROSALES,
ROTHSCHILD R. SMITH STOWE, WOOTTEN

ASSISTANT PROFESSORS:

CARROLL, FUCHS, HURTADO, L. SMITH
STONER, SUTTON VANDERMEER, WERNER

LECTURER:

LUEY

PROFESSORS EMERITI:

DANNENFELDT, KARNES, PHILLIPS SACKS
TILDEN, YOUNG

Departmental Major Requirements**Bachelor of Arts Degree Curriculum**

History. Consists of 45 semester hours of which 30 must be in history and 15 in related fields to be approved by the advisor in consultation with the student. HIS 498 (Pro Seminar) is required, except for honors students who may substitute HIS 493 (Honors Thesis). At least 18 hours in history courses and six hours in the related fields must be in upper division courses. At least six hours in history must be taken in each of two of the following areas: U.S., Latin American, British, Asian, European. A minimum grade point average of 2.25 in the 30 hours of history courses is required. (See degree requirements, page 97.)

Latin American Studies Emphasis. (See Latin American studies, page 102.) Consists of the B.A. requirements in History. At least 30 upper division semester hours of the total program must be in Latin American content courses, including 15 hours in history and 15 in other disciplines. A

reading knowledge of Spanish or Portuguese is required and a reading knowledge of the other language is suggested. The program must be approved by the Center for Latin American Studies. Fulfillment of requirements is recognized on the transcript as a bachelor's degree with a major in History Latin American studies emphasis

Asian Studies Emphasis. (See Asian studies, page 101.) Consists of the B.A. requirements in History, with the language requirement being fulfilled with an Asian language. Thirty semester hours of the total degree program must consist of Asian area courses selected with the approval of the departmental advisor. Lower division language courses may not be counted within the 30-hour requirement. Completion of this program is recognized by a Bachelor of Arts degree with a major in History Asian studies emphasis.

Bachelor of Science Degree Curriculum

History. Consists of 42 semester hours in history (including HIS 381 and 382) and 18 hours in closely related fields and quantitative studies, as approved by the program directors in consultation with the student. HIS 381 and 382 are required for all degree candidates and should be completed, in sequence, by the end of the junior year. Related fields' courses may also be used to satisfy general CLAS requirements. At least 27 hours in history courses and nine hours in the related fields must be in upper division courses. At least six hours in history must be taken in each of two of the following areas: U.S., Latin American, British, Asian, European. A minimum grade point average of 2.25 in the 42 hours of history courses is required. (See degree requirements, page 97.)

Departmental Major Teaching Field Requirements**Bachelor of Arts in Education Degree Curriculum**

History. Consists of 42 semester hours, of which at least 30 must be in history courses. At least 18 of the history hours must be in upper division courses. At least three semester hours must be taken in United States history. The remaining history and related area courses must be selected in consultation with an advisor from the Department of History. A minimum grade point average of 2.25 in history courses is required for admission to practice teaching and for graduation. The course HIS 495 may not be counted as part of the 42-hour major requirement.

Departmental Minor Teaching Field

Bachelor of Arts in Education Degree Curriculum

History Consists of 24 semester hours in history courses, of which at least nine must be in upper division courses. The program must include at least three hours in United States history.

Departmental Graduate Programs

The Department of History offers programs leading to the M.A. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

HISTORY

HIS 100 Western Civilization. 3 F S

Traces origin and development of Western man and his institutions. Ancient World through the Middle Ages. [Satisfies General Studies Requirements SB H]

101 Western Civilization. 3 F S

Traces origin and development of Western man and his institutions. Renaissance and Reformation through Age of Enlightenment. [Satisfies General Studies Requirements SB H]

102 Western Civilization. 3 F S

Traces origin and development of Western man and his institutions. French Revolution to the present. [Satisfies General Studies Requirements SB, G, H]

103 The United States. 3 F S

Growth of the Republic from colonial times through the Civil War period. [Satisfies General Studies Requirements SB H]

104 The United States. 3 F S

Growth of the Republic from the Civil War period to the present day. [Satisfies General Studies Requirements SB H]

107 Introduction to Japan. 3 A

Historical survey of the people, culture, politics and economy of Japan supplemented by audio visual presentations intended for nonmajors. [Satisfies General Studies Requirements SB, G, H]

270 Judaism in American History. 3 N

A chronological analysis of Jews and Judaism in American history and letters. [Satisfies General Studies Requirements SB, H]

271 European Jewish History. 3 N

European Jewish experience from the Crusades to the emancipation of the Jews in the 18th and early 19th centuries.

294 Selected Topics in History. 3 N

A full description of topics for any semester's availability in the History Department office. May be repeated for credit. [Introduction to Southeast Asia Satisfies General Studies Requirement G]

303 American Cultural History. 3 F S

Culture in a broad connotation including ideas, ideas, the arts, and social and economic standards. The nation's colonial background and early national period. [Satisfies General Studies Requirements SB H]

304 American Cultural History. 3 F S

Culture in a broad connotation including ideas, ideas, the arts, and social and economic standards. The age of industrialism and modern America. [Satisfies General Studies Requirements SB H]

305 Asian Civilizations. 3 F S

The civilizations of China, Japan and India to mid-17th century. [Satisfies General Studies Requirements SB G H]

306 Asian Civilizations. 3 F, S

The civilizations of China, Japan and India. May also include Southeast Asia. Mid-17th century to present. [Satisfies General Studies Requirements SB, G, H]

320 Ancient Greece. 3 A

History and civilization of the Greek world from the Bronze Age to the Roman conquest of the Hellenistic kingdoms. [Satisfies General Studies Requirements SB H]

321 Rome. 3 A

History and civilization of Rome from the beginning of the Republic to the end of the Empire. [Satisfies General Studies Requirements SB H]

322 The Middle Ages. 3 A

Political, socioeconomic and cultural developments of Western Europe. Early Middle Ages. [Satisfies General Studies Requirements SB H]

323 The Middle Ages. 3 A

Political socioeconomic and cultural developments of Western Europe. High Middle Ages. [Satisfies General Studies Requirements SB H]

324 Renaissance. 3 F

Antecedents and development of the Renaissance in Italy and its spread to the rest of Europe. [Satisfies General Studies Requirements SB, H]

325 Reformation. 3 S

The Protestant and Catholic Reformation in the 16th century. [Satisfies General Studies Requirements SB, H]

326 Early Modern Europe. 3 A

Social, economic, cultural and political changes in 17th century Europe. [Satisfies General Studies Requirements SB H]

327 Early Modern Europe. 3 A

Social, economic, cultural and political changes in 18th century Europe. [Satisfies General Studies Requirements SB, H]

329 19th-Century Europe. 3 A

Political, social, economic and intellectual currents in Europe from Napoleon to 1866. [Satisfies General Studies Requirements SB H]

330 19th-Century Europe. 3 A

Political, social, economic and intellectual currents in Europe from 1866–1918. [Satisfies General Studies Requirements SB H]

331 20th-Century Europe. 3 N

European world settings since World War I emphasizing major political and social issues 1914–1945. [Satisfies General Studies Requirements SB G H]

332 20th-Century Europe. 3 N

European world settings since World War I emphasizing major political and social issues 1945 to the present. [Satisfies General Studies Requirements SB G H]

333 Women and Society in Europe. 3 N

Women's role, status and achievements in Europe 1750–1950. Changes in everyday life, sex roles, family patterns, work and culture. [Satisfies General Studies Requirements HU, SB H]

150 HISTORY

335 Family, Class and Society in Europe, 1700–1980. (3) N

Family life sex roles work crime population changes and the relationship to political economic and social changes

351 England. (3) F S

Political economic and social development of the English people to the 17th century [*Satisfies General Studies Requirements SB H*]

352 England. (3) F S

Political economic and social development of the English people from 17th century to the present [*Satisfies General Studies Requirements SB H*]

362 The American Indian. 3 F

History of the American Indian with emphasis on the government's Indian policy and the impact of the white man on tribal culture [*Satisfies General Studies Requirements SB H*]

363 The Black American Experience. (3) A

The Afro American in American history thought and culture from slavery to 1865 [*Satisfies General Studies Requirement L2*]

364 The Black American Experience. 3 A

The Afro American in American history thought and culture from 1865 to the present [*Satisfies General Studies Requirements L2 SB, H*]

365 Islamic Civilization. 3 F

An interdisciplinary survey of art history and religion in Islamic civilization. Cross listed as REL 365 [*Satisfies General Studies Requirements HU SB, G, H*]

366 The Modern Middle East. 3 S

Impact of the Western world upon Middle Eastern governments, religion and society in the 19th and 20th centuries; problems of modernization and the role of the Middle East in world affairs [*Satisfies General Studies Requirements SB, G, H*]

367 The West in American History. 3 A

The Turner Thesis of the significance of the frontier in American history beginning with discovery and exploration and continuing to the period of Texas and the Mexican War [*Satisfies General Studies Requirements SB H*]

368 The West in American History. 3 A

The Turner Thesis of the significance of the frontier in American history from the development of the frontier thesis to 1890 emphasizing Arizona and the Southwest [*Satisfies General Studies Requirements SB, H*]

369 The West in the 20th Century. 3 N

Role of the western states in American history since 1890 with emphasis on politics, the environment industry and labor and the changing position of ethnic minorities [*Satisfies General Studies Requirements SB H*]

370 Women in United States History, 1600–1880. 3 F

Examination of lives of American women and women's social organizations [*Satisfies General Studies Requirements SB, H*]

371 Women in United States History, 1880–1980. 3 S

Examination of lives of American women and women's social organizations [*Satisfies General Studies Requirements SB, H*]

373 United States Military History. 3 F, S

The implementation of American foreign and domestic policies by strategic means. Coon a foundations to the

Civil War Prerequisites: HS 103 and 104 [*Satisfies General Studies Requirements SB H*]

374 United States Military History. 3 F S

The implementation of American foreign and domestic policies by strategic means. America as a world power Prerequisites: HS 103 and 104 [*Satisfies General Studies Requirements SB, G, H*]

375 History and Theory. 3 N

Historical and theoretical sources of modernity, particularly moral and cultural relativism value free social science behaviorism humanism Marxism and atheism.

380 History of the Mexican-American. 3 A

Role of the Mexican American in U.S. history [*Satisfies General Studies Requirements SB H*]

381 Quantification in History. 3 F

Quantitative techniques political analysis new economic theory demography and social history Research methods in social science design, data collection and computer skills Prerequisite: MAT 117

382 Historical Statistics. 3 S

Historical data analysis sampling distributions tests of hypotheses t tests to multiple regression, nonparametric techniques Prerequisite: HIS 381 [*Satisfies General Studies Requirement N2*]

383 Latin America. 3 A

Ancient civilization, explorers and conquerors and colonial institutions [*Satisfies General Studies Requirements SB H*]

384 Latin America. 3 A

National development of the independent republics since 1825 [*Satisfies General Studies Requirements SB, H*]

394 Selected Topics in History. 3 N

A full description of topics for any semester available in the History Department office. May be repeated for credit

401 American Colonial History. 3 A

Political economic, social and cultural history of the colonial era. Concentrates on English colonies with some consideration of Spanish French and other colonial regions in North America [*Satisfies General Studies Requirements SB, H*]

403 Early National Period in American History. 3 A

Political social and economic development of the United States from the Revolution to 1828

404 The Jacksonian Era. 3 N

American ideas with emphasis on equality in the political social and economic life of the nation 1828–1850

406 Civil War and Reconstruction. 3 A

Causes and development of the war, political constitution and social issues of Reconstruction and the effects on postwar America. [*Satisfies General Studies Requirements SB H*]

407 The Emergence of Modern America 3 A

The triumph of modern political social and economic structures and values 1870–1918; role of religion religion race and ethnicity [*Satisfies General Studies Requirements SB H*]

409 Recent American History. 3 A

1913–1932 Wilson administration and the First World War the 1920s, the origins of the Great Depression Hoover administration Prerequisite: HS 104 or equivalent [*Satisfies General Studies Requirements SB H*]

410 Recent American History. 3 A

1932–1945, the New Deal society during the Depression Second World War Prerequisite: HS 104 or equivalent [*Satisfies General Studies Requirements SB H*]

- 411 Contemporary America.** 3 A
The United States from 1945 to the present [*Satisfes General Studies Requirements SB H*]
- 413 Origins of the American Economy.** 3 F
Co on a period to 1870 pre industria society farm and factory n eary industria zation, rise and co apse of the save economy Prerequisite upper div's on stand ng or nstructor approva [*Satisfes General Studies Requirements SB, H*]
- 414 The Modern American Economy.** 3 S
1870 to the present, 19th century industria base 20th century c's s and regulaton: po tca economy of an advanced cap ta st democracy Prerequisite upper div's on stand ng or nstructor approva [*Satisfes General Studies Requirements SB H*]
- 415 American Diplomatic History.** 3 A
Amer can re atons wth fore gn powers 1776–1898 Pre requisite HS 103 or nstructor approva [*Satisfes General Studies Requirements SB H*]
- 416 American Diplomat c History.** 3 A
Amer can re atons wth fore gn powers, 1898 to the present Prerequisite HS 104 or nstructor approva. [*Satisfes General Studies Requirements SB G H*]
- 417 Constitutional History of the United States.** 3 N
Or gn and development of the Amer can constitutona system Co on a org ns through Reconstruct on Prerequisite HS 103 or nstructor approval [*Satisfes General Studies Requirements SB H*]
- 418 Constitutional History of the United States.** 3) N
Or gn and development of the Amer can constitutona system Reconstruct on to the present. Prerequisite: HIS 104 or nstructor approva [*Satisfes General Studies Requirements SB H*]
- 419 American Urban History.** 3) A
The h story of the cty n Amer can fe, co on a tmes to the ate 19th century [*Satisfes General Studies Requirements SB H*]
- 420 American Urban History.** 3) A
The h story of the cty n Amer can fe, 19th century to the present [*Satisfes General Studies Requirements SB H*]
- 421 History of American Labor.** 3 A
Amer can workers from the co onal period to the present, ncud ng farmers' s'aves, housew ves, the sk ed and un sk ed un on zed and nonun on zed. Prerequisite: upper div's on stand ng or nstructor approva [*Satisfes General Studies Requirements SB H*]
- 422 Social History of American Women.** (3) A
Exam nation of women's socia poston n America n depth analys s of spec'f c women's issues n terms of change over tme [*Satisfes General Studies Requirements SB H*]
- 423 Recent American Intellectual History.** (3) A
Major movements n 20th century science, re gon and ph osophy [*Satisfes General Studies Requirements SB H*]
- 424 The Hispanic Southwest.** (3) N
Development of the Southwest n the Span sh and Mexi can periods to 1848 [*Satisfes General Studies Requirements SB H*]
- 425 The American Southwest.** 3 N
Development of the Southwest from 1848 to the present [*Satisfes General Studies Requirements SB H*]
- 426 Indian History of the Southwest.** 3) S
Comprehensive review of hstorca events from preh s tor c peoples, the Span sh and Mex can periods Amer can period after 1846 to the present Prerequisite upper div's on stand ng or nstructor approva [*Satisfes General Studies Requirements SB, H*]
- 428 Arizona.** 3) A
Emergence of the state from eary times to the present Prerequisite upper div's on stand ng or nstructor approva [*Satisfes General Studies Requirements SB H*]
- 429 Metropolitan Phoenix.** 3 A
H storca development of the Phoenix Metro po tan area snce the 19th century [*Satisfes General Studies Requirement H*]
- 430 20th Century Chicano History.** (3) A
H storca development of the Ch cano community n the 20th century [*Satisfes General Studies Requirements SB H*]
- 431 The French Revolution and the Napoleonic Era.** 3 N
Cond tions in France before 1789 the Revo utonary decade from 1789 to 1799 the organ zat on of France under Napo eon and the mpact of changes n France on Euro pean socety. Prerequisite: upper-div's on stand ng or nstructor approva [*Satisfes General Studies Requirements SB, H*]
- 433 Modern France.** 3 A
Soc a po tca econom c and cultura transformations of French socety, 1815–present. mpact of industr aizat'on, war and revoluton on people s ves. Prerequisite upper div's on stand ng or nstructor approval [*Satisfes General Studies Requirements SB, G, H*]
- 434 Hitler: Man and Legend.** 3) N
A biograp cal approach to the German Th rd Reich em phasiz ng nature of Nazi reg me, World War and h stonography [*Satisfes General Studies Requirements SB, H*]
- 435 Modern Germany.** (3) A
Germany snce 1840 [*Satisfes General Studies Requirements SB, G, H*]
- 437 Eastern Europe and the Balkans.** (3) A
Peoples and countr es of eastern and southeastern Europe n the 19th and 20th centur es. 1800–1914 empha s z ng the Hapsburg and Ottoman Empres [*Satisfes General Studies Requirements SB H*]
- 438 Eastern Europe and the Balkans.** 3) A
Peoples and countr es of eastern and southeastern Europe n the 19th and 20th centur es 1914 to the present, empha z ng the successor states [*Satisfes General Studies Requirements SB G H*]
- 441 Imperial Russia.** (3) A
Development of Russan po tca econom c soca re gous and inte ctua institutions and trad tions from the end of the 17th century to the co lapse of the tsar st autocracy n 1917. [*Satisfes General Studies Requirements SB H*]
- 442 The Soviet Union.** (3) A
An exam nation of Soviet po tcs econom c development and fore gn re atons from the 1917 Revo uton to the present. [*Satisfes General Studies Requirements SB, G H*]
- 443 Russia and the United States.** (3) A
Off c a and unoff c a re ations between Russia and the U.S. ate 18th century to the present Emphas zes period of low ng the Bo shevik Revo uton [*Satisfes General Studies Requirements SB, G, H*]
- 445 Tudor England.** (3) A
Po tca soca, econom c and cultura developments n 16th century England [*Satisfes General Studies Requirements SB H*]

152 HISTORY

446 Stuart England. 3 A

Political, social, economic and cultural developments in 17th century England [Satisfies General Studies Requirements. SB, H]

449 Modern Britain. 3 A

Factors contributing to Britain's position as the world's leading power in the 19th century and its decline from that position in the 20th century [Satisfies General Studies Requirements. SB, G, H]

450 British Constitutional History. (3 A)

Historical development of the constitutional system of Great Britain from the Middle Ages to the present, emphasizing the growth of democracy [Satisfies General Studies Requirements. SB, H]

451 The British Empire. 3 A

British imperial administration in Africa, the Americas, Asia and the South Pacific. Prerequisite: upper division standing or instructor approval [Satisfies General Studies Requirements. SB, H]

452 Economic History of Europe. 3 N

Impact of industrialism upon the political, social and cultural life of Europe, Renaissance to the 19th century [Satisfies General Studies Requirements. SB, H]

453 Economic History of Europe. 3 N

Impact of industrialism upon the political, social and cultural life of Europe, 19th and 20th centuries [Satisfies General Studies Requirements. SB, G, H]

454 Intellectual History of Modern Europe. 3 A

Major developments in European thought from the scientific revolution, Copernicus through Bentham. Prerequisite: upper division standing or instructor approval [Satisfies General Studies Requirements. SB, H]

455 Intellectual History of Modern Europe. (3) A

Major developments in European thought from Karl Marx to the present. Prerequisite: upper division standing or instructor approval [Satisfies General Studies Requirements. SB, H]

456 History of Spain. 3 N

Cultural, economic, political and social development of Spain, earliest days to 1700 [Satisfies General Studies Requirements. SB, H]

457 History of Spain. 3 N

Cultural, economic, political and social development of Spain, 1700 to the present [Satisfies General Studies Requirements. SB, H]

460 Spanish South America. 3 N

Political, economic and social development of the Spanish speaking nations of South America since independence. 19th century developments

461 Spanish South America. 3 N

Political, economic and social development of the Spanish speaking nations of South America. 20th century developments.

463 Intellectual and Cultural History of Latin America. 3 N

Main currents of thought, the outstanding thinkers and their impact on 19th and 20th century Latin America. Cultural and institutional basis of Latin American life

464 The United States and Latin America. 3 N

The Latin American struggle for diplomatic recognition attempts at political union, participation in international organizations since 1810 and relations between the United States and Latin America [Satisfies General Studies Requirements. SB, G, H]

466 Mexico. 3 A

Political, economic, social and cultural developments from earliest times to 1810 [Satisfies General Studies Requirements. SB, H]

467 Mexico. (3) A

Political, economic, social and cultural developments from 1810 to the present [Satisfies General Studies Requirements. SB, H]

468 Brazil. 3 N

Discovery, conquest and settlement by the Portuguese; achievement of independence and failure of the empire; problems and growth of the republic to the present

469 Chinese Thought and Way. 3 N

Chinese classics in translation studied both for their intrinsic ideas and for the origins of Chinese thought [Satisfies General Studies Requirements. SB, H]

470 Chinese Thought and Way. (3) N

Evolution of Confucian Tao Way. Its synthesis of Taoism and Buddhism and 20th century reactions to that Tao [Satisfies General Studies Requirements. SB, G, H]

471 The United States and Japan. 3 A

Cultural, political and economic relations in the 19th and 20th centuries. Emphasis on post World War I period [Satisfies General Studies Requirements. SB, G, H]

472 The United States and China. 3 N

Emphasis on viewing from both sides the roller coaster ride of cultural, political and economic relations in the 20th century [Satisfies General Studies Requirements. SB, G, H]

473 China. 3 A

Political, economic, social and cultural history of the Chinese people from early times to the late 17th century [Satisfies General Studies Requirements. SB, H]

474 China. (3) A

Political, economic, social and cultural history of the Chinese people from mid 17th century to the present [Satisfies General Studies Requirements. SB, G, H]

475 The American Experience in Vietnam, 1945-1975. (3) N

Intersection of American and Asian histories in Vietnam viewed from as many sides as possible [Satisfies General Studies Requirements. SB, G, H]

477 Japan. (3) A

Political, economic, social and cultural history of the Japanese people from early times to the 19th century [Satisfies General Studies Requirements. SB, H]

478 Japan. 3 A

Political, economic, social and cultural history of the Japanese people from 19th century to the present [Satisfies General Studies Requirements. SB, G, H]

479 The Chinese Communist Movement. 3 N

Analysis of the communist movement in 20th century China with emphasis on its historical setting [Satisfies General Studies Requirements. SB, G, H]

481 The People's Republic of China. (3) N

Analysis of major political, social, economic and intellectual trends in China since the founding of the People's Republic in 1949 [Satisfies General Studies Requirements. SB, G, H]

485 Historic Preservation. 3 N

Comparative approach to preservation of historical resources in Europe and United States, analysis of regulatory framework and case studies

495 Methods of Teaching History. (3) S
Methods of instruction, organization and presentation of the subject matter of history and closely related fields

501 Historical Research and Writing. (3) F
Surveys current methodological practices, recent historical monographs and the research skills and tools used by historians. Required of students in historical editing emphasis

502 Public History Methodology. (3) F
Introduction to historical research methodologies, techniques and strategies used by public historians. Readings, short papers, guest speakers. Required for public history business emphasis

503 Public History Research. (3) S
Individual and group research projects utilizing the approaches and techniques of the public historian. Required for public history business emphasis

512 Historians of Early Europe. (3) N
A study of the history of European historical writing from the Greeks to the eighteenth century

513 Historians of Modern Europe. (3) N
A study of nineteenth and twentieth century European historical writing.

514 Historians of the United States. (3) N
A study of the history of American historical writing from the early colonial days to the twentieth century

515 Studies in Historiography. (3) F, S
Methods and theories of writers of history. May be repeated for credit.

520 Historical Editing and Publishing Procedures I. (3) F
Introduction to editing of scholarly journals and books
Covers manuscript evaluation and preparation, copy editing, proofreading and related topics

521 Historical Editing and Publishing Procedures II. (3) S
Advanced work in copy editing, substantive editing and manuscript evaluation. Includes treatment of author/editor relations and preparation of indexes. Prerequisite: HIS 520.

522 Issues in Historical Editing. (3) F
Survey of journal and textbook publishing, including publishing law, financial aspects of publishing, book design, printing technology and related topics. Prerequisites: HIS 520, 521 and 584. Editing internship

525 Historical Resource Management. (3) F
Identification, documentation and interpretation of historical period buildings, sites and districts. Emphasis on interdisciplinary efforts among historians, architects and anthropologists

526 Historians and Preservation. (3) S
Preparation of historians for public and private historical preservation programs. Prerequisite: HIS 525 or instructor approval.

527 Historical Administration. (3) F
Preparation of historians in administration of archives, historical sites, historical museums, historical societies and historical offices in government agencies

530 American Business History. (3) F
Origins, evolution and present form of various major U.S. industries. Required for public history business option

551 Comparative Histories of War and Revolution. (3) A
A comparative field course of the themes of war and revolution

552 Comparative History of Family and Community. (3) N

A comparative course with a focus on family, including *monotony and ethnic groups, in society*

553 Comparative History of State and Institutions. (3) N

A comparative course that explores the changing nature of central institutions and government.

554 Comparative Historical Population Studies: Ethnicity, Economy and Migration. (3) N

A comparative course that explores the impact of social, cultural or economic changes in the population

555 Comparative Historical Topics. (3) N

This course analyzes a variety of specific social, political, cultural and intellectual topics

591 Seminar. (3) N
May be repeated for credit. Topics may be selected from the following areas:

- a United States History
- b European History
- c English History
- d Latin American History
- e East Asian History
- f British History

Special Courses: HS 294 298 394, 484, 492 493 494, 497 498 499 500 580 583 584 590, 591 592, 593, 594 598 599 600 680 683 684 690, 691 692, 693 700 780, 783, 784, 790 791 792 799. See pages 43-44

Interdisciplinary Humanities Program

PROFESSOR/DIRECTOR:

Bettie Anne Doebler

Departmental Major Requirements

Bachelor of Arts Degree Program

Humanities. The major in Humanities is interdisciplinary and may be intercollegiate; it consists of 45 hours. It is recommended that students take some 12 hours of supporting courses which may be credited toward General Studies requirements where appropriate. In consultation with an advisor, the student will take 29 hours of interdisciplinary humanities courses, including: (1) a core of 14 hours: HUM 110, 301, 302, or 498, and (2) 15 hours of courses selected to develop an interdisciplinary cultural or area concentration (examples: medieval or Renaissance studies). To balance the breadth of the interdisciplinary concentration, the student will also (3) take 16 hours from those courses required for one of the Humanities disciplinary majors. See this *Catalog* for requirements for architecture, art, anthropology (cultural), dance, English, foreign languages, history, music,

154 INTERDISCIPLINARY HUMANITIES PROGRAM / LIBERAL ARTS

philosophy, religious studies, and theatre. Twelve additional hours of supporting courses in consultation with the advisor are recommended especially to broaden the student's historic and aesthetic understanding. They are to be selected from the following disciplines: architecture, art history, dance, English, foreign languages, history, music, philosophy, religious studies, and theatre.

Graduate Program

The program also offers the Master of Arts degree in Humanities through the Committee on Humanities. Consult the *Graduate Catalog* for requirements.

HUMANITIES

HUM 110 Contemporary Issues in Humanities. (3) F, S Responses of literature, art history, history, philosophy, religion and other disciplines to common problems affecting modern American life. [Satisfies General Studies Requirements: HU, G, H]

301 Humanities in the Western World. (4) F Interrelation of arts and ideas in Western Civilization, Hellenic through Medieval. 3 lectures, 1 discussion meeting per week. [Satisfies General Studies Requirements: HU, H]

302 Humanities in the Western World. (4) S Interrelation of arts and ideas in Western Civilization, Renaissance to the present. 3 lectures, 1 discussion meeting per week. [Satisfies General Studies Requirements: HU, H]

413 Comedy: Meaning and Form. (3) S Nature and characteristics of comedy in the literary, fine and performing arts. Prerequisites: HUM 301, 302; or equivalent. [Satisfies General Studies Requirement: HU]

414 Tragedy: Meaning and Form. (3) A Nature and characteristics of literary and artistic expressions called tragic. Prerequisites: HUM 301, 302; or equivalent. [Satisfies General Studies Requirement: HU]

494 Special Topics in the Humanities. (3) N Open to all students. Topics include:
(a) Western Historical or Contemporary Cultures
(b) Non-Western Cultures
(c) Cultures of Ethnic Minorities
(d) American Fine Arts
(e) Comparative Fine and Performing Arts

498 Pro-Seminar in the Humanities. (3) A Methodologies and comparative theories for the study of relationships between various aspects of culture, the history of ideas and the arts. For students with a major in humanities with upper-division standing. May be repeated for a total of six hours credit when topics vary. [Interpretation of Cultures Satisfies General Studies Requirement: H]

501 Interpretation of Cultures. (3) A Methodologies and comparative theories for the study of relationships between various aspects of culture, the history of ideas and the arts. May be repeated for a total of six hours credit, when topics vary.

Additional courses may be selected from cultural anthropology, architecture, art, communication, dance, foreign languages and English (literature), cultural geography, in-

tellectual and cultural history, journalism and telecommunication, music, philosophy and theatre.

Special Courses: HUM 294, 394, 492, 493, 494, 497, 499, 590, 591, 592, 598, 599. (See pages 43-44.)

Liberal Arts

Interdisciplinary (LIA) courses offered by the College of Liberal Arts and Sciences.

LIA 100 University Adjustment and Survival. (3) F, S, SS

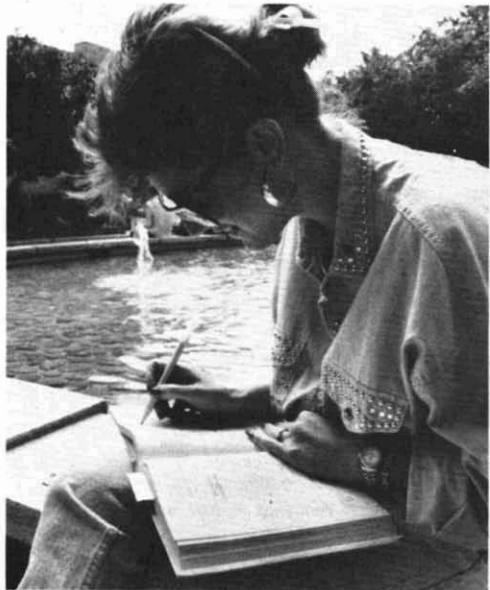
Analysis of student motivation and goals. Reinforcement of language facility and study skills. Use of the library. Orientation to university resources and procedures. Special section offered for mature women returning to higher education. Prerequisite: freshman or sophomore; or instructor approval.

101 The Use of Research Libraries. (1) F, S Interdisciplinary resources and services of the University Library, with an emphasis on research. Open to freshmen and sophomores.

171H The Human Event. (3) F, S Landmarks in the social and intellectual development of the human race, with emphasis on Western Civilization. Enrollment restricted to members of the Honors Program. Consult the Honors office for applicability to General Studies requirements. [Satisfies General Studies Requirements: L1, HU, H]

172H The Human Event. (3) F, S Continuation of LIA 171H, with emphases on the renaissance through the modern period. [Satisfies General Studies Requirements: L1, HU, H]

Special Courses: LIA 294, 298, 394, 484, 492, 493, 494, 497, 498, 499. (See pages 43-44.)



Mathematics

PROFESSORS:

TROTTER (PS A 216) ANDERSON, BREMNER
 BUSTOZ, BYRNES, FELDSTEIN, GOLDSTEIN,
 GRACE, HELTON, HERRERO, HRIG, SMAL,
 JACOBOWITZ, KELLY, LEONARD, McDONALD,
 MITTELMANN, NERING, NICOLAENKO,
 RODMAN, SAVAGE, SHERMAN, H. A. SMITH,
 H. L. SMITH, L. SMITH, A. WANG,
 C. WANG, WEISS, YOUNG

ASSOCIATE PROFESSORS:

BEDENT, DRISCOLL, FARMER, HASSETT,
 JACKIEWICZ, KADELL, KIERSTEAD, KUPER,
 KURTZ, MOORE, QUIGG, RINGHOFER,
 SANSONE, STEWART, SWIMMER, THEME

ASSISTANT PROFESSORS:

BAER, KAWSKI, KUANG, LISKOVEC, MANBER,
 McCARTER, PECK, RENAUT, TAYLOR

PROFESSORS EMERITI:

FREUND, LAKE, NEMEIR, SANKOV

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

Mathematics. Consists of a minimum of 30 semester hours in mathematics and additional course work in closely related fields, to be approved by the advisor, for a total of at least 45 semester hours. The required courses must include CSC 100 (or 183), MAT 270, 271, 272, 274, 300, 342, 371 (or 460); and two 400 level mathematics courses to be approved by the advisor. The department recommends a one year sequence in some closely related field. Students who plan to attend graduate school in mathematics should choose the Bachelor of Science degree.

Bachelor of Science Degree Curriculum

Mathematics. Consists of a minimum of 42 semester hours in mathematics and additional course work in closely related fields, to be approved by the advisor, for a total of at least 55 semester hours. The required hours must include CSC 100 (or 183), MAT 270, 271, 272 and 342. To satisfy the remaining required hours the following options are available:

General mathematics option. Requires MAT 274, 300, 371, 372; one of 410, 415, 443, 445;

464; one of 461, 462, 475; STP 421; and three more hours in mathematics to be approved by the advisor. The department recommends a one year sequence in some closely related field.

Computational mathematics option. Requires CSC 100, 101 (or CSC 300 with approval of advisor), 220 (or 310), MAT 243 or 300, 274, 371, 464, 465, 467; STP 326 (or 420 or 421). The remaining hours are to include three upper division courses, at least two of which must be in mathematics including one at the 400 level and all of which must be approved by the advisor.

Applied mathematics option. Requires MAT 274, 371, 372, 419, 451, 461, 462, 464, PHY 121, 131 also is required and the corresponding laboratory course (PHY 122, 132) is strongly recommended. Students should choose additional courses from CSC 101; IEE 476, MAT 415, 416, 419, 443, 463, 465, 472, 475, and STP 421, 425, 427.

Statistics and probability option. Requires MAT 300, 371, 372; STP 421 and one course from each of two of the following groups: (a) STP 427; (b) STP 425; and (c) IEE 476; MAT 419. The remaining courses in mathematics, to be approved by the advisor, may be selected from the three groups above or from among CSC 101, MAT 464, 465, 466; STP 420, 429. A coherent set of courses in a related field is also required.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Mathematics. Option One. Consists of at least 36 semester hours in mathematics. Required courses are CSC 100 (or 181); MAT 270, 271, 272, 300 (or 243), 310, 342, 371, 443 (or 445); MTE 483; and STP 420. MTE 482 is required as part of the 31 hour professional education requirement, but cannot be counted as part of the 36 hour major requirement.

Mathematics. Option Two. This option may be exercised only in combination with option two in chemistry (page 112) or physics (page 167). The mathematics portion of this 60 hour program consists of 30 semester hours in mathematics. Required courses are MAT 270, 271, 272, 300, 310, 342, 274 (or 371 or 460) and 443. A computer science course (CSC 100 or 183) is recommended.

Departmental Minor Teaching Field Requirements

(Secondary Education)

Mathematics. Consists of at least 24 semester hours. Required courses are MAT 270, 271, 272, 300, 310, 342 and one of 274, 371, 460.

Departmental Graduate Programs

The Department of Mathematics offers programs leading to the M.A. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

MATHEMATICS

MAT 106 Intermediate Algebra. 3 F S SS

Topics from basic algebra such as linear equations, polynomial factoring, exponents, root and radicals. Prerequisite: 1 year of high school algebra.

117 College Algebra. 3 F, S SS

Linear and quadratic function, systems of linear equations, logarithmic and exponential functions, sequences, series, and combinatorics. Prerequisite: Two years of high school algebra or MAT 106.

118 Precalculus Algebra and Trigonometry. 3 F S SS

Matrices and determinants, trigonometric and inverse trigonometric functions, vectors, complex number, polynomial and second degree equation. Prerequisite: MAT 117 or equivalent.

119 Finite Mathematics. 3 F S, SS

Topics from linear algebra, linear programming, combinatorics, probability and mathematics of finance. Prerequisite: MAT 117 or equivalent.

210 Brief Calculus. 3 F, S SS

Differentiation and integration of elementary functions with applications. Not open to students with credit in MAT 260, 270 or 290. Prerequisite: MAT 117 or equivalent. [Satisfies General Studies Requirement N1]

242 Elementary Linear Algebra. 2 F S SS

Introduction to matrices, systems of linear equations, determinants, vector spaces, linear transformations and eigenvalues. Emphasizes development of computational skills. Prerequisite: a semester of calculus or instructor approval. [Satisfies General Studies Requirement N1]

243 Discrete Mathematical Structures. 3 F S SS

Introduction to lattices, graphs, Boolean algebra and groups, with emphasis on topics relevant to computer science. Prerequisite: one semester of calculus.

260 Technical Calculus I. 3 F S SS

Analytic geometry, differentiation and integration of elementary functions, emphasizing physical interpretation and problem solving. Not open to students with credit in MAT 21, 270 or 29. Prerequisite: MAT 118 or equivalent. [Satisfies General Studies Requirement N1]

261 Technical Calculus II. 3 F, S, SS

Continuation of MAT 260. Prerequisite: MAT 260 or instructor approval.

262 Technical Calculus III. 3 F S

Infinite series, an introduction to differential equations and elementary linear algebra. Prerequisite: MAT 261 or equivalent.

270 Calculus with Analytic Geometry I. 4 F S, SS

Real numbers, limits and continuity, differentiation and integration of functions of one variable. [Not open to students with credit in MAT 29. The sequence MAT 270–271 may be substituted for MAT 290 to satisfy requirements of any curriculum.] Prerequisites: MAT 118 or equivalent. [Satisfies General Studies Requirement N1]

271 Calculus with Analytic Geometry II. 4 F S, SS

Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, sequences and series. Not open to students with credit in MAT 291. The sequence MAT 270–271, 272 may be substituted to satisfy requirements for MAT 290–291. Prerequisite: MAT 270 or equivalent.

272 Calculus with Analytic Geometry III. 4 F, S SS

Vector valued functions of several variables, multiple integration, introduction to vector analysis. The sequence MAT 270–271, 272 may be substituted to satisfy requirements for MAT 290, 291. Prerequisite: MAT 271 or equivalent.

274 Elementary Differential Equations. 3 F S, SS

Introduction to ordinary differential equations adapted to the needs of students in engineering and the sciences. Prerequisite: MAT 271 or equivalent. MAT 272 or equivalent is recommended.

290 Calculus I. 5 F S

Differentiation and integration of elementary functions, topics from analytic geometry essential to the study of calculus. Prerequisites: MAT 118 or equivalent. [Satisfies General Studies Requirement N1]

291 Calculus II. 5 F S

Further applications of calculus, partial differentiation, multiple integrals and infinite series. Prerequisite: MAT 290 or equivalent.

300 Mathematical Structures. 3 F S

Introduction to rigor and proof in mathematics. Basic logic set theory, mathematical induction, combinatorics, functions, relations and probability. Prerequisite: 1 semester of calculus or instructor approval. [Satisfies General Studies Requirement N1]

310 Introduction to Geometry. 3 S

Congruence, area, perimeter, similarity and volume, Euclidean and non-Euclidean geometry. Prerequisite: MAT 272 or equivalent.

342 Linear Algebra. 3 F S, SS

Linear equations and matrices, vector spaces, determinants, linear mappings, eigenvalues, inner product spaces and bilinear forms. Prerequisite: credit or concurrent registration in MAT 272 or equivalent.

362 Advanced Mathematics for Engineers and Scientists I. 3 F S SS

Complex numbers, partial differentiation, multiple integrals, vector analysis and Fourier series. Prerequisite: MAT 272 or equivalent.

363 Advanced Mathematics for Engineers and Scientists II. 3 N

Special functions, complex variables, integral transforms, partial differential equations and probability. Prerequisites: MAT 274, 362 or equivalent.

371 Advanced Calculus I. 3 F S

Continuity, Taylor's theorem, partial differentiation, implicit function theorem, vectors, linear transformations and norms in R^n , multiple integrals, power series. Prerequisite: MAT 272 or equivalent. Pre- or corequisite: MAT 342, MAT 300 is recommended.

372 Advanced Calculus II. 3 F S

Maps from \mathbb{R}^n to \mathbb{R}^m , line and surface integrals, divergence and Stokes theorems, \mathbb{R}^m topology series uniform convergence improper integrals. Not open to students with credit in MAT 460. Prerequisite: MAT 371.

400 Computability and Unsolvability. (3 N)

Turning machines and computability, computable and partial computable functions, recursive sets and predicates, recursively enumerable sets, unsolvable decision problems, applications. Prerequisite: MAT 243.

401 Theory of Formal Languages. 3 A

Theory of grammar, methods of syntactic analysis and specification, types of artificial languages, relationship between formal languages and automata. Cross-listed as CSC 457. Prerequisite: CSC 355. [Satisfies General Studies Requirement: N3]

410 Introductory Topology. 3 A

Topology of the real numbers, equivalence of sets, transfinite induction. Designed to develop the student's critical faculties and creative abilities in mathematics. Prerequisites: MAT 272, 300 or instructor approval.

415 Combinatorial Mathematics I. 3 F

Permutations and combinations, recurrence relations, generating functions, graph theory and combinatorial proof techniques. Prerequisites: MAT 300, 342 or instructor approval.

416 Combinatorial Mathematics II. 3 S

Continuation of MAT 415, considering some advanced aspects of the theory as well as applications. Topics chosen from transport networks, matching theory, block designs, coding theory, Poisson counting theory and applications to the physical and life sciences. Prerequisite: MAT 415 or instructor approval. MAT 443 is recommended.

419 Linear Programming. 3 S

Linear programming and the simplex algorithm, network problems, quadratic and non-linear programming. Prerequisite: 1 semester of college calculus. [Satisfies General Studies Requirement: N2]

431 Foundations of Mathematics. 3 N

Topics from mathematical logic and set theory. May be repeated for credit with instructor approval. Prerequisites: MAT 300, 342 or instructor approval.

442 Advanced Linear Algebra. 3 F

Deeper and more abstract study of the topics in MAT 342: invariant subspaces, canonical forms and matrices, linear programming, dual spaces, bilinear and quadratic forms and multilinear algebra. Prerequisites: MAT 300, 342 or instructor approval.

443 Abstract Algebra. 3 S

Introduction to the most important algebraic structures including groups, rings, integral domains and fields. Prerequisites: MAT 300, 342 or instructor approval.

445 Theory of Numbers. 3 F

Prime numbers, unique factorization theorem, congruences, Diophantine equations, primitive roots, quadratic reciprocity theorem. Prerequisites: MAT 300, 342 or instructor approval.

451 Mathematical Modeling. 3 S

A detailed study of one or more mathematical models which occur in the physical or biological sciences. May be repeated for credit with instructor approval. Prerequisites: MAT 242 or 342, 274 or instructor approval. [Satisfies General Studies Requirement: N2]

460 Applied Real Analysis. 3 S

Vectors, curvilinear coordinates, Jacobians, implicit function theorem, line and surface integrals, Green's, Stokes'

and divergence theorems. Not open to students with credit in MAT 372. Prerequisites: MAT 242 or 342, 274.

461 Applied Complex Analysis. 3 F SS

Analytic functions, complex integration, Taylor and Laurent series, residue theorem, conformal mapping and harmonic functions. Prerequisite: MAT 272 or equivalent.

462 Partial Differential Equations. 3 F S SS

Second order partial differential equations, emphasizing Laplace, wave and diffusion equations. Solutions by the methods of characteristics, separation of variables and integral transforms. Prerequisite: MAT 274.

463 Transform Theory and Operational Methods. (3 N)

Fourier, Laplace and other transforms, applications to boundary value problems, generalized functions and modern operational mathematics. Prerequisite: instructor approval.

464 Numerical Analysis I. 3 F

Theory and methods for numerical solution of algebraic and transcendental equations, iteration methods, approximation, quadrature; solution of differential equations. Those seeking a methods survey course should take MAT 466. Prerequisites: fluency in computer programming, preferably FORTRAN. MAT 342, 371 or instructor approval. [Satisfies General Studies Requirement: N3]

465 Numerical Analysis II. 3 S

Continuation of MAT 464. Prerequisite: MAT 464. [Satisfies General Studies Requirement: N3]

466 Applied Computational Methods. (3 F S)

Numerical methods for numerical differentiation, equations, roots of non-linear equations, interpolation, approximation, near equations, floating point arithmetic, roundoff error. Prerequisites: fluency in computer programming, preferably by FORTRAN. MAT 271 or equivalent, or instructor approval. [Satisfies General Studies Requirement: N3]

467 Computer Arithmetic. 3 S

Number systems, hardware, software, arithmetic overflow, significance, rounding, multiple precision, automatic error control, impact on languages, architectures, robust programming, software development. Prerequisite: CSC 101, 200 or 383 or MAT 464 or 466; or instructor approval. [Satisfies General Studies Requirement: N3]

472 Intermediate Real Analysis. 3 F

Topology of the real line, sequences and series of functions, uniform convergence and the Riemann-Stieltjes integral. Prerequisite: MAT 372 or instructor approval.

475 Differential Equations. 3 S

Asymptotic behavior of solutions of linear and non-linear ordinary differential equations, stability, Sturm-Liouville problems, boundary value problems, singular point behavior of autonomous systems. Prerequisite: MAT 274 or equivalent.

485 History of Mathematics. 3 N

Topics from the history of the origin and development of mathematical ideas. Prerequisite: MAT 272 or equivalent.

510 Point Set Topology. 3 F

Topological spaces, metric spaces, compactness, connectedness, local properties, product and decomposition spaces, mappings covering properties, separation properties. Prerequisite: MAT 371 or 410 or instructor approval.

511 Point Set Topology. 3 S

Continuation of MAT 510. Prerequisite: MAT 510 or instructor approval.

543 Abstract Algebra. 3 F

Groups, modules, rings and fields, Galois theory, homomorphisms, representation theory. Prerequisite: MAT 443 or instructor approval.

158 MATHEMATICS

544 Abstract Algebra. 3 S

Continuation of MAT 543 Prerequisite MAT 543 or instructor approval

550 Variational Methods. 3 F

Calculus of variations and its applications to extremal problems, classical mechanics and partial differential equations Prerequisites MAT 274 462 or equivalent

551 Linear Operators and Integral Equations. 3 S

Bounded linear and compact operators on Hilbert spaces Linear integral equations Fredholm and Hilbert-Schmidt theory approximate methods Distribution Prerequisites MAT 242 462 or equivalent

560 Numerical Linear Algebra. 3 A

Direct solution of linear systems iterative methods eigenvalues and eigenvectors singular value decomposition the QR algorithm error propagation arithmetic stability Prerequisites MAT 342 464 or 466 or instructor approval

561 Numerical Optimization. 3 N

Linear programming unconstrained nonlinear minimization search algorithms conjugate gradients quasi-Newton methods constrained nonlinear optimization gradient projection penalty method Prerequisites MAT 342 and/or 371 or 460 or equivalents or MAT 560 or instructor approval

564 Advanced Numerical Analysis. 3 N

Finite difference equations orthogonal polynomials quadratic approximation and integration theory numerical solution of differential equations numerical algebra May be repeated for credit with instructor approval Prerequisite MAT 464 or instructor approval

565 Advanced Numerical Analysis. 3 N

Continuation of MAT 564. Prerequisite MAT 564 or instructor approval

566 Numerical Solution of Ordinary Differential Equations. 3 N

One-step multistep ordinary differential equations shooting and collocation methods discretization and rounding errors stability stiff problems Prerequisite MAT 464 or 466 or instructor approval

567 Numerical Solution of Partial Differential Equations. 3 N

Parabolic hyperbolic and elliptic equations difference methods finite and boundary elements method of characteristics stability consistency convergence nonlinear problems applications Prerequisites MAT 371 or 460 or 462 464 or 466 or instructor approval

568 Numerical Solution of Boundary Value Problems. 3 N

Difference method finite element methods defect correction *irregular meshes non-linear problems bifurcation*, boundary layers sparse system May be repeated for credit with instructor approval Prerequisites MAT 371 or 460 or 462 464 or 466 or instructor approval

569 Topics in Analysis. 3 N

May be repeated for credit with instructor approval Prerequisite instructor approval

570 Real Analysis 3 S

Lebesgue integration selected function spaces differentiation abstract measure theory, elements of functional analysis Prerequisite MAT 372 or instructor approval

571 Real Analysis. 3 F

Continuation of MAT 57 Prerequisite MAT 570 or instructor approval

572 Complex Analysis. 3 F

Analytic functions series and product representations entire and meromorphic functions, normal families Riemann mapping theorem, harmonic functions Riemann surfaces Prerequisite MAT 371 or instructor approval

573 Complex Analysis. 3 S

Continuation of MAT 572 Prerequisite MAT 572 or instructor approval

574 Theory of Ordinary Differential Equations. 3 N

Systems existence proofs singular asymptotic behavior of solutions boundedness of solutions, eigenvalues and eigenfunctions, perturbation theory Prerequisite MAT 372 or instructor approval

575 Theory of Ordinary Differential Equations. 3 N

Continuation of MAT 574 Prerequisite MAT 574 or instructor approval

576 Theory of Partial Differential Equations. 3 N

Existence and uniqueness theorems boundary value and initial value problems characteristics Green's functions maximum principle distributions and weak solutions Prerequisite knowledge of Lebesgue integration or instructor approval

577 Theory of Partial Differential Equations. 3 N

Continuation of MAT 576 Prerequisite MAT 576 or instructor approval

578 Functional Analysis. 3 N

Locally convex normed and Hilbert spaces Linear operator spectral theory and application to classical analysis Prerequisite MAT 472 or 571 or instructor approval

579 Functional Analysis 3 N

Continuation of MAT 578 Prerequisite MAT 578 or instructor approval

591 Seminar. 1 3 N

Topics may be selected from the following

- Analysis
- Applied Mathematics
- Topology
- Algebra
- Mathematical Logic
- Numerical Analysis
- Combinatorial Mathematics

Special Courses: MAT 294 298 492 493 494 498 499 590 592 594 598 599 792 799 See pages 43-44

MATHEMATICS EDUCATION

MTE 180 Theory of Elementary Mathematics. 3 F S SS

Number systems intuitive geometry, elementary algebra *and measurement intended for prospective elementary school teachers* Prerequisite MAT 106 or equivalent

181 Theory of Elementary Mathematics. 3 A

Continuation of MTE 180 Prerequisite MTE 180 or instructor approval

380 Arithmetic in the Elementary School. 3 A

Historical numeration system overview of elementary number theory including primes factorization divisibility bases modular systems congruence and continued fraction Prerequisite MTE 181 or instructor approval

381 Geometry in the Elementary School. 3 N

Informal geometry including concepts of length area volume similarity and congruence Classification of figures straightedge and compass constructions, motion geometry Prerequisite MTE 380 or instructor approval

480 Mathematics in the Upper-Elementary Grades I. (3) N

An introduction to probability and statistics including open-ended data gathering and processing counting techniques, sampling strategies, estimation and decisions making. Prerequisite: MTE 381 or instructor approval.

481 Mathematics in the Upper-Elementary Grades II. (3) N

Elementary functions and their applications. A thorough investigation of some of the algorithms of basic arithmetic. Prerequisite: MTE 480 or instructor approval.

482 Methods of Teaching Mathematics in Secondary School. (3) F, SS

Examination of secondary school curricular material analysis of instructional devices. Teaching strategies evaluative techniques diagnosis and remediation and problem solving. Prerequisite: instructor approval.

483 Mathematics in the Secondary School. (3) S, SS

Topics in geometry number theory algebra and analysis. Emphasis on underlying principles. Prerequisite: MAT 310 or instructor approval.

582 Modern Mathematics for Teachers. (3) A

Theory of sets real number system transfinite numbers and other selected topics. Prerequisite: instructor approval.

583 Abstract Algebra for Teachers. (3) A

Postulational approach to algebra, elementary mathematical systems including groups and fields. Prerequisite: instructor approval.

585 Modern Geometry for Teachers. (3) A

Euclean, projective and non-Euclean geometries. Prerequisite: instructor approval.

587 Analysis for Teachers. (3) N

Subject matter in mathematics appropriate for accelerated programs in secondary schools including analytic geometry and calculus. Prerequisite: instructor approval.

588 Analysis for Teachers. (3) N

Continuation of MTE 587. Prerequisite: MAT 587 or instructor approval.

Special Courses: MTE 294 298 492 493 494 498 499 590 591 592 594, 598, 599, 792, 799. See pages 43–44.)

STATISTICS AND PROBABILITY

STP 226 Elements of Statistics. (3) F, S, SS

Basic concepts and methods of statistics, including descriptive statistics significance tests, estimation sampling and correlation. Not open to majors in mathematics or the physical sciences. Prerequisite: 3 semesters of high school algebra or MAT 106. [Satisfies General Studies Requirement N2]

326 Intermediate Probability. (3) F, S

Probability models and computations joint and conditional distributions moments families of distributions Topics in stochastic processes simulation and statistics. Prerequisite: MAT 210 or equivalent. [Satisfies General Studies Requirement N2]

420 Introductory Applied Statistics. (3) F, S, SS

Introductory probability, descriptive statistics sampling distributions parameter estimation tests of hypotheses, chi-square tests, regression analysis analysis of variance, nonparametric tests. Prerequisite: MAT 117 or equivalent. [Satisfies General Studies Requirement N2]

421 Probability. (3) F

Laws of probability combinatorial analysis, random variables probability distributions expectation, moment generating functions transformations of random variables central limit theorem. Prerequisites: MAT 300 or STP 326; and MAT 371 or equivalent.

425 Stochastic Processes. (3) S

Markov chains stationary distributions, pure jump processes second order processes and other topics in stochastic processes. Prerequisites: MAT 342 and STP 421.

427 Mathematical Statistics. (3) S

Limiting distributions interval estimation point estimation, sufficient statistics tests of hypotheses. Prerequisite: STP 421.

429 Experimental Statistics. (3) S

Statistical inference for controlled experimentation Multiple regression correlation analysis of variance multiple comparisons, nonparametric procedures. Prerequisite: STP 420 or equivalent. [Satisfies General Studies Requirement N3]

525 Advanced Probability. (3) N

Measure theoretic foundations of probability distributions functions and characteristic functions laws of large numbers and central limit theorems conditional probabilities martingales and topics in stochastic processes. Prerequisites: MAT 571 STP 421 or instructor approval.

526 Theory of Statistical Linear Models. (3) F

Multivariate distribution distributions of quadratic forms full and nonfull rank models generalized inverses unbalanced data, variance components large sample theory. Prerequisites: STP 427 knowledge of matrix algebra.

527 Theory of Statistical Linear Models. (3) S

Continuation of STP 526. Prerequisite: STP 526 or instructor approval.

530 Applied Regression Analysis. (3) F

Method of least squares simple and multiple linear regression polynomial regression analysis of residuals, dummy variables, model building. Prerequisite: STP 420 or equivalent.

531 Applied Analysis of Variance. (3) S

Factorial designs, balanced and unbalanced data, fixed and random effects randomized blocks Latin squares, analysis of covariance multiple comparisons. Prerequisite: STP 420 or equivalent.

532 Applied Nonparametric Statistics. (3) F

One sample test tests of two or more related or independent samples measures of correlation, tests of trend and dependence. Prerequisite: STP 420 or equivalent.

533 Applied Multivariate Analysis. (3) S

Discriminant analysis principal components factor analysis cluster analysis canonical correlation. Prerequisite: STP 420 or equivalent.

534 Applied Discrete Data Analysis. (3) N

Models for discrete and count data measures of association log linear regression models for contingency tables. Prerequisite: STP 420 or equivalent.

591 Seminar. (1) (3) N

Topics may be selected from the following:

- a Statistics
- b Probability

Special Courses: STP 294 298 492 493 494, 498, 499 590, 592 594, 598 599 792, 799. (See pages 43–44.)

Microbiology

PROFESSORS:

(LS 378),

REEVES, SCHMIDT

ASSOCIATE PROFESSORS:

BIRGE, BURKE, HOFFMAN, LEATHERS

ASSISTANT PROFESSORS:

JACOBS, SCHREIER

FACULTY ASSOCIATES:

DOWNS, MASS, ROBERTS, WATSON

PROFESSORS EMERITI:

JOHNSON NORTHEY

Departmental Major Requirements**Bachelor of Science Degree Curriculum**

Microbiology. Consists of a minimum of 41 semester hours in microbiology and approved related fields. Students majoring in Microbiology are required to take the following courses: BIO 181, 182, 340; CHM 231 (or 331, 332, 335, 336), 361, 367, MIC 206, 220, 302, 360, 420, 470, 494 (one credit); plus a minimum of five semester hours of upper division electives in microbiology or approved related fields. The five hours must include one laboratory course. In addition, the students are required to fulfill the university numeracy requirement with one course chosen from MAT 210, 270, 290 or STP 420) and with one course chosen from CSC 180, 181, 183, any class having those courses as a prerequisite, or BIO 420. The required supplemental courses are: CHM 113, 115, 225, 226; PHY 111, 112, 113, 114.

Clinical Laboratory Sciences. The goal of the Clinical Laboratory Sciences program is to prepare individuals to practice in the field of clinical laboratory sciences, which includes the major disciplines of clinical chemistry, hematology, immunohematology, and microbiology. Employment opportunities exist in hospital, private, physician and research laboratories; government; sales; management, and education. After obtaining a B.S. in Clinical Laboratory Sciences, the graduate is eligible for national certification by examination.

A student majoring in Clinical Laboratory Sciences is required to take 40 hours of clinical laboratory sciences courses. Also required are CHM 113, 231, 361, MIC 205, 206, 420; ZOL 360 (Equivalent courses may be substituted upon ap-

proval of advisor.) Students must consult with the clinical laboratory sciences advisor to select general electives courses. Completion of the degree is dependent upon acceptance of the student into the accredited professional study program which consists of 40 hours of clinical laboratory sciences courses. The university does not guarantee that all students will be accepted into the professional study program due to space limitations at the clinical affiliates and restrictions of program accreditation. To obtain further information regarding acceptance procedures and program standards, contact the department for a program brochure. For proper course planning, students must meet with a clinical laboratory sciences advisor.

Departmental Graduate Programs

The Department of Microbiology offers programs leading to the degrees of Master of Natural Science, Master of Science and Doctor of Philosophy. Consult the *Graduate Catalog* for requirements.

MICROBIOLOGY**MIC 205 Microbiology.** 3 F, S SS

Basic course for nonmajors emphasizing general principles of the role of microorganisms in health, ecology and related applied fields. Prerequisites: CHM 101 and one of the following: BIO 100, BOT 108, or instructor approval. [Satisfies General Studies Requirement S2 if taken with MIC 206.]

206 Microbiology Laboratory. 1 F, S, SS

Principles and laboratory techniques used in identifying and handling microorganisms. 3 hours lab. Prerequisite: MIC 205 or 220. [Satisfies General Studies Requirement S2 if taken with MIC 205.]

220 General Bacteriology. 3 F

Detailed study of the bacterial cell: its structure, genetics, physiology and taxonomy. Intended for microbiology majors and others with similar preparation. Not open to students with credit in MIC 205. Prerequisites: BIO 182, CHM 115.

302 Advanced Bacteriology Laboratory. 2 S

Advanced laboratory techniques in bacterial growth, physiology, genetics, microscopy and bacteriology. Required of microbiology majors. 4 hours lab. Prerequisites: either group A or B: A: MIC 206, 220 or B: MIC 205, 206. Instructor approval. [Satisfies General Studies Requirement L2.]

360 Bacterial Physiology. 3 F

Mechanisms and control of cellular metabolism, structures and functions. Prerequisite: MIC 220. Prerequisite: CHM 331 or instructor approval.

380 Plant Pathology. 3 F 89

Botanical and abiotic agents of disease including field observations and methods of control. Prerequisite: BOT 360 or instructor approval.

420 Introductory Immunology. 3 F

Fundamental concepts in research and medicine. Cellular immunity, antibody and antigen immunogenetics, immunoregulation, hypersensitivity, cancer immunology.

nervous immune system interactions Prerequisites: CHM 231 or 331; M C 205 or 220, or instructor approval

421 Experimental Immunology. 2 F, S

An introduction to the basic techniques methods and assays used in immunology 6 hours lab Prerequisites: CHM 231 331 M C 302; or instructor approval

425 Advanced Immunology. 3 S

A survey of recent advances in immunology including: lymphocyte membranes lymphokines/biochemistry molecular genetics, theoretical immunology immunoregulation, neuroimmunology immunogenic diseases Prerequisite MIC 420 or instructor approval

434 Medical Mycology. 3 S

Fungal causal agents of diseases of man, including pathology and epidemiology, emphasizing techniques of diagnosis 2 lectures 3 hours lab. Prerequisite M C 206 or equivalent.

441 Bacterial Genetics. 3 S

Survey of genetic exchange and regulatory processes in bacteria and the viruses Bacteria and viruses as tools in genetic engineering Prerequisites BIO 340 MIC 205 or 220 or instructor approval

442 Bacterial Genetics Laboratory. 1 S

Techniques of mutagenesis mapping and strain construction 4 hours lab Prerequisite M C 206 Pre or corequisite MIC 441

470 Systematic Bacteriology. 3 S

Classification and identification of bacteria 1 lecture, 6 hours lab Prerequisites M C 206; 5 hours of microbiology

481 Pathogenic Microbes. 3) F

Host-microbe interactions in infectious disease, with emphasis on pathogens host defenses and molecular mechanisms of microbial virulence Prerequisites 6 hours of microbiology: CHM 231 or 331

485 General Virology. (3 F

Fundamental nature of viruses their replication, pathogenesis and ecology. Prerequisites B O 340 CHM 331 or instructor approval

486 General Virology Laboratory. 2 F

An introduction to the growth assay and detection of viruses 6 hours lab. Prerequisite M C 302 Pre or corequisite M C 485

494 Special Topics: Research Paper. (1 F, S SS

A paper of 15 or more pages based on library or laboratory research in collaboration with a faculty member [Satisfies General Studies Requirement L2]

530 Bacterial Differentiation. 3 S

Molecular biology of sporulation and germination in bacteria. Emphasis on the control of cellular differentiation. Prerequisite: B O 443, MIC 441 or instructor approval

545 Recombinant DNA Methodology. (3 F

Principles of genetic engineering using in vitro DNA recombination, characteristics of plasmid and phage vectors recombinant selection and physical characterization Prerequisites BIO 443, M C 441 instructor approval

546 Recombinant DNA Laboratory. 2) F

Basic techniques in isolation of chromosomal, plasmid and bacteriophage DNA transformation, and gene splicing methods Corequisite M C 545

581 Selected Topics In Host-Bacterial Relationships. 3) S

Pathogenic mechanisms and host responses in bacterial diseases. Prerequisites M C 420 481 or instructor approval

591 Seminar. 1 3 F S

Topics may be selected from the following:

- a) Molecular and Cellular Biology
- b) Molecular Virology
- c) Enzymology
- d) Genetics
- e) Genetic Engineering
- f) Immunology
- g) Neuroimmunology
- h) Bacteriology
- i) Pathogenic Bacteriology

Special Courses: M C 294, 298 394 484, 492 493 494, 497 498 499 500 590, 591 592 598 599, 700 790 791 792 799 See pages 43-44

**CLINICAL LABORATORY SCIENCES
MEDICAL TECHNOLOGY**

CLS 100 Introduction to Clinical Laboratory Sciences. 1 F

Introduction to the field of clinical laboratory sciences Required for Clinical Laboratory Sciences majors

300 Clinical Laboratory Instrumentation. 3 F

Principles structure and application of clinical laboratory instruments, including electron microscopy spectrophotometry analysis quality control laboratory mathematics and automated analysis 2 lectures 3 hours lab Prerequisite: CHM 115, PHY 101 or equivalent

Enrollment for the following C.L.S. classes is restricted to students admitted to the Clinical Laboratory Sciences Professional Study Program

310 Principles of Clinical Chemistry I. 6 S

Theory and application of principles of clinical chemistry, with emphasis on laboratory techniques pathophysiology, methods of analysis assessment of procedure 3 lectures, 9 hours lab.

320 Principles of Clinical Microbiology I. 6 S

Emphasizes disease mechanisms isolation, identification of medically significant fungi and bacteria includes principles of laboratory safety and quality control 3 lectures 9 hours lab

330 Principles of Clinical Hematology I Body Fluids. 3) F

Theory and application of principles in hematology with emphasis on techniques to evaluate blood dyscrasias and analyze body fluids 2 lectures, 3 hours lab

410 Principles of Clinical Chemistry II. 2 SS

Continuation of Clinical Chemistry with emphasis on principles of automation laboratory computers and method evaluation 1 lecture, 3 hours lab

411 Advanced Applications of Clinical Chemistry. 4 F

Clinical application of theory/techniques from Principles of Clinical Chemistry Emphasis on operation of common laboratory instrumentation clinical correlation and radioimmunoassay Minimum 180 hours practicum

420 Principles of Microbiology II. 2) SS

Disease mechanisms identification of medically significant parasites Mycobacteria Actinomyces Chlamydia Rickettsia, Mycoplasma viruses. 1 lecture 3 hours lab

421 Advanced Applications of Clinical Microbiology. (4) S

Practical laboratory application of the principles of specimen collection processing detection, identification and antimicrobial testing of medically significant bacteria, fungi and parasites. Minimum 180 hours practicum

430 Principles of Clinical Hematology II Hemostasis. 3 F

Theory and applications of principles in hematology with emphasis on etiology pathology and clinical manifestations and treatment of blood dyscrasias as hemostatic defects. 2 lecture 3 hours ab

431 Advanced Applications of Clinical Hematology. 4 S

Practical laboratory application of methods techniques used to evaluate and diagnose blood dyscrasias as hemostatic defects. Applied techniques in Body Fluid Analysis. Minimum 180 hours practicum

440 Principles of Clinical Immunology Immunohematology. 4 F

Theoretical and practical application of clinical immunology and immunohematology. Emphasizes serology and techniques which aid in diagnosis and blood donor selection. 3 lectures 3 hours ab

441 Advanced Applications of Clinical Immunology Immunohematology. 3 S

Practical laboratory application of the principles of serology and methods used in diagnosis of disease and selection of blood components for transfusion therapy. Minimum 135 hours practicum

450 Principles of Clinical Laboratory Administration. 2 F S

Principles of management with emphasis on the clinical laboratory. Basic management process personnel supervision identification and allocation of resources. [Satisfies General Studies Requirement L2 when taken with CLS 460]

460 Principles of Clinical Laboratory Education. 1 S

Principles of learning with application to the development of instructional objectives strategies and evaluation for teaching learning situations in the laboratory. [Satisfies General Studies Requirement L2 when taken with CLS 450]

States. Specific objectives include developing the leadership and managerial potential of the students, developing students' abilities to think creatively, to speak and write effectively, providing the student with an appreciation of the requirements for national security, and developing the students' understanding of the nature and functions of the U.S. Army. Upon successful completion of the advanced course, qualified students will receive commissions in the United States Army Reserve or Army National Guard. Active duty positions are available upon graduation from the university.

Appointments as Second Lieutenants in the Regular Army are available to outstanding students who desire a career in the military service.

General Qualifications

Basic Course. Any student who is enrolled in Arizona State University or approved by a professor of military science can enter into the military science basic course. It is strongly recommended that they be in sound physical shape as some of the curriculum requires physical exertion.

Advanced Course. Any student who is enrolled in Arizona State University (or approved by a professor of military science) may enroll in the military science advanced course. However, to be competitive and obtain a commission in the United States Army, students must meet the following requirements:

1. Be a citizen of the United States (noncitizens may enroll but must obtain citizenship prior to commissioning).
2. Be of sound physical condition and pass the U.S. Army physical fitness standards.
3. Be at least 17 years of age for entrance into the advanced course and be able to complete all commissioning requirements prior to age 30. Only those students in the basic and advanced courses who meet required military regulations are eligible to receive financial assistance through the United States Army. Members of the Department of Military Science are available at all times during normal office hours to answer questions or provide counseling.

The following are various options that are open to students who wish to obtain a commission in the United States Army. (Contact a professor of military science for more information.)

Four-Year Program. Students may enroll in Army ROTC during their freshman year. They

Military Science

Army ROTC

PROFESSOR:

GAVIN MANA 240

ASSISTANT PROFESSORS:

BRYANT CROSSON DEFRANCO, ENNT,

FA RALL, GIBBONS, LARSON,

LECHLER, SCOTT

INSTRUCTOR:

ENGSTROM

Purpose

The Department of Military Science curriculum consists of the basic course (MIS 101, 102, 203 and 204) and the advanced course (MIS 301, 302, 401 and 402). The goal of this professional education is to prepare selected students with leadership potential to be commissioned Army officers within the national defense structure of the United

take the basic course during the first two years, receiving a total of eight semester hours credit for the four semesters of study. Upon satisfying the requirements stated above, they enter the advanced course where they will earn 10 semester hours for the four semesters of study. In addition, students will attend a six week advanced summer camp at Ft. Lewis, Washington, between their junior and senior years. Upon successful completion of the advanced course and requirements for a degree, they are commissioned as Second Lieutenants in the United States Army Reserve or Army National Guard.

Two-Year Program. Students must have at least two academic years of college work remaining, either at the undergraduate or graduate level. The student must also have at least sophomore status (except for certain exceptions applicable to veterans). This program is open to all students with the exception of three and four year scholarship winners (see scholarships). Students seeking enrollment in the two year program should make application during the spring semester of the year in which they desire to enter the program. They must pass the ROTC Qualifying Examination and the Army physical examination. After successfully completing a six week basic camp at an Army post conducted during June, July and August) or completing the basic course classes during a university summer session (not always offered) students may enroll in the advanced course. Students with previous military experience or who are currently members of the National Guard or Reserves may be admitted directly into the two year program. They then follow the same program and meet the same requirements as stated for advanced course students in the four year program.

Qualifications for Admittance to the Advanced Course. (1) Successful completion of the basic course for the student in the four year ROTC program. For the student in the two year program, selection for and successful completion of the six week basic summer camp. (2) Passing of the ROTC Qualifying Examination. (3) Passing the Army physical examination. (4) Attainment of the minimum cumulative grade point average required for graduation in the student's selected major, attainment of at least sophomore class standing and maintenance of that minimum GPA or better as a full time student during enrollment in the advanced course.

Pay and Allowances. Advanced course students receive \$100 per month for the 20 months of enrollment in the advanced course. The student also

receives one half the pay of a Second Lieutenant during his attendance at the six week advanced camp. Uniforms, housing and meals are provided at camp without cost to the students and they are reimbursed at the current mileage rate for travel to and from the camp. Students who attend basic camp receive the pay of an Army recruit during attendance at basic camp as well as the current mileage rate for travel to and from the camp.

Simultaneous Membership Program. Under the program, ROTC students may simultaneously be a member of the Army Reserve or National Guard. The combination of advanced course allowance and pay for Reserve Guard participation provides more than \$1,000 for each semester's involvement.

Military Construction Option. The Department of Military Science and the Department of Construction of the College of Engineering and Applied Sciences have jointly developed a new degree option entitled "military construction." It is comprised of 70% technical studies and 30% electives in the areas of planning, management and organization. It is distinctly military in orientation and is designed to prepare graduates to plan, manage and direct large scale construction projects, such as roads, dams, air fields, bridges and other public works. ROTC cadets enrolled in this program receive credit toward the degree for all military science courses (18 semester hours). Upon completion of the 132 hour program, cadets will graduate with a Bachelor of Science in Construction.

Scholarship Programs. The Army ROTC offers scholarship programs for outstanding young men and women who are motivated toward a career as professional officers in the Regular Army. These scholarships pay for all fees, tuition and provide \$100 per month subsistence allowance while the scholarship is in effect. In addition, a flat rate is paid each semester toward the purchase of texts and some academic supplies. A scholarship for four years is available to freshmen who will enter the four year program. Applications must be submitted in accordance with a schedule furnished high school counselors. Selection is made on a nationwide basis. Scholarships are available for three and two year periods commencing with the sophomore and junior years of ROTC, respectively. Applications are open to all students in good standing with the university; previous ROTC or military experience is not required for application for three and two year scholarships. Selection is made by an interview board composed of university faculty members and Army

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officers in the ROTC detachment. Acceptance of any of the three scholarship programs requires a service commitment to serve in the active Army for a period of up to four years after commissioning and graduation.

Active Duty Requirements. Graduates of Army ROTC may serve as officers in the Army National Guard, Army Reserve or active Army. Active duty commitments may vary from four years to as little as three months. Scholarship students have up to a four year active duty commitment.

Graduate and Professional Studies Programs. A delay from call to active duty for up to four years is available to outstanding students who desire to earn graduate or professional degrees. Special programs for graduate and professional studies are available to both Regular Army appointees and U.S. Army Reserve appointees in the following areas: medicine, osteopathy and clinical psychology.

ship. Practica. Application. One 3 day field exercise, two 1 day field exercises. Prerequisites: MS 101, 202, 203, 204; or equivalent.

303 ROTC Advanced Camp. 4 SS

Six week training program emphasizing leadership development and advanced military skills to include tactics, and navigation and physical training. Conducted at Fort Lewis, Washington. Prerequisites: MS 301, 302.

401 Advanced Military Science. 2 F

The military education system preparation and conduct of military training, leadership development, ethics and professional development of the military officer. 2 lecture conferences, 1 hour Leadership Practica. Application. One 2 day field exercise, three 1 day field exercises. Prerequisites: MS 301, 302.

402 Advanced Military Science. 2 S

Military correspondence career planning and personal affairs in service, conduct of training, leadership development, ethics and professional development of the military officer. 2 lectures, 1 hour Leadership Practica. Application. One 3 day field exercise, two 1 day field exercises. Prerequisites: MS 301, 302.

MILITARY SCIENCE

MIS 101 Introduction to Military Science. 2 F SS

Organization and mission of the Army with American society, current issues in the military justice system, basic leadership skills. 2 lecture conferences.

102 Methods of Instruction. 2 S SS

Learning theories and principles of instruction, development of instructor knowledge, skills and characteristics, instructional aids, student presentations, evaluation techniques. 1 lecture conference, 1 hour of Leadership Practica. Application.

106 History of the American Flag. 1 F S

The history, customs and courtesies of the American Flag, includes color guard practice and public ceremonies. 1 hour lecture, 1 hour lab.

203 Land Navigation and Survival. 2 F SS

Components of maps, use of map and compass, orienting and navigation exercises, military mapping system, basic outdoor survival skills. 2 lecture conferences, 1 hour of Leadership Practica. Application.

204 Leadership and Military Management. 2 S SS

Interdisciplinary approach to leadership and management, ethics, responsibility and conduct of military officers, effective decision-making techniques, introduction to drill and ceremonies. 1 lecture conference, 1 hour of Leadership Practica. Application.

205 ROTC Basic Camp. 4 SS

Six week training program emphasizing practical hands on skills and leadership development. Taken in lieu of MS 101, 102, 203 and 204. Conducted at Fort Knox, Kentucky.

301 Advanced Military Science. 3 F

Theory and dynamics of the individual soldier and military units, offensive combat operations. Two lecture conferences, 1 hour of Leadership Practica. Application. One 2 day field exercise, three 1 day field exercises. Prerequisites: MS 101, 102, 203, 204, or equivalent.

302 Advanced Military Science. 3 S

Theory and dynamics of military units, defensive combat operations. Two lecture conferences, 1 hour of Leader-

Philosophy

PROFESSORS:

F TCH, PS A 521, CARNEY HUMPHREY,
MURPHY WHITE

ASSOCIATE PROFESSORS:

CREATH GIESCHEN GULESERAN,
LU, MA ENSCHEIN

ASSISTANT PROFESSORS:

HOWELLS, KOBES REYNOLDS SNOW

PROFESSORS EMERITI:

ARNER REINL, VOTICHENKO

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

Philosophy. The major in Philosophy consists of 45 semester hours. Thirty six hours must be in philosophy, including 30 upper division hours, and nine hours in related fields to be determined by the student in consultation with an advisor. Required courses are PHI 301, 302, 305, 312 (or 314, 316 (or 317), 333, 350, and at least two PHI 400 level courses not to include 492, 493 or 499, except with special permission of the chair. A minor in Philosophy consists of 18 semester hours, of which at least 12 must be upper division level and approved by an advisor in the Philosophy Department. Students planning to do graduate work in philosophy must consult an advisor in order to develop an appropriate selection of courses at the 300 and 400 level. A minimum grade of "C" is necessary for each course used to

fulfill the major and minor requirements. See degree requirements, page 97.)

History and Philosophy of Science. The Department of Philosophy offers courses bearing the HPS prefix. With the consent of the director of undergraduate studies, these courses may on occasion be taken to satisfy the requirements of the Philosophy major. They may never be used to satisfy the related fields requirement for Philosophy majors.

Departmental Graduate Program

The Department of Philosophy offers programs leading to the degree of Master of Arts that will prepare one for either teaching in a community college or pursuing a Ph.D. in Philosophy. Consult the *Graduate Catalog* for requirements.

PHILOSOPHY

PHI 101 Introduction to Philosophy. 3 F S SS

Exploration of issues which philosophers have traditionally considered morally, reality, obligation and knowledge. [Satisfies General Studies Requirement HU]

103 Principles of Sound Reasoning. 3) F S SS

Fallacies, validity and soundness of arguments. May include syllogistic elementary symbolic inductive logic scientific method. [Satisfies General Studies Requirements HU L1]

111 Introduction to Moral and Social Philosophy. 3 F S SS

Problems of ethics and social philosophy, e.g., virtue and integrity, rights vs. social utility, nature of law and state. [Satisfies General Studies Requirements HU, H]

301 History of Ancient Philosophy 3 F

History of western philosophy from its beginnings through the Hellenistic period. [Satisfies General Studies Requirements HU, H]

302 History of Modern Philosophy. (3) S

History of western philosophy from the Renaissance through Kant. [Satisfies General Studies Requirements HU, H]

303 Contemporary Analytic Philosophy. 3 A

Aims and methods of such 20th century philosophers as Frege, Moore, Russell, Wittgenstein, Carnap, Ayer, W. V. Quine, Strawson, Quine and Sellars with application to metaphysics and epistemology. Prerequisite: one course from among PHI 101, 103, 111, 301, 302, 333 or 350. [Satisfies General Studies Requirement HU]

304 Existentialism and Phenomenology. 3 A

An introduction to this movement through a study of its major figures, e.g., Kierkegaard, Dostoyevsk, Nietzsche, Husserl, Heidegger, Buber, Sartre, Camus, Merleau-Ponty, Binswanger, May, Frank and Ricoeur. [Satisfies General Studies Requirement HU]

305 Ethics. 3 A

Investigation of moral conduct focusing on such concepts as goodness, rightness, duty and justice. Examination of theories such as deontology, utilitarianism, formalism, relativism and egoism in which these concepts occur. Prerequisite: PHI 111, 306, 307 or instructor approval. [Satisfies General Studies Requirement HU]

306 Applied Ethics. 3 A

Philosophical techniques are used to educate such vital moral issues as sexual perversion, civil disobedience, abortion, punishment, violence and pacifism, suicide and euthanasia. [Satisfies General Studies Requirement HU]

307 Philosophy of Law. 3 A

The nature and source of law and its relation to morality. Legal rights, legal enforcement of morals, civil disobedience, liability and responsibility, punishment, judicial reasoning, justice, property differences between theories of natural and positive law. [Satisfies General Studies Requirement HU]

308 Philosophy of Art. 3 A

Central problems in philosophy of art, e.g., the nature of a work of art, modern and traditional theories of art, aesthetic perception and experience, objectivity and relativity in art criticism. [Satisfies General Studies Requirement HU]

309 Social and Political Philosophy. 3 A

Alternative principles and methods relevant to problems of human association and conflict, justice and power, freedom and equality, autonomy and order are discussed. Prerequisite: PH 111, 305 or instructor approval. [Satisfies General Studies Requirement HU]

311 Philosophy in Literature. 3 A

Selected works of literature introduce philosophical problems such as the nature of moral goodness and people's relation to the world and other people. [Satisfies General Studies Requirements HU, H]

312 Theory of Knowledge. 3 A

The nature, sources and limits of human knowledge. Theories of truth, a priori concepts and knowledge, empirical concepts and knowledge, perception, induction, knowledge of the external world. Prerequisite: one course from among PHI 101, 103, 111, 301, 302, 333, 350. [Satisfies General Studies Requirement HU]

314 Philosophy of Science. 3 A

The structure and justification of scientific theories, explanation and theory change. The roles of observation and laws, theoretical concepts and entities, reduction, probability, confirmation, space and time and causation. [Satisfies General Studies Requirement HU]

315 Philosophy of Language. 3 A

Problems pertaining to the nature of language, meaning, reference, truth, definition, analyticity, translatability, synonymy and contributions of contemporary linguistics. Prerequisite: PH 103, 333 or 350. [Satisfies General Studies Requirement HU]

316 Metaphysics. 3 A

Investigation into the real, appearance vs. reality, perception, realism vs. idealism, materialism vs. mentalism, the concepts of mind and person, substance, and versus space and time, causation. Prerequisite: one course from among PHI 101, 103, 111, 301, 333 or 350. [Satisfies General Studies Requirement HU]

317 Philosophy of Mind. 3 A

Nature of consciousness. The common sense view of mind and perception, behaviorism, materialism, dualism, phenomena, self-knowledge, knowledge of other minds. Prerequisite: one course from among PH 101, 103, 111, 301, 302, 333 or 350. [Satisfies General Studies Requirement HU]

318 Philosophy of Religion. 3 A

Nature and justification of religious belief. Arguments for the existence of God, mysticism, theistic and pantheistic conceptions of God and creation. [Satisfies General Studies Requirement HU]

319 Introduction to Asian Philosophies I. (3) F, S

Leading philosophical systems of thought in Asia, especially India, China and Japan. Included are Hinduism, Buddhism, Taoism, Confucianism and Neo-Confucianism.

320 Introduction to Asian Philosophies II. (3) F, S

See PHI 319.

325 Philosophy of Social Science. (3) N

Philosophical problems surrounding the aims, structure and methods of theories in the social sciences. [Satisfies General Studies Requirements: HU, SB]

332 19th Century Philosophy. (3) N

The history of 19th Century philosophical thought emphasizing either the German or the British traditions. Prerequisite: PHI 302. [Satisfies General Studies Requirements: HU, H]

333 Introduction to Symbolic Logic. (3) A

Symbolic techniques emphasizing deductions and proofs in the propositional and first and second order predicate calculi. Either axiomatic or natural deduction systems may be used.

350 Philosophical Argument and Exposition. (3) F, S

The development of techniques of philosophical argument and exposition. Frequent written exercises. Course content may vary with instructor. Prerequisites: major, instructor approval. [Satisfies General Studies Requirement: L2]

401 Rationalism. (3) N

Examination of representative(s) of either classical or contemporary philosophical rationalism; e.g., Descartes, Spinoza, Malebranche, Leibniz, Broad, Blanchard and Chisholm. Prerequisites: PHI 302 plus one of the following: 305, 309, 312, 316, 317. [Satisfies General Studies Requirements: HU, H]

402 Empiricism. (3) N

Examination of representative(s) of either classical or contemporary philosophical empiricism; e.g., Bacon, Hobbes, Locke, Butler, Berkeley, Reid, Hume, Mill, Carnap, Ayer. Prerequisites: PHI 302; plus one of the following: PHI 305, 309, 312, 316, 317. [Satisfies General Studies Requirements: HU, H]

413 Advanced Symbolic Logic. (3) N

Properties of formal systems axiomatizing propositional and first-order predicate logic. May also include modal logic, number theory, limits of logicism. Prerequisite: PHI 333.

420 A-E Topics in Philosophy. (3) N

Course descriptions and prerequisites on file in department. Courses may be repeated for credit. Topics may be selected from the following:

- (a) Metaphysics/Epistemology
- (b) Philosophy of Language/Logic
- (c) Value Theory
- (d) History of Philosophy
- (e) Philosophy of Science

591 Seminar. (1-3) A

Topics may be selected from the following:

- (a) Graduate Philosophy
- (b) Theory of Knowledge
- (c) Moral Philosophy
- (d) Metaphysics and Logic
- (e) History of Philosophy
- (f) Epistemology
- (g) Philosophy of Science
- (h) Philosophy of Law
- (i) Social and Political Philosophy
- (j) Aesthetics

Special Courses: PHI 394, 492, 493, 494, 497, 498, 499, 590, 591, 592, 598, 599. (See pages 43-44.)

HISTORY AND PHILOSOPHY OF SCIENCE**HPS 201 Technology and Social Change.** (2) A

Technology as related to social change; contemporary impact of technology on society. Cross-listed as STE 201. [Satisfies General Studies Requirement: HU]

321 Man and Machine. (2) A

Relation of man to machine examined in historical, political and social terms. Comparisons with a look at artificial intelligence studies. Cross-listed as STE 310. [Satisfies General Studies Requirements: HU, H]

322 Science and Technology in History. (3) F, S

Development and application of scientific thinking from ancient times through the 17th century. Cross-listed as STE 311. [Satisfies General Studies Requirements: HU, H]

323 Science and Technology in History. (3) F, S

Development and application of scientific thinking from the 18th century to the present. Cross-listed as STE 312. [Satisfies General Studies Requirements: HU, H]

330 History of Biology. (3) N

Focuses on the 19th and 20th centuries, considering biology as a discipline, evolution and problems of heredity, development and cell theory. Cross-listed as ZOL 316. [Satisfies General Studies Requirement: H]

331 History of Medicine. (3) N

Scientific study of the body, changing theories of disease, evolution of practical opinions about treatment and the emerging institutionalization of medical practice. Students may receive credit for this course and BIO 218. Cross-listed as ZOL 318. [Satisfies General Studies Requirements: SB, H]

402 Technology, Society and Human Values. (3) A

Values which motivate mankind to create technology. Areas of conflict and resolution of conflict between values and technology. Readings and discussions with visiting lecturers. Cross-listed as STE 402. Prerequisite: junior standing or above. [Satisfies General Studies Requirement: HU]

Special Courses: HPS 394, 492, 493, 494, 497, 499. (See pages 43-44.)



Physics

REGENTS' PROFESSORS:

J. COWLEY, STEARNS

PROFESSORS:

JACOB PS F-470) COMFORT, A. COWLEY
HANSON, HESTENES, KAUFMANN KYRALA,
LU, N GAM, PAGE, ROY, SMITH, SPENCE,
STARRFIELD, STROJNIK, T LLERY, TSONG,
VENABLES, VOSS WYCKOFF

ASSOCIATE PROFESSORS:

AANNESTAD ACHARYA BEN N BURSTE N
LINDSAY MARZKE, SANKEY

ASSISTANT PROFESSORS:

BENNETT CHAMBERL N MENENDEZ
REZ RITCHIE, TSEN, W NDHORST

PROFESSORS EMERITI:

KEVANE ME STER RAWLS, SNYDER, YALE

Departmental Major Requirements**Bachelor of Science Degree Curriculum**

Physics. Option One Designed for students who wish to pursue Physics at the bachelor or graduate degree level, this option consists of 45 semester hours. Required courses are PHY 121, 122, 131, 132, 241, 242, 321, 322, 331, 332, 333, 334, 362, 441, 465, 471. Additional courses in physics and other related fields will be selected with the approval of the advisor. Supporting mathematics courses MAT 270, 271, 272, 274, and either MAT 242 or 342 are required in addition to the 45 semester hour major requirement. MAT 290, 291 may be substituted for MAT 270, 271, 272. French, German, or Russian is strongly recommended to fulfill foreign language requirement.

Physics. Option Two. An interdisciplinary program designed for students who wish to obtain an undergraduate physics preparation for entry into other professions or graduate programs. Required are PHY 121, 122, 131, 132, 241, 242, 321, 331, 332, 333, 334, 362, 441, 471. The remaining courses to a total of 53 hours required for this option will be selected from physics and an area of concentration as approved by the student's advisor. Examples of possible areas of concentration are physical chemistry, applied mathematics, geo physics, biological physics, philosophy of science, scientific journalism, etc., as well as pre medical and pre law programs. Related nonmajor courses will necessarily include MAT 242 (or

342), 274, 290 291. MAT 270, 271, 272 may be substituted for MAT 290, 291. French, German, or Russian is strongly recommended to fulfill foreign language requirement.

Astronomy. The astronomy faculty offer courses in astronomy both for nonscience majors and for science and Physics majors. For an emphasis in astronomy, the following courses (or their equivalents) should be taken: AST 321, 322, 421, 422, 499.

Departmental Minor Requirements

Astronomy. Consists of a minimum of 24 semester hours. Required courses are AST 125, 126, 321, 322, PHY 121, 122, 131, 132, 241, 242. Electives to be chosen with approval of an astronomy advisor from upper division courses in physics and astronomy.

Physics. Consists of a minimum of 24 semester hours. Required courses are PHY 121, 122, 131, 132, 241, 242, 321, 362. Electives are to be chosen with approval of the physics advisor from upper division courses in physics and astronomy.

Departmental Major Teaching Field Requirements**Bachelor of Arts in Education Degree Curriculum**

Physics. Option One Consists of 42 semester hours. Required courses are PHY 121, 122, 131, 132, 241, 242 or 111, 112, 113, 114 on approval of advisor, 321, 331, 333, 362, 363, and two or more hours in 484. Electives to be chosen in physics and or other closely related fields, subject to approval of advisor.

Physics. Option Two An interdisciplinary 60 hour program which consists of 30 semester hours in physics and an additional 30 semester hours in either chemistry (see page 112) or mathematics (see page 155). The physics portion of this program requires the following courses: PHY 121, 122, 131, 132, 241, 242 (or 111, 112, 113, 114 on approval of advisor), 321, 331, 333, 361 (or 362) and 363, two or more hours in 484. Electives to complete the 30-hour physics portion are to be chosen from physics and or closely related fields, subject to the approval of the physics advisor.

General Science. Consists of 42 semester hours. Required courses are: BIO 181, 182; CHM 113, 116; GLG 101, 102, 103; PHY 111, 112, 113, 114. Electives to be chosen, with advisor approval, from among courses in astronomy, chem

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istry, geology, physics, biology, botany, meteorology, and zoology

Departmental Minor Teaching Field Requirements

Physics Consists of 24 semester hours. Required courses are PHY 121, 122, 131, 132, 241, 242 or 111, 112, 113, 114 on approval of advisor, 361 (or 362 and 363, two hours in 484. The remaining hours are to be selected from upper division courses in physics and/or astronomy (including AST 125, 126) subject to approval of the advisor

Departmental Graduate Programs

The Department of Physics offers programs leading to the degrees of Master of Science, Master of Natural Sciences and Doctor of Philosophy. Consult the *Graduate Catalog* for requirements

PHYSICS

PHY 101 Introduction to Physics. 4 F, S

Emphasizes applications of physics to life in the modern world. Understanding of elementary algebra is presumed. 3 lectures, 1 recitation, 2 hours lab. [Satisfies General Studies Requirements S1 S2]

105 Basic Physics. 4 F

One semester survey of the principles of physics. Prerequisite for students who intend to take PHY 121, 131 but have not taken high school physics. 3 lectures, 1 recitation, 2 hours lab. Prerequisites: algebra and trigonometry. [Satisfies General Studies Requirements S1 S2]

111 General Physics. 3 F, S, SS

Noncalculus treatment of the principles of physics for non-physics majors. Students whose curriculum requires a laboratory course must also register for PHY 113. 3 lectures, 1 recitation. Prerequisite: trigonometry. [Satisfies General Studies Requirements S1 S2 if taken with PHY 113]

112 General Physics. 3 F, S, SS

Continuation of PHY 111. Students whose curriculum requires a laboratory course must also register for PHY 114. Prerequisite: PHY 111. [Satisfies General Studies Requirements S1 S2 if taken with PHY 114]

113 General Physics Laboratory. 1 F, S, SS

Elementary experiments in physics. 2 hours lab. Outlets for preparation for experiments and report writing are required. May be taken concurrently with or subsequent to PHY 111. [Satisfies General Studies Requirements S1 S2 if taken with PHY 111]

114 General Physics Laboratory. 1 F, S, SS

See PHY 113. May be taken concurrently with or subsequent to PHY 112. [Satisfies General Studies Requirements S1 S2 if taken with PHY 112]

121 University Physics I: Mechanics. 3 F, S, SS

Kinematics, Newton's laws, work, energy, momentum, conservation laws, dynamics of particles, solids and fluids. 3 lectures, 1 recitation. Corequisite: MAT 270 or 290. Concurrent enrollment in laboratory PHY 122 is recommended. [Satisfies General Studies Requirements S1 S2 if taken with PHY 122]

122 University Physics Laboratory I. 1 F, S, SS

Laboratory accompanying PHY 121. Prerequisite: PHY 121. [Satisfies General Studies Requirements S1 S2 if taken with PHY 121]

131 University Physics II: Electricity and Magnetism. 3 S, SS

Electric charge and current, electric and magnetic fields in vacuum and in materials, induction, AC circuits, displacement current, electromagnetic waves. 3 lectures, 1 recitation. Prerequisite: PHY 121. Corequisite: MAT 271 or 291. Concurrent enrollment in laboratory PHY 132 is recommended. [Satisfies General Studies Requirements S1 S2 if taken with PHY 132]

132 University Physics Laboratory II. 1 S, SS

Laboratory accompanying PHY 131. Prerequisite: PHY 131. [Satisfies General Studies Requirements S1 S2 if taken with PHY 131]

241 University Physics III: Thermodynamics, Optics and Wave Phenomena. 3 N

Heat, entropy and the laws of thermodynamics, wave propagation, geometric and physical optics, introduction to special relativity. 3 lectures, 1 recitation. Prerequisite: PHY 131. Concurrent enrollment in laboratory PHY 242 is recommended. [Satisfies General Studies Requirements S1 S2 if taken with PHY 242]

242 University Physics Laboratory III. 1 N

Laboratory accompanying PHY 241. Prerequisite: PHY 241. [Satisfies General Studies Requirements S1 S2 if taken with PHY 241]

321 Newtonian Mechanics. 3 F

Vector calculus, kinematics and dynamics of particles, conservative, resistive and central forces, dynamics of a charged particle. Many particle systems. The two-body problem and collisions, rigid body dynamics, motion in noninertial reference frames. Prerequisites: MAT 274, 291, PHY 116 or 131 or equivalent. Corequisite: MAT 242 or equivalent.

322 Analytical Mechanics. 3 S

Lagrange's and Hamilton's equations, constraints, coupled oscillators, Elements of continuum mechanics, elasticity and hydrodynamics. Prerequisite: PHY 321

331 Electricity and Magnetism. 3 F

Static and quasistatic electric and magnetic fields, electric current, electromagnetic induction, fields in matter, introduction to Maxwell's equations. Prerequisites: MAT 242, 274. Corequisite: PHY 321 or 401

332 Electromagnetic Fields. 3 S

Maxwell's equations and applications, radiation and propagation of electromagnetic waves. Prerequisite: PHY 331

333 Intermediate Physics Laboratory I. 3 F, S

Basic physics measurements techniques with emphasis on modern electrical and electronic instrumentation. 1 hour lecture, 3 hours lab. Equivalent effort outside of the laboratory is required. Prerequisites: MAT 274 or equivalent PHY 117, 118 or 122, 132, 242, 321 or instructor approval

334 Intermediate Physics Laboratory II. 2 F, S

Experiments selected in consultation with instructors to suit the student's need and interests. 3 hours lab. Equivalent effort outside of the laboratory is required. Prerequisites: PHY 331, 333

351 Optics. 3 F

Matrix methods in geometrical optics, interferometry, partial coherence, selective absorbers, Fresnel and Fraunhofer diffraction; Fourier transform spectroscopy. Prerequisites: MAT 272 or 291; PHY 241.

361 Introductory Modern Physics. 3 F, S

Special relativity and introductory quantum theory with applications drawn from atomic nuclear and solid state physics Prerequisite: PHY 131

362 Modern Physics. (3 F S)

Special relativity, foundations and theoretical concepts of quantum theory introduction to atomic, molecular solid state and subatomic physics Prerequisite: PHY 241 Corequisite: MAT 274 or equivalent

363 Modern Physics. 3 F S

Continuation of PHY 362. Prerequisite: PHY 362.

401 Mathematical Methods in Physics. 3 S

Elements of vector calculus, complex variables, ordinary and partial differential equations, integral transforms, special functions, determinants, matrices, probability and statistics Prerequisite: PHY 321

402 Mathematical Methods in Physics. 3 S

Continuation of PHY 401 Prerequisite: PHY 401

441 Statistical and Thermal Physics I. 3 F

Statistical and experimental basis of heat, temperature and entropy. Mechanical and statistical basis of the laws of thermodynamics. Applications of macroscopic thermodynamics. Phase equilibrium Prerequisites: PHY 401 363.

442 Statistical and Thermal Physics II. 3 S

Principles and applications of statistical mechanics. Quantum statistics of ideal gases and simple solids. Equilibrium of phases and chemical species. Transport theory, reversible processes and fluctuation Prerequisite: PHY 441

452 Advanced Optics. (3 S)

Linear systems theory, coherent and incoherent magnifying spatial filtering elements of radio astronomy, antenna theory and heat flow problems. Holography, coded apertures, reciprocity and symmetry in X-ray, electron and optical diffraction Prerequisites: PHY 331, 351. PHY 401 402 recommended

462 Nuclear Physics. 3 F

Static properties of nuclei, natural and induced radioactivity, nuclear reactions, nuclear modes and energy levels, mesons and hyperons. Interaction of photons and electrons with matter Prerequisite: PHY 363.

463 Physical Measurements. 1 F

Experiments in mechanics and heat, electricity and magnetism, optics and modern physics. Designed for teachers and students not majoring in physics. 3 hours lab. May be repeated for a maximum of 3 hours credit Prerequisite: PHY 112

465 Advanced Physics Laboratory I. 2 F, S

Continuation of PHY 334 at a more advanced level. 3 hours lab. Equivalent effort outside of the laboratory is required Prerequisite: PHY 334 Corequisite: PHY 362 or instructor approval

466 Advanced Physics Laboratory II. 1 3 F, S

Continuation of PHY 465. May be repeated for credit Prerequisite: PHY 465

471 Quantum Mechanics. (3 F)

Wave mechanics. Schrodinger's equation, barrier problems, operators and eigenfunctions. Harmonic oscillator, one electron atoms. Prerequisites: MAT 242, 274 PHY 363, or instructor approval

472 Quantum Mechanics. 3 S

Matrix mechanics, angular momentum, perturbation theory, scattering theory Prerequisite: PHY 471 or instructor approval

480 Methods of Teaching Physics. 3 S

Evaluation of various approaches to the teaching of high school physics. Preparation of demonstrations and exper-

iments. Organization of a laboratory. Designed for secondary school physics teachers. Prerequisite: instructor approval.

481 Solid State Physics. 3 S

Structure, elastic properties and dynamics of crystals, electron motions in crystals under applied fields Prerequisite: PHY 363

484 Internship: Physics Teaching. 1-4 F S SS

Preparation for high school physics teaching. Student will work closely with a faculty member in the elementary physics program. May be repeated for a total of 6 semester hours. Prerequisite: instructor approval

495 Project Research. 1 3 F S

Supervised project in experimental physics. May be repeated for credit Prerequisite: 4 hours selected from PHY 333 334 and 465. Note: approval of faculty member under whose direction the work is to be done must be obtained before registration

501 Methods of Theoretical Physics. 3 F S

Provides mathematical foundations for graduate students in basic and applied physics. Complex variables, vector spaces, operators, matrices, ordinary differential equations, integral equations and transforms and special functions. May include additional topics Prerequisites: PHY 401 402, or instructor approval

502 Methods of Theoretical Physics. 3 F S

Continuation of PHY 501 Prerequisite: PHY 501

503 Physical Applications of Group Theory. 3 N

Fundamentals and applications of the theory of finite and continuous groups as they occur in physics. Atomic molecular solid state and elementary particle physics. Prerequisite: instructor approval.

521 Classical Mechanics. 3 F

Variational principles. Lagrange's and Hamilton's equations, rigid body motion, canonical transformations. Hamilton-Jacobi theory Prerequisite: PHY 321

522 Advanced Topics in Classical Mechanics. 3 S

Continuum mechanics. Elements of hydrodynamics, elasticity theory. Special relativity Prerequisites: PHY 322, 521

523 Relativity. 3 N

Special and general theories of relativity Prerequisites: PHY 522, 532 or instructor approval

531 Advanced Electricity and Magnetism. 3 F

Electrostatics and magnetostatics. Potential theory, theory of constitutive relations. Maxwell's equations. The wave equation. Plane electromagnetic waves. Cavities and waveguides. Prerequisite: PHY 331 or instructor approval.

532 Electrodynamics. 3 S

Special theory of relativity, covariant formulation of electromagnetic interactions. Inhomogeneous wave equations. Lenz-Wiechert potentials, radiation fields. Interactions of charged particles and electromagnetic waves, scattering, dispersion Prerequisites: PHY 332 531 or instructor approval

541 Statistical Physics. 3 F

Probability theory and principles of statistical inference. Evaluating experimental data, foundations of statistical mechanics. General laws of thermodynamics from microscopic theories. Calculation of specific properties of bulk matter Prerequisites: PHY 441 471 PHY 442 recommended.

542 Advanced Topics in Statistical and Thermal Physics. (3 S)

Theory of reversible processes. Onsager reciprocity laws, fluctuation-dissipation theorem, relaxation and trans-

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port processes in fluids and plasmas. L.ouve equation, the BBGKY hierarchy of distribution functions, kinetic theory, hydrodynamics from many-body theory, phase changes and equilibrium ferromagnetism. Prerequisites: PHY 541.

551 X-Ray and Electron Diffraction. 3 S

Fresnel and Fraunhofer diffraction, integral formulation, diffraction of X-rays and neutrons by crystals, lattices. Structures of solids, including crystal structure analysis. Theory and techniques of electron microscopy, diffraction of crystals, noncrystalline specimens. Prerequisites: PHY 451, 481 or instructor approval.

561 Nuclear Physics. 3 F S

Two-nucleon interaction, Heisenberg-Gordon coefficients, nuclear forces, meson theory and high-energy scattering, nuclear binding energy, nuclear modes, transition probabilities, nuclear reactions, beta decay. Prerequisites: PHY 462, 576 or instructor approval.

562 Nuclear Physics. 3 F S

Continuation of PHY 561. Prerequisite: PHY 561 or instructor approval.

568 Elementary Particle Physics. 3 N

Classification of particles, phenomenology of strong, electromagnetic and weak interactions, cross sections, decay rates, spin and higher symmetries, structure of reaction amplitudes. Prerequisite: PHY 577.

569 Elementary Particle Theory. 3 N

Continuation of PHY 568. Prerequisite: PHY 568.

576 Quantum Theory. 3 F S

Abstract approach to quantum mechanics, Heisenberg space, observables and their corresponding operators, eigenstates and eigenvalues, quantum dynamics, approximate methods, systems of identical particles, angular momentum and group representation theory, collisions, processes, relativistic quantum theory. Prerequisites: PHY 471, 521.

577 Quantum Theory. 3 F S

Continuation of PHY 576. Prerequisite: PHY 576.

578 Relativistic Quantum Theory. 3 F S

Relativistic one-particle equations, Klein-Gordon equation, Dirac equation, second quantization, theory of scattering, S matrix, Feynman diagrams, quantum electrodynamics, renormalization procedures. Prerequisite: PHY 577.

579 Relativistic Quantum Theory. 3 F S

Continuation of PHY 578. Prerequisite: PHY 578.

581 Solid State Physics. 3 F

Quantum theory of solids, including phonons, lattice specific heats, band structure, modes, Fermi surfaces, thermal expansion, plasmas, electron-phonon interactions and scattering by lattice defects. Prerequisite: PHY 472, 481, 576.

582 Solid State Physics. 3 S

Elements of transport theory, thermal conduction, electronic conduction in metals, mobility in semiconductors, Hall effect, magnetoresistance and selected topics of current research. Prerequisite: PHY 581.

587 Quantum Optics. 3 F S

Quantization of the electromagnetic field, quantum theory of coherence, photon counting, photostates, density operators, atomic Raman scattering. Prerequisite: PHY 471.

588 Quantum Optics. 3 F S

Continuation of PHY 587. Prerequisite: PHY 587.

595 Current Physics Literature. 1 N

Weekly seminar to introduce the graduate student to current activity in physics through the contemporary literature. May be repeated for credit.

Special Courses: PHY 294, 298, 484, 492, 493, 494, 497, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599, 700, 780, 783, 784, 790, 791, 792, 799. See pages 43–44.

ASTRONOMY

AST 111 Introduction to Astronomy I. 3 F SS

For non-science majors. History, properties of light, instruments, study of solar system and nearby stars. Optional laboratory. AST 125 [Satisfies General Studies Requirements S1, S2 if taken with AST 125].

112 Introduction to Astronomy II. 3 S SS

For non-science majors. Structure and evolution of stars, star clusters, galactic cosmology. Optional laboratory. AST 126 [Satisfies General Studies Requirements S1, S2 if taken with AST 126].

125 Astronomy Laboratory I. 1 F

Astronomical observations and experiments designed to help the student become familiar with the sky, telescopes and astronomical measurements, 2 hours lab. Prerequisite or corequisite: AST 111 or 321, a working knowledge of high school algebra and geometry [Satisfies General Studies Requirements S1, S2 if taken with AST 111 or 321].

126 Astronomy Laboratory II. 1 S

Similar to AST 125 but material chosen to supplement AST 112 and 322, 2 hours lab. Prerequisite or corequisite: AST 112 or 322, a working knowledge of high school algebra and geometry [Satisfies General Studies Requirements S1, S2 if taken with AST 112 or 322].

301 Discovering the Sun and its Planets. 3 F

Comprehensive first course in astronomy for non-science majors. Course includes lectures plus written assignments and laboratory work. Not open to students with credit in AST 111 or equivalent. Prerequisites: algebra and geometry or instructor approval.

302 Modern Astronomy. 3 S

Second course in astronomy for non-science majors. Covers achievements and controversies of 20th century astronomy through lectures, written assignments and laboratory work. Not open to students with credit in AST 112 or equivalent. Prerequisite: AST 301 or instructor approval.

321 Solar System Astronomy. 3 F SS

For science majors. Physical laws, evolution of the sun and planets, extraterrestrial life, astronomical instrumentation. Optional laboratory. AST 125. Prerequisite: MAT 210 or equivalent [Satisfies General Studies Requirements S1, S2 if taken with AST 125].

322 Stars, Galaxies and the Universe. 3 S SS

For science majors. Star formation, structure, evolution, interstellar medium, star clusters, galactic distance scale, cosmology. Optional laboratory. AST 126. Prerequisite: AST 321 or instructor approval. Prerequisite or corequisite: MAT 210 or equivalent [Satisfies General Studies Requirements S1, S2 if taken with AST 126].

421 Astrophysics I. 3 F

Aspects of observational astronomy, atomic properties of matter, stellar atmospheres, stellar structure, evolution, nucleosynthesis, compact objects, close binary systems. Prerequisites: AST 321, 322 or equivalent; PHY 321, 331, 362; or instructor approval.

422 Astrophysics II. 3 S

Interstellar medium, gaseous nebulae, shock waves, stellar dynamics, star clusters and stellar populations, galaxies and their evolution, cosmology. Prerequisites: AST 321, 322 or equivalent; PHY 321, 332, 363 or instructor approval.

Special Courses: AST 294, 298, 484, 492, 493, 494, 497, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599, 700, 780, 783, 784, 790, 791, 792, 799. (See pages 43–44.)

PHYSICAL SCIENCES

PHS 110 Fundamentals of Physical Science. (4) F, S
One-semester survey of the principles of physics and chemistry. Understanding of elementary algebra is presumed. 3 lectures, 2 hours lab. [*Satisfies General Studies Requirements: S1, S2*]

361 Science and Society. (2) F, S
Fundamental principles of physical science as a creative human enterprise and its relationship to technology and the environment.

362 Science and Society. (2) F, S
See PHS 361.

370 Ideas of Physics. (1–3) N
Relationships of physical concepts to other areas of knowledge. Recent offerings have been: (1) basic concepts in physics; relativity, complementarity, uncertainty, etc.; (2) current topics of research and public interest; (3) methods for developing and assessing new ideas. See *Schedule of Classes* and consult Physics Department for current titles and sectional offerings. May be repeated for credit.

375 The Energy Crisis. (2–3) F, S
Current problems in energy resources, production, consumption and conservation. No physics or mathematics prerequisites. Students registered for 3 hours will participate in a discussion group as well as attend lectures.

410 Origins of the Physical Sciences. (3) N
Origins of astronomy, chemistry, physics and mathematics in the cultures of Mesopotamia, Egypt, China and India.

411 Development of the Physical Sciences. (3) N
Hellenistic mathematics, physics, chemistry and astronomy. Arabs and the physical sciences; their role in spreading the physical sciences to Europe. The development of the physical sciences in Europe until the time of Newton.

Special Courses: PHS 294, 298, 484, 492, 493, 494, 497, 498, 499, 500, 580, 584, 590, 591, 592, 593, 594, 598, 599, 700, 780, 783, 784, 790, 791, 792, 799. (See pages 43–44.)



Political Science

REGENTS' PROFESSOR:
MILLER

PROFESSORS:
JONES (SS 410), ALISKY, BERMAN,
CHAUDHURI, JO. KAMINSKY, KIRKPATRICK,
McGOWAN, RICE, SIMON,
WALKER, YOUNGBLOOD

ASSOCIATE PROFESSORS:
ASHLEY, DAGGER, DALGLEISH, DANTICO,
HERO, McGAW, OLSON, READER, STOOKEY,
WATSON, WOLF

ASSISTANT PROFESSORS:
BURT-WAY (ASU WEST CAMPUS),
CRITTENDEN, GEER, KEATING,
KENNEY, NICHOLLS

PROFESSORS EMERITI:
HINK, HOLMES, MASON, PEEK,
SCHWADA, SWAGERT, WHITE

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

Political Science. Consists of 42 semester hours of which 30 must be in political science and 12 in related fields consisting of courses selected from the Departments of Anthropology, Economics, Geography, History, Psychology, Sociology and Women's Studies. At least 15 hours in political science must be in upper-division courses. Required courses are POS 110 (or 310), 150 (or 160), 301; and one from among 440, 441, 442, 443, 445 or 446.

Students who major in Political Science must have a 2.00 average for all courses which count toward the major. Upper-division courses which count toward the major must have "C" grades or better; no more than one "D" grade in a lower-division course may be counted in the major. (See degree requirements, page 97.)

No more than six hours of Internship (POS 484) may be applied to the major.

Latin American Studies Combined Degree Program. (See Latin American studies, page 102.) Consists of the B.A. requirements in Political Science. At least 30 upper-division semester hours of the total program must be in Latin American content courses including 15 hours in political science and 15 in other disciplines. A reading knowledge of Spanish or Portuguese is

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required. A reading knowledge of the other language is suggested. The program must be approved by the Center for Latin American Studies. Fulfillment of requirements is recognized on the transcript as a B.A. degree with a major in Political Science Latin American studies emphasis.

Asian Studies Emphasis. (See Asian studies, page 101.) Consists of the B.A. requirements in Political Science plus a minimum of two years of Chinese or Japanese. Thirty semester hours of the total degree program must consist of Asian studies courses selected with the approval of the advisor. Fulfillment of these requirements will be recognized by a B.A. with a major in Political Science Asian studies emphasis.

Bachelor of Science Degree Curriculum

Political Science Consists of 48 semester hours of which 36 must be in political science and 12 in related fields consisting of courses selected from the Departments of Anthropology, Economics, Geography, History, Psychology, Sociology, and Women's Studies. At least 21 hours in political science must be in upper division courses. Required courses in political science are POS 110 (or 310), 150 (or 160), 301, 401, and one from among 440, 441, 442, 443, 445 or 446.

Students who major in Political Science must have a 2.00 average for all courses which count toward the major. Upper division courses which count toward the major must have "C" grades or better, no more than one "D" grade in a lower division course may be counted in the major. (See degree requirements, page 97.)

No more than six hours of Internship (POS 484) may be applied to the major.

Departmental Minor Requirements

Political Science. Consists of 18 semester hours in political science courses, 12 hours of which must be in upper division courses. Required courses are POS 110 (or 310) and 150 (or 160). No more than three hours of Internship (POS 484) and three hours of Independent Study (POS 499) may be applied to the minor.

Students who minor in Political Science must have a 2.00 average for all courses which count toward the minor. Upper division courses which count toward the minor must have "C" grades or better; no more than one "D" in a lower division course may be counted toward the minor.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Political Science. Consists of 45 semester hours, 30 of which must be in political science and 15 in closely related fields. Six courses are required. POS 110 (or 310), 150 (or 160), 301, 417, 480; one from among 440, 441, 442, 443, 445 or 446.

Students who major in Political Science must have a 2.00 average for all courses which count toward the major. Upper division courses which count toward the major must have "C" grades or better, no more than one "D" grade in a lower division course may be counted in the major.

No more than six hours of Internship (POS 484) may be applied to the major.

Departmental Minor Teaching Field Requirements

Political Science. Consists of 24 semester hours in political science courses. Six courses are required. POS 110 (or 310), 150 (or 160), 301, 417, 480; one from among 440, 441, 442, 443, 445 or 446.

Students who minor in Political Science must have a 2.00 average for all courses which count toward the minor. Upper division courses which count toward the minor must have "C" grades or better, no more than one "D" grade in a lower division course may be counted in the minor.

Departmental Graduate Programs

The Department of Political Science offers programs leading to the M.A. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

POLITICAL SCIENCE

POS 101 Political Ideologies. 3 F S

Leading political ideas and belief systems e.g. Marxism, liberalism, conservatism, theories of democracy and alternative futures. [Satisfies General Studies Requirements SB H]

110 Government and Politics. 3 F, S

Major institutions of modern government and processes of individual and group political activity with emphasis on the American experience. Meets the federal government requirement for teacher certification. Not open to students with credit for 310. [Satisfies General Studies Requirement SB]

120 Political Issues and Public Policy. 3) A

Contemporary social problems and political issues, particularly development of public policy. [Satisfies General Studies Requirement SB]

150 Comparative Government. 3 F S

Political institutions and processes in selected foreign countries or groups strengths and weaknesses of contemporary political systems political development [Satisfies General Studies Requirements SB G]

160 Global Politics. 3 F S

The nature of contemporary world politics through the study of both general theoretical topics and specific geographical areas [Satisfies General Studies Requirements SB G]

170 American Legal System. 3 F S

Concepts, institutions, cases, functions and functions of law The role of the courts and the impact of judicial decisions on making social change [Satisfies General Studies Requirement SB]

294 Special Topics: Introduction to Southeast Asia. 3 N

[Satisfies General Studies Requirement G]

301 Empirical Political Inquiry. 3) F, S

Logic of political inquiry including research problems concepts hypotheses theories measurement data collection and analysis [Satisfies General Studies Requirement SB]

310 American National Government. 3 F S

Powers, functions and agents of American political institutions Meets the federal government requirement for teacher certification Not open to students with credit for POS 110 [Satisfies General Studies Requirement SB]

311 Arizona Constitution and Government. 2 F S

Constitution and government of the State of Arizona Not open to students having credit for POS 316 411 or 417 Meets the Arizona government requirement for teacher certification May not be counted for the major teaching major or minor in political science [Satisfies General Studies Requirement SB]

313 The Congress. 3 A

Lawmaking process in the U.S. Congress [Satisfies General Studies Requirement SB]

314 The American Presidency. 3 A

Office, role and power of the American presidency in the American political system [Satisfies General Studies Requirement SB]

315 The Supreme Court. 3 A

Role of the Supreme Court in American society and politics examination of decisions on making process impact of decisions restraint versus activism [Satisfies General Studies Requirement SB]

316 State and Local Government. 3 A

Survey of the operations problems and policies of state and local governments in the U.S. [Satisfies General Studies Requirement SB]

320 Public Administration. 3 A

Role of the administrator in the political process with an examination of the basic concepts of bureaucracy [Satisfies General Studies Requirement SB]

325 Public Policy Development. 3 A

Relationships between policy development and administrative processes affected by the various roles of executives, bodies, executive and administrative agencies [Satisfies General Studies Requirement SB]

330 Current Issues in National Politics. 3 F S

Major issues facing national governments in the domestic field [Satisfies General Studies Requirement SB]

331 Public Opinion. 3 A

Formation, expression and influence of individual and organized opinion on political institutions [Satisfies General Studies Requirement SB]

332 American Political Parties. 3 A

Development of the American party system Party organization and functions [Satisfies General Studies Requirement SB]

333 Interest Groups. 3 A

Examines how minority corporate labor farm consumer environmental, health education and public interest groups and single issue movements influence government [Satisfies General Studies Requirement SB]

336 Electoral Behavior. 3 A

Voting behavior and the attitudes perceptions and activities of the citizenry in the political process [Satisfies General Studies Requirement SB]

350 Comparative Politics 3 A

Theoretical approaches and political institutions such as parties pressure groups eg states and executives from a cross national perspective [Satisfies General Studies Requirements SB G]

351 The British Nations. 3 A

Examines such parliamentary systems as Great Britain Ireland Canada, Australia and New Zealand [Satisfies General Studies Requirements SB G]

352 Revolution and the Social System. 3 A

Causes and consequences of revolution Identification of systemic structures and institutions conducive to radical and moderate patterns of conflict resolution [Satisfies General Studies Requirement SB]

356 Western Europe. 3 A

Structures and behavior of governmental institutions and political processes in selected countries of Western Europe [Satisfies General Studies Requirements SB, G]

360 Current Issues in International Politics. 3 F S

An analysis of major current problems in world politics [Satisfies General Studies Requirements SB G]

361 American Foreign Policy. 3 A

United States in world affairs foreign policy since World War I. Techniques in forming American foreign policies [Satisfies General Studies Requirements SB, G]

401 Political Statistics. 3 F S

Basic concepts in statistics as they facilitate the description, explanation and prediction of social and political phenomena [Satisfies General Studies Requirement N2]

410 Urban Government and Politics. 3 A

Governmental organizations, decision making structures and problems of urban political systems [Satisfies General Studies Requirement SB]

417 The Arizona Political System. 3 N

Contemporary political problems within the context of Arizona's political social and institutional frameworks Meets the Arizona Constitution requirement for certification [Satisfies General Studies Requirement SB]

422 Politics of Bureaucracy. 3 N

Bureaucracy as a political entity, internal dynamics of public agencies the relationship between public agencies and other political entities [Satisfies General Studies Requirement SB]

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423 Politics of Budgeting. 3 N

The policy process in budgeting strategies used to influence this process and recent reforms in public budgeting [Satisfes General Studies Requirement SB]

424 Regulatory Politics. 3 N

Development and implementation of governmental policies regulating business activity, e.g. antitrust consumer and environmental protection and labor relations [Satisfes General Studies Requirement SB]

426 Elements of Public Policy. 3 A

Each section may cover one of the following topics: consumer protection, natural resources, criminal justice, environmental protection, science and technology, or theories of public policy. May be repeated for credit when topics vary [Satisfes General Studies Requirement SB]

435 Women, Power and Politics. 3 N

The roles and treatment of women within various political contexts. Specific focus may vary with instructor [Satisfes General Studies Requirement SB]

439 Minority Group Politics in America. 3 N

Role of minority groups in American politics [Satisfes General Studies Requirement SB]

440 History of Political Philosophy I. 3 A

Western political philosophers and their theories to the 17th century [Satisfes General Studies Requirements HU H]

441 History of Political Philosophy II. 3 A

Western political philosophers and their theories from the 17th to the 20th century [Satisfes General Studies Requirements HU H]

442 American Political Thought. 3 A

Political theories and movements from the colonial period to the present [Satisfes General Studies Requirements HU H]

443 Topics in Contemporary Political Theory 3 A

Major problems and theories in contemporary political thought [Satisfes General Studies Requirement HU]

445 Asian Political Thought. 3 A

Contemporary political ideas and theories in selected Asian countries including the impact of Marxist and non-Marxist theories on revolutionary processes. [Satisfes General Studies Requirements SB G H]

446 Problems of Democracy. 3 A

Issues and problems in democratic theory e.g. the nature of democracy, majority rule, representation, equality and the value of political participation [Satisfes General Studies Requirement HU]

450 Soviet Union and Eastern Europe. 3 A

Description and analysis of political institutions and practices in the Soviet Union and the Communist governed nations of Eastern Europe [Satisfes General Studies Requirements SB G]

451 China, Japan and the Koreans. 3 A

A comparative analysis of the political modernization experiences of China, Japan and the two Koreas focusing on the differing reactions to the West [Satisfes General Studies Requirements SB G]

452 China. 3 A

Background of the Communist revolution, political processes and developmental problems in China from a comparative perspective [Satisfes General Studies Requirements SB G]

453 South America. 3 A

Governmental institutions, political processes and developmental problems of the South American states [Satisfes General Studies Requirements SB G]

454 Mexico. 3 A

Mexican federal, state and local governmental institutions [Satisfes General Studies Requirements SB G]

455 Central America and the Caribbean. 3 A

Governmental institutions, political processes and developmental problems of the nation states and dependent areas of Central America and the Caribbean [Satisfes General Studies Requirements SB G]

456 Comparative Legislative Processes. 3 A

Lawmaking process followed in selected legislative bodies, composition of membership, organization, powers, impact of internal and external forces on legislation [Satisfes General Studies Requirement SB]

458 Southeast Asia. 3 A

Political background, governmental institutions, political dynamics and developmental problems of Southeast Asian nations [Satisfes General Studies Requirements SB G]

459 Sub-Saharan Africa. 3 N

Governmental institutions and processes of politics south of the Sahara [Satisfes General Studies Requirements SB, G]

460 World Politics. 3 A

Theoretical examination of one or more aspects of international politics e.g. foreign policy, negotiations, alliances, crises, wars, international systems [Satisfes General Studies Requirements SB G]

462 Soviet Foreign and Defense Policies. 3 A

Examination and analysis of foreign and defense policies of the Soviet Union [Satisfes General Studies Requirements SB G]

463 Inter American Relations. 3 A

Diplomatic relations among the Latin American states. Development of U.S. foreign policy toward Latin America [Satisfes General Studies Requirements SB G]

464 American Defense Policy. 3 A

Problems and issues of the organization and control of the defense establishment of the U.S. [Satisfes General Studies Requirement SB]

465 International Organization and Law. 3 A

History, practical political significance and future of international institutions, transnational regimes and international law [Satisfes General Studies Requirements SB G]

467 Comparative Defense Policy. 3 A

Problems and issues of the organization and control of effective defense establishments within the context of various political systems [Satisfes General Studies Requirements SB G]

468 Comparative Asian Foreign Policies. 3 A

Foreign policies of the Asian states emphasizing the security relations and movements toward regionalism [Satisfes General Studies Requirements SB G]

470 Law and Society. 3 A

Nature, purposes and sanctions of law, sources of law, private and public law, common and civil law, Courts and administration of justice [Satisfes General Studies Requirement SB]

471 Constitutional Law I. 3 A

Development of the United States Constitution as reflected in decisions of the Supreme Court, jurisdiction and organization of the federal courts, judicial review, separation of powers, federalism, the commerce clause, national taxing and spending power, state police power [Satisfes General Studies Requirement SB]

472 Constitutional Law II. 3 A

Development of the United States Constitution as reflected in decisions of the Supreme Court: Due process, equal protection of law, and individual rights, liberties. *[Satisfies General Studies Requirement SB]*

480 Methods of Teaching Government. 3 N

Methods of instruction, organization and presentation of subject matter in political science. Prerequisite: 15 hours in political science or instructor approval. Prerequisite: SED 311

484 Internship. 1-6 A except Legals at ve Internships 12 S

[Satisfies General Studies Requirement SB]

485 Political Economy. 3 A

Problems, policies and possibilities of various political economic systems and the interrelationship of capitalism and democracy. *[Satisfies General Studies Requirement SB]*

486 International Political Economy. 3 A

Contending approaches to historical and contemporary issues of international political economy, including global welfare, equality, ecology and peace. *[Satisfies General Studies Requirements SB, G, H]*

494 Special Topics in Political Science. 3 A

Chosen from the various fields of political science.

498 Pro-Seminar. 3 A

Small group study and research for advanced students within their major area. Prerequisite: major in the department or instructor approval. *[Satisfies General Studies Requirement L2]*

501 Methods of Political Science. 3 F

Introduces research methods and techniques of the discipline with attention to the empirical foundations and analytical methods employed in each of several subfields.

502 Philosophy of Political Inquiry. 3 A

Problems of knowledge and method in political science with attention to both empirical and evaluative analysis.

503 Empirical Political Inquiry. 3 F

Basic research methods and techniques with statistical and computer applications. Prerequisites: POS 401 or equivalent instructor approval.

591 Seminar. (3) A

- | | |
|----------------------|---------------------|
| a) American Politics | c) Public Policy |
| (b) Global Politics | d) Political Theory |

598 Special Topics. 3 A

- | | |
|-----------------------|---------------------|
| (a) American Politics | c) Public Policy |
| (b) Global Politics | d) Political Theory |

601 Advanced Experimental Research. 3 N

The implementation of experimental and quasi-experimental research designs as models of inquiry as applied in political research, including laboratory techniques and topics in the analysis of variance. Prerequisite: POS 503 or equivalent.

602 Advanced Survey Research. 3 N

Problems in the design and conduct of political surveys, including sampling, instrument design, scaling and statistical and graphical analysis of survey data. Prerequisite: POS 503 or equivalent.

603 Polimetrics I. 3 S

Applications of the general linear model to topics in the estimation of single equation models of political phenomena. Prerequisite: POS 503 or equivalent.

604 Polimetrics II. 3 F

Continuation of POS 603, including techniques of simultaneous equation estimation and other multivariate statistics.

techniques such as time series, factor and discriminant analysis. Prerequisite: POS 603.

792 Research. 3 F S

Projects in various areas of political science. Prerequisite: doctoral student.

Special Courses. POS 294, 394, 492, 493, 494, 498, 499, 590, 591, 592, 593, 594, 598, 599, 691, 692, 693, 790, 792, 799. See pages 43-44.

Psychology

REGENTS' PROFESSORS:

CALDIN MEYERSON

PROFESSORS:

UTTAL, PSY B 237C; AIKEN, BERNAL, BRAUN, BRAVER, CHASSIN, EISENBERG, HAYGOOD, HOMA, JONES, KAROLY, KILLEEN, LANYON, LINDER, PARKINSON, REICH, RUSSO, SANDLER, SOMERVILLE, VESTRE, WEST, ZAUTRA

ASSOCIATE PROFESSORS:

BARRERA, CHARTIER, FEHR, GLANZMAN, KENRICK, LESHOW, TZ, LEVINE, LINDHOLM, PRESSON, ROSS, SADALLA, WOLCHIK

ASSISTANT PROFESSORS:

MILLER, ASU WEST CAMPUS; NANEZ (ASU WEST CAMPUS); NEMEROFF, NEUBERG, STONE, VANORDEN

INSTRUCTOR:

RITCHIE

PROFESSORS EMERITI:

BARDRICK GURNEE

Departmental Major Requirements

The Department of Psychology maintains an Undergraduate Advisement Office staffed by trained personnel. All Psychology majors are required to meet with an undergraduate advisor once each semester for approval of the student's choice of courses. Failure to do so may prevent graduation at the expected time. It is the responsibility of the student to make appointments with an undergraduate advisor.

Bachelor of Arts Degree Curriculum

Psychology. Consists of 28 semester hours in psychology, including at least 15 upper division hours. Required courses, which must be passed with a minimum grade of "C," are PGS 100, 315 (or 341 or 350), PSY 230, 290, 323 (or 324 or 325), one additional upper division PSY course (excluding PSY 490 and 499), two additional upper division courses (PGS or PSY); and one addi-

tional psychology course. No more than a total of three hours in PGS 399, 499 and PSY 499 combined may be used to complete the 15 hours of upper division requirements. Students may take a maximum of six hours of PGS 399 and six hours of PGS 499 and PSY 499 combined. *Eighteen hours* in courses related to psychology must be passed with a minimum grade of "C." They are to be approved by an undergraduate advisor and include one course from among CSC 100, 181 and 183. College graduation requirements are on page 97.

Bachelor of Science Degree Curriculum

Psychology. Consists of 31 semester hours in psychology, including at least 15 upper division hours. Required courses, which must be passed with a minimum grade of "C," are PGS 100, 315 (or 341 or 350), PSY 230, 290, 323 (or 324 or 325); one additional upper division PSY course (excluding PSY 490 and 499); two additional upper division courses (PGS or PSY), and two additional psychology courses. No more than a total of three hours in PGS 399, 499 and PSY 499 combined may be used to complete the 15 hours of upper division requirements. Students may take a maximum of six hours of PGS 399 and six hours of PGS 499 and PSY 499 combined. *Eighteen hours* in courses related to psychology must be passed with a minimum grade of "C." They are to be approved by an undergraduate advisor and include one course from among CSC 100, 181 and 183. College graduation requirements are on page 97.

Departmental Minor Requirements

The departmental minor consists of 22 hours in psychology, including PGS 100, 315 (or 341 or 350); PSY 230, 290, 323 (or 324 or 325); and two additional upper division psychology courses (PGS or PSY). A maximum of three hours of research (PGS 399, 499; PSY 499) may be used to meet the minor requirements. All courses must be passed with a minimum grade of "C."

Departmental Minor Teaching Field Requirements

(Secondary Education)

Consists of 24 semester hours. See advisor.

Departmental Graduate Programs

The Department of Psychology offers programs leading to the Ph.D. degree. Consult the *Graduate Catalog* for requirements.

PSYCHOLOGY (PGS)

PGS 100 Introduction to Psychology. 3 F, S, SS

Major areas of theory and research in psychology. Participation in department sponsored research or an educational equivalent alternative activity is required. [Satisfies General Studies Requirement SB]

241 Adolescence Psychology. (3 N

Topics in both normal development e.g., self concept, peer relationships and disorders of adolescence e.g., anorexia, suicidal behavior, substance abuse. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

270 Psychology of Adjustment. (3 F, S, SS

Principles of mental health, adjustment, conflict, stress and coping processes derived from clinical and experimental research intended for nonmajors; cannot be used for major credit. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

304 Effective Thinking. 3 A

Understanding and improving your intellectual and behavioral skills: information analysis, inference, logic, problem solving and decision making. Prerequisite: MAT 119 or PSY 230 or equivalent. [Satisfies General Studies Requirement L1]

306 Environmental Psychology. 3 F, S, SS

Concepts and research strategies in the study of behavior in interaction with physical environment. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

315 Personality Theory and Research. 3 F, S, SS

Definition and description of personality in terms of theoretical and methodological approaches. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

331 Sexual Identification. 3 N

Theories and research in the development of sexual identification, concepts of femininity and masculinity, social roles and attitudes. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

332 Human Sexual Behavior. (3 F, S

Patterns of sexual behavior including variations and deviations, theories of sexual attraction, sex differences and sexual dysfunction and treatment. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

341 Developmental Psychology. 3 F, S

Behavior development analyzed in terms of psychological principles. Current research in human development. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

350 Social Psychology. (3 F, S, SS

Human social behavior including such concepts as aggression, attraction, attribution, conformity, groups, helping, person perception and persuasion. Prerequisite: PGS 100. [Satisfies General Studies Requirement SB]

365 Community Psychology. (3 F, S

Mental health and psychology as well-being in the community emphasizing current issues and related research. Prerequisite: PGS 315 or 350. [Satisfies General Studies Requirement SB]

399 Supervised Research. 1-3 F, S, SS

Experience within the context of current faculty research projects. Student is assigned responsibility depending on qualifications. "Y" grade only. May be repeated for a total of 6 hours. Prerequisite: approval of faculty member prior to registration. "B" average in major. Prerequisite: PSY 230 or equivalent.

414 History of Psychology. (3) F, S
Historical development of psychology from its philosophical beginnings to the present. Prerequisite: PGS 100

427 Psychology of Aging. (3) N
Behavioral, experiential and emotional phenomena associated with aging. Analysis of retained abilities and resources as well as losses and stresses. Prerequisite: PGS 315 or instructor approval. [Satisfies General Studies Requirement: SB]

430 Industrial Psychology. (3) F, S, SS
Organizational and management systems: motivation and work performance, human factors in systems design and evaluation on personnel selection and testing. Prerequisite: MGT 301 or PGS 100

441 Cognitive Development. (3) F, S
Experimental and theoretical literature in child development and behavior. Prerequisite: PGS 341 or instructor approval. [Satisfies General Studies Requirement: SB]

442 Life Span Development. (3) N
Methods and findings of recent studies of the development, growth and problems of adolescents and adults with implications for education. Prerequisite: PGS 341 [Satisfies General Studies Requirement: SB]

443 Abnormal Child Psychology. (3) F, S
The major disorders of childhood and adolescence (e.g., autism, hyperactivity, phobias, delinquency) are covered including cause, diagnosis, treatment and prevention. Prerequisites: PGS 100 and one course from among PGS 310, 315, 341-350 or instructor approval. [Satisfies General Studies Requirement: SB]

444 Directed Child Study. (1-3) F, S, SS
Supervised experience with children in the preschool program of the Child Study Laboratory. May be repeated for a total of 9 credits. Prerequisites: CDE 232 or PGS 341, or instructor approval.

445 Child Language and Drawing. (3) F
Language acquisition and developmental changes in drawing considered in the context of cognitive developmental stages. Children's representation and communication of knowledge through language and drawing. Prerequisite: PGS 341 [Satisfies General Studies Requirement: SB]

458 Group Dynamics. (3) F
Theories and methods of group leadership, group effectiveness, communication within groups and relations between groups and individual members. Prerequisite: PGS 350

461 Interpersonal Influence. (3) N
Principles and procedures that affect the process of social influence: consideration of attitude, compliance, inducing and perceptual influences. Prerequisite: PGS 350 [Satisfies General Studies Requirement: SB]

466 Abnormal Psychology. (3) F, S, SS
Historical and current definitions, theory and research concerning abnormal behavior. Major categories of psychopathology including related treatment approaches. Prerequisite: PGS 315 [Satisfies General Studies Requirement: SB]

471 Personnel Testing. (3) S
Methods and theory of psychological testing; various types of psychological tests; consideration of ethical, social and legal aspects of testing. Prerequisites: MGT 311 or PGS 430 PGS 100, one course in statistics

472 Clinical Psychology. (3) F, S
Clinical psychology as a science and profession. Historical development, methods of interviewing, assessment and therapeutic intervention. Prerequisite: PGS 466

Special Courses: PGS 294, 394, 494, 498-499 (See pages 43-44)

PSYCHOLOGY (PSY)

PSY 230 Introduction to Statistics. (3) F, S, SS
Basic concepts in descriptive and inferential statistics emphasizing applications to psychology. The course has both self-paced (PS) and lecture sections. Prerequisites: MAT 117, PGS 100 [Satisfies General Studies Requirement: N2]

290 Experimental Psychology. (4) F, S
Planning, execution, analysis and reporting of experiments. Literature, procedures and instruments in representative areas of psychological research. 3 lectures, 3 hours lab. Prerequisite: PSY 230 or equivalent. [Satisfies General Studies Requirements: L1, S2]

323 Sensation and Perception. (3) F, S
Underlying processes of vision, audition and the other senses. Application of current research and theory in a laboratory environment. Prerequisite: PSY 290 or instructor approval.

324 Learning and Memory. (3) F, S, SS
Processes underlying information storage and retrieval, including different kinds of memory, forgetting, depth of processing and control processes. Prerequisite: PSY 290 or instructor approval.

325 Physiological Psychology. (3) F, S, SS
Relationships of physiological processes to behavior. Emphasis on nervous system functioning. Prerequisites: PSY 290 or two courses in biological science. Instructor approval.

330 Statistical Methods. (3) S
Advanced application of statistics to psychology. Highly recommended for students interested in attending graduate school. 3 lectures, 1 hour lab. Prerequisite: PSY 230. [Satisfies General Studies Requirement: N2]

420 Analysis of Behavior. (3) N
Research, applications and philosophy of the analysis and control of human behavior. Prerequisite: PSY 290

425 Biological Bases of Behavior. (3) N
Critical study of physiological psychology: brain mechanisms underlying motivation, learning, etc. Prerequisite: PSY 325

426 Neuroanatomy. (4) N
Structure and function of mammalian brain including sheep brain dissection. 3 lectures, 3 hours lab. Prerequisite: PSY 325 or equivalent

432 Human Performance. (3) S
Analysis of human behavior in complex human-machine systems including tracking, vigilance, scanning and failure detection. Prerequisites: PSY 290 upper division standing, or instructor approval.

433 Human Psychophysiology. (3) S
Emphasis on human physiological behavioral relationships. Topics include physiological change associated with imagery, stress, attention, skill learning and biofeedback. Prerequisite: PSY 325

434 Cognitive Psychology. (3) S
The human organism as a processor of information from perception to cognition. Abstract concepts, semantic memory, attention and mental imagery. Prerequisite: PSY 323, 324 or instructor approval.

437 Human Factors. (3) F
Emphasis on human factors in high technology systems. Specific topics include systems development, systems

178 PSYCHOLOGY

analysis techniques, displays and controls. Prerequisites: PSY 290 upper division standing or instructor approval.

470 Psychopharmacology. 3 F S

Basics of drug action at physiological and behavioral levels. Psychological and medical applications and motivations of drugs used in the treatment of mental illness. Prerequisite: 1 semester each of biology and chemistry or PSY 325.

490 Course Programming. 2 F S

Supervised experience in the development and administration of programmed instruction. Designed for students who proctor self-paced or personalized courses. May be repeated for a total of 4 credits. Prerequisites: PSY 230, instructor approval.

501 Supervised Teaching. 4 F

Experience in and examination of perspectives on teaching undergraduate psychology. Prerequisites: graduate standing in psychology; instructor approval.

506 Survey of Research in Environmental Psychology. 3 F

Major topics and paradigms in the study of human environment relationships. Prerequisite: instructor approval.

512 Advanced Learning. 3 N

Principles and theories of learning, emphasizing research literature. Prerequisite: instructor approval.

524 Advanced Physiological Psychology. 3 N

Contributions of physiological processes and brain function to fundamental behavioral processes. Prerequisite: instructor approval.

528 Sensation and Perception. 3 N

Principles of sensory and perceptual processes emphasizing research literature. Prerequisite: instructor approval.

529 Correlation and Psychometric Theory. 3 S

Principles of correlational techniques including regression and multiple correlation. Psychometric theory including reliability and validity. Prerequisite: instructor approval.

530 Intermediate Statistics. 3 F

Continuation of PSY 529. Psychological statistics emphasizing the analysis of variance and the design of experiments. Prerequisite: PSY 529 or instructor approval.

535 Cognitive Processes. 3 N

Theoretical and empirical issues in the treatment of the human organism as a processor of information including abstraction, memory structure, problem solving and thinking. Prerequisite: instructor approval.

541 Research in Cognitive Development. 3 N

Theoretical and empirical issues in the study of children's knowledge and cognitive processes. Comparison of research in Piaget and other traditions. Prerequisite: admission to psychology Ph.D. program or instructor approval.

542 Social Development. 3 N

Major issues in the area of social development are topics for review and critique. Theory, research and content are covered. Prerequisite: instructor approval.

543 Moral Development. 3 N

A variety of issues in moral development including positive and negative behaviors are considered. Theory and research are major focus. Prerequisite: instructor approval.

550 Advanced Social Psychology. 3 F S

Theory and research concerning interpersonal perception, decision making, attitude formation and change, group processes, social motivation and interaction processes. Prerequisite: instructor approval.

551 Advanced Social Psychology. 3 F S

Continuation of PSY 550. Prerequisite: PSY 550 or instructor approval.

553 Social Influence. 3 N

Research literature relevant for example, to attitude formation and change, conformity, obedience, power, compliance and altruism. Prerequisites: PSY 550, 551; or instructor approval.

555 Experimental and Quasi-Experimental Designs for Research. 3 N

Review of research techniques. Laboratory and field research analyzed, applications to specific topics. Prerequisite: instructor approval.

556 Social Perception. 3 N

Theoretical and empirical applications of topics in social perception and cognition e.g., attribution, attraction, impression formation. Prerequisites: PSY 550, 551; or instructor approval.

558 Interpersonal Processes. 3 N

One or more topics chosen from: empathy, modeling, vicarious processes, contagion, group phenomena, social communication, behavior exchange. Prerequisites: PSY 550, 551 or instructor approval.

564 Somatopsychology. 3 N

Theory and research in the psychological aspects of chronic illness, physical disability and mental retardation. Prerequisite: instructor approval.

565 Somatopsychology. 3 N

Continuation of PSY 564. Prerequisite: PSY 564 or instructor approval.

569 Advanced Study of Personality. 3 N

Personality as a theoretical concept in psychology including definitional problems, behavioral and traditional approaches, the measurement of personality and current research issues. Prerequisite: instructor approval.

572 Personality Assessment. 3 S

Theory and research on assessment of personality and psychopathology and construction of personality assessment instruments. Supervised practice in a self-paced instructional format. Prerequisite: admission to clinical Ph.D. program or instructor approval.

573 Psychopathology. 3 F

Theory and research relating to the contribution of psychology, social psychology and genetic factors to the development and persistence of abnormal behavior. Prerequisite: admission to psychology Ph.D. program or instructor approval.

574 Psychotherapy. 3 S

A detailed survey of the theoretical and empirical literature relating to verbal psychotherapy and interviewing methods. Structured role playing practice in the major procedures. Prerequisite: admission to the clinical Ph.D. program or instructor approval.

575 Behavior Therapy. 3 F

Theory and research relating to the use of behavior therapy in modifying abnormal behavior. Structured practice. Prerequisite: admission to the clinical Ph.D. program or instructor approval.

576 Clinical Practicum. 3 F, S

Supervised experience in development of professional skills in clinical psychology including the application of assessment procedures, psychotherapy and behavior therapy techniques with children and adults and consultation. Prerequisite: admission to clinical Ph.D. program.

577 Clinical Practicum. (3) F, S

Continuation of PSY 576. Prerequisite: PSY 576.

579 Community Psychology Practicum. (3) F, S

Supervised experience in conceptualizing, conducting and evaluating psychological interventions to promote well-being in community settings. Advanced theory and research as relevant. Prerequisites: PSY 582 and advanced standing in psychology Ph.D. program or instructor approval.

580 Community Psychology Practicum. (3) F, S

Continuation of PSY 579. Prerequisite: PSY 579.

582 Community Psychology. (3) SS

Community systems, intervention techniques, consultation models, history and current status of community mental health movement, conceptualization of the roles of community psychologists in social system intervention. Prerequisite: advanced standing in psychology Ph.D. program or instructor approval.

583 Child Psychopathology. (3) N

Major theories and research related to the development of deviant behaviors in children, including some supervised experience in child assessment. Prerequisite: PSY 572; or instructor approval.

584 Advanced Treatment Methods. (3) N

Advanced theory, research and techniques of psychological treatment methods. Prerequisites: PSY 576, 577; instructor approval.

588 Consultation Methods. (3) N

Several theories and strategies of organizational consultation. The development of consultational skills through simulation and practical experience. Prerequisite: advanced standing in psychology Ph.D. program or instructor approval.

589 Social Learning Theory. (3) N

Social-learning approach to the study of adaptive and maladaptive behavior patterns, including theoretical and empirical research foundations of behavior therapy strategies. Prerequisite: admission to psychology Ph.D. program or instructor approval.

591 Seminar. (3) F, S, SS

Special Courses: PSY 394, 492, 493, 494, 497, 498, 499, 580, 584, 590, 591, 592, 599, 700, 791, 792, 799. (See pages 43-44.)



Religious Studies

PROFESSORS:

FELDHAUS, WENTZ

ASSOCIATE PROFESSORS:

MARTIN (LL B-605), CADY, FOARD,
GEREBOFF, MORRISON

ASSISTANT PROFESSORS:

SWANSON, WOODWARD

Departmental Major Requirements

Bachelor of Arts Degree Curriculum

The major in Religious Studies consists of 45 semester hours. Thirty hours must be in religious studies (including 21 upper-division hours) and 15 hours in related fields. In order for the student to become acquainted with a variety of religious phenomena, as well as with major issues and methods in the study of religions, the 30 semester hours in religious studies must include: REL 305; at least one course in religions from each of three distinct geographic regions or cultural traditions; and two research seminars, including REL 405. (REL 405 may be repeated for credit.) All majors must plan their programs in consultation with a departmental advisor. A minimum grade point average of 2.50 is required in the 30 hours of religious studies courses. (See foreign language requirement, page 97.)

Departmental Minor Requirements

The minor in Religious Studies consists of 18 semester hours, at least 12 of which must be upper division. Both REL 305 and 405 are required.

Departmental Graduate Program

The Department of Religious Studies offers programs leading to the degree of Master of Arts for those who wish to seek the Ph.D. in the study of religions, or who wish to teach at the community college level, or for those in nonacademic careers who desire general competence in the academic study of religions. Consult the *Graduate Catalog* for requirements.

RELIGIOUS STUDIES

REL 100 Religions of the World. (3) F, S

An introduction to religious traditions of the world, including Buddhism, Hinduism, Islam, Judaism, Christianity and others. [Satisfies General Studies Requirements: HU, G]

180 RELIGIOUS STUDIES

210 Introduction to Judaism. 3 A

The beliefs ceremonies festivals and institutions of Judaism emphasizing the contemporary era. The course presupposes no previous knowledge about Judaism. [Satisfies General Studies Requirements L1 HU H]

270 Introduction to Christianity. 3 A

The beliefs ceremonies festivals and institutions of Christianity emphasizing the contemporary era. The course presupposes no previous knowledge about Christianity. [Satisfies General Studies Requirements HU H]

294 Special Topics. 3 A

a The Magic of Magic [Satisfies General Studies Requirement L1]

b Introduction to Southeast Asia [Satisfies General Studies Requirement G]

305 Ritual, Symbol and Myth. 3 A

Ritual symbol and myth as types of religious expression with examples selected from the nonterrestrial gods of the world. [Satisfies General Studies Requirements L2 HU G]

310 Western Religious Traditions. 3 A

Religious traditions of Judaism Christianity and Islam comparing their doctrinal institutions and ritual systems and social histories. [Satisfies General Studies Requirement H]

315 Hebrew Bible (Old Testament). 3 A

The nature content background historical situation and message of the books of the Hebrew Bible in English translation. [Satisfies General Studies Requirements L2 HU H]

316 Types of Early Judaism. 3 A

Developments in Judaism during the intertestamental period. [Satisfies General Studies Requirements HU H]

317 Introduction to Rabbinic Judaism. 3 A

An historical analysis of the thought literature and institutions of rabbinic Judaism. [Satisfies General Studies Requirements HU H]

320 Religion in America. (3 F S)

The emergence of religious ideas and institutions up to the Civil War. [Satisfies General Studies Requirements HU H]

321 Religion in America. (3 F S)

The emergence of religious ideas and institutions from the Civil War to the present. [Satisfies General Studies Requirements HU H]

330 Native American Religious Traditions. 3 A

World views and religious thought presented through the art architecture literature, music mythology ritual and folklore of representative tribes in North America. [Satisfies General Studies Requirements 2, HU]

331 History of Native American Religious Traditions. 3 N

The role of religion in Native American history, including missionization religious adaptation, prophetic messianic and religious revitalization movements. [Satisfies General Studies Requirements L2 HU H]

340 Confucianism and Taoism. (3 A)

Issues in classical Chinese religious thought. Readings include Confucius the Tao Te Ching Mencius Chuang Tzu and the Ching. [Satisfies General Studies Requirements L2 HU, H]

350 Hinduism. 3 A

The study of diverse forms of Hinduism through its institutions literature, folklore art and architecture. [Satisfies General Studies Requirements L2, HU G H]

351 Buddhism. 3 A

Doctrines practices and institutions of the Buddhist religion emphasizing its role in the history and culture of Asia. [Satisfies General Studies Requirements L2 HU G, H]

365 Islamic Civilization. 3 A

An interdisciplinary survey of the art history and religion of Islam. Cross-listed as HIS 365. [Satisfies General Studies Requirements HU SB G H]

371 New Testament. 3 A

Origins and literature of early Christian communities historical investigations of the types of oral and written tradition in the New Testament. [Satisfies General Studies Requirement HU]

372 Formation of the Christian Tradition. (3 A)

Origins development and expansion of Christianity; major themes and tensions from the New Testament world to the beginning of the Middle Ages. [Satisfies General Studies Requirements HU H]

381 Religion and Moral Issues. 3 A

The manner in which human religiousness relates to social concerns e.g. sexuality the environment, bioethics issues and violence. [Satisfies General Studies Requirements L2 HU]

385 Contemporary Western Religious Thought. 3 A

Introduction to contemporary Jewish and Christian thought. Topics include religion and politics, problem of evil interpretations of God and feminist theology. [Satisfies General Studies Requirements L2 HU]

390 Women and Religion. 3 A

The role of women in several organized religions and religious sects, including a study of myth and symbols as they are used to establish, maintain and enforce sex roles within specific religions. [Satisfies General Studies Requirements L2 HU, G]

405 Problems in Religious Studies. 3 A

Selected topics and methodological problems in religious studies involving students in the research interests of the instructor. May be repeated for credit when topics vary.

410 Judaism in Modern Times. 3 N

Variety of expressions of Judaism and Jewishness in the modern period. Topics may include American Judaism or religious responses to the Holocaust. [Satisfies General Studies Requirements HU H]

415 The Jewish Mystical Tradition. 3 A

Examination of some of the esoteric core of Judaism. Movements and literature such as Hasidism and Kabbalah will be studied. [Satisfies General Studies Requirements HU, H]

420 Religion in American Life and Thought. 3 A

The influence of religion on American society culture and ideas the distinctive character of religion in America. Prerequisite REL 320 or 321 recommended. [Satisfies General Studies Requirements L2 HU H]

426 American Preachers and Preaching: The Sermon in America. 3 N

The life and work of notable American preachers. The emergence of the preacher as representative of American religion. Prerequisite REL 320 or 321 recommended. [Satisfies General Studies Requirements L2, HU, H]

427 American Religious Thought. 3 N

The thought of representative American religious thinkers e.g. Jonathan Edwards William Miller Channing, Horace Bushnell and Reinhold Niebuhr. Prerequisite REL 320 or 321 recommended. [Satisfies General Studies Requirements HU, H]

435 Problems in Native American Religions. 3 A

An in-depth consideration of selected problems in Native American religions [Satisfies General Studies Requirement HU]

444 Religion in Japan 3 A

Role of religion in Japanese history and culture. Emphasis on the impact of Buddhism and its transformation in Japan; the vitality of folk religion, the intimacy of religion and the arts; the deas of the samurai and religion in modern Japan [Satisfies General Studies Requirements HU G, H]

454 Hindu Religious Thought. 3 A

Readings in classical systems such as Samkhya and Vedanta and in the works of modern Hindus, such as Aurobindo and Gandhi. Prerequisite REL 351 recommended [Satisfies General Studies Requirements L2 HU H]

460 Studies in Islamic Religion. 3 A

Issues in the interpretation and understanding of Islamic texts; history, society, culture and ritual. Prerequisites REL 365 Religious Studies major or instructor approval [Satisfies General Studies Requirements HU G]

464 The Islamic Mystical Tradition. 3 N

Asceticism, mysticism and the cult of the saint in Islamic society; implications for Islamic religion and social history. Prerequisite REL 365 Religious Studies major, or instructor approval [Satisfies General Studies Requirements HU, G]

470 Religion in the Middle Ages. 3 A

Religious aspects of medieval art and thought; variety of forms of dissent, heresy and reform movements; 4th to 13th centuries [Satisfies General Studies Requirements HU H]

471 Reformation and Modern Christianity. 3 A

Protestant Reformation to contemporary Christianity: movements, crucial factors in the dissolution of the Medieval Christian synthesis; variety of reform movements and reform patterns; Catholic counter-reform measures; formation of liberal theology, ecumenical movement; World Council of Churches. [Satisfies General Studies Requirements HU H]

485 Existentialist Theology. 3 N

The contribution of existentialist thinkers, especially Kierkegaard to the work of theologians such as Martin Buber, Rudolf Bultmann and Paul Tillich

486 Critiques of Religion. 3 A

Major theories and critiques of religion among modern social philosophers and religious thinkers [Satisfies General Studies Requirement HU]

494 Special Topics in Religious Studies. 3 N

Open to all students; freshmen by instructor approval only. Topics may be selected from various areas

498 Pro-Seminar in Religious Studies. 3 A

For students with a major or minor emphasis in religious studies

591 Seminar 3 N

Topics on methodological issues in the study of religion. Prerequisite religious studies graduate student or instructor approval

598 Special Topics. 3 F S

May be repeated for credit. Topics are selected from the following areas:

- a Study of Religion; Comparative Religion
- b Comparative Western; Ancient Near East, Judaism
- c Religion in America
- d Native American Religion
- (e) Religion in East Asia

f Religion in South Asia

g Islam

h Christianity, Greco-Roman Religion; Western Religious Thought; Ethical Problems in Religious Studies

Special Courses: REL 294, 298, 394, 492, 493, 497, 499, 500, 583, 584, 590, 592, 593, 594, 599. See pages 43-44

Sociology

PROFESSORS:

GORDON (SS 321), FARBER, PFUHL, SEBALD, SNOW, WHITAM

ASSOCIATE PROFESSORS:

BEN N. COBAS, HARDERT LANER, MILLER MURGU A, NAGASAWA SMITH SULL VAN, THOMAS, WE T Z

ASSISTANT PROFESSORS:

CULLEN, CURRY, RODRIGUEZ, KULIS, MUELLER (ASU WEST CAMPUS) VAUGHAN (ASU WEST CAMPUS)

PROFESSORS EMERITI:

AXELROD, GULLOT, HENZE, HOULT, LINDSTROM, MAYER, OWEN

Departmental Major Requirements**Bachelor of Arts and Bachelor of Science Degree Curricula**

Sociology. Departmental requirements are the same for the B.A. and for B.S. degrees; see the College of Liberal Arts and Sciences section of this *Catalog* for the additional requirements for these degrees. The departmental requirement for either degree consists of 45 semester hours of which 30 must be in sociology and 15 in closely related fields to be approved by the advisor in consultation with the student. The 30 hours must include SOC 101 (or 301, 390, 391, 483 (or 485 or 486) and one course from at least three of the following five areas: institutional forms and processes, demography and ecology, social problems, social organization and social psychology (details available in the department office). At least 18 semester hours must be in upper division courses. (See degree requirements, page 97.)

Departmental Minor Requirements

The department minor consists of 18 hours in sociology, including either SOC 101 (or 301); any one of SOC 391, 483, 485 or 486; four remaining courses to be chosen by the student in consultation with a sociology advisor.

Departmental Major Teaching Field Requirements

Bachelor of Arts in Education Degree Curriculum

Sociology. Consists of 63 semester hours of which 30 hours must be in sociology and are exactly those courses required for the B.A. or B.S. degree in Sociology. Of the remaining hours, two groups of 12 hours each and one of six hours are generally taken in related social sciences plus SED 480.

Departmental Minor Teaching Field Requirements

(Secondary Education)

Sociology Consists of 24 semester hours, at least six of which will be upper division. SOC 101 or 301 is required. The remaining 21 hours must be approved by the sociology advisor in consultation with the student, and must include at least one course from at least three of the following five areas: institutional forms and processes, demography and ecology, social problems, social organization and social psychology (details available in the department office).

Special Emphasis Program

Public Safety Emphasis. A public safety emphasis is available for law enforcement and fire fighting personnel in either the B.A. or B.S. in Sociology. The 30 hours must consist of SOC 101, 340, 360, 390, 391, 440, 446, 449, 483 (or 485 or 486), and SWU 291. Applicable courses taken outside the Department of Sociology may be used to meet the requirement of 15 hours in closely related fields approved by the advisor in consultation with the student. Upon graduation, those successfully completing the program will receive recognition by a statement on the student's transcript.

Departmental Graduate Programs

The Department of Sociology offers programs leading to the M.A. and Ph.D. degrees. Consult the *Graduate Catalog* for requirements.

SOCIOLOGY

SOC 101 Introductory Sociology. 3 F, S, SS

Fundamentals of sociology: organization of human groups and society; processes of interaction and social change. Not open to students who have credit for SOC 301. 2 hours lecture, 1 hour discussion. [Satisfies General Studies Requirement SB]

294 Special Topics: Introduction to Southeast Asia. 3 N

[Satisfies General Studies Requirement G]

301 Principles of Sociology. 3 F, S, SS

Intensive and critical analysis of the concepts of sociology. Not open to students who have credit for SOC 101. [Satisfies General Studies Requirement SB]

305 Courtship and Marriage. 3 F, S, SS

An overview of courtship, marriage and related processes focusing on problematic aspects of these institutions from the sociological perspective. Prerequisite: SOC 101 or 301 or instructor approval. [Satisfies General Studies Requirement SB H]

332 The Modern City. 3 F, S

Growth, characteristics and problems of the modern city. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirement SB]

333 Population Problems. 3 F, S, SS

Theories of population change: births, deaths, migration, population policies. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirement SB G]

340 Sociology of Deviant Behavior. 3 F, S, SS

A sociological analysis of stigmatized behaviors and conditions including the causes, effects and management of stigma. Prerequisite: SOC 101 or 301 or instructor approval. [Satisfies General Studies Requirement SB]

341 Modern Social Problems. 3 F, S, SS

Race relations, poverty, unemployment and other current issues. [Satisfies General Studies Requirement SB H]

348 Overview of Aging. 3 F

Multidisciplinary introduction to gerontology. Explores the characteristics, experiences, problems and needs of older persons. Cross-listed as HDE 395. [Satisfies General Studies Requirement SB]

351 Industrial Sociology. 3 S

Social and cultural analysis of industry. Occupational roles, status and social participation of workers. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirement SB]

352 Social Change. 3 F, S

Patterns of social change: resistance to change and change-producing agencies and processes. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirement SB G H]

360 Sociological Psychology. 3 F, S

Interaction patterns between the socio-cultural order and individual socialization processes: norms, roles and statuses, collective behavior. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirement SB]

361 Variant Sexuality. 3 F

Sociological research and theories dealing with homosexuality, transvestism, transsexuality and other variations: sexual orientation and gender identity. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirements SB]

362 Sociology of Adolescence. 3 F, S

Cultural values and the social processes that help explain the development of the phenomenon of modern adolescence, including investigation of adolescent subcultures and cross-cultural references. [Satisfies General Studies Requirement SB]

365 The Sociology of Mass Communication. 3 F, S

A sociological exploration of the major mass media as a communicative process in American society. [Satisfies General Studies Requirement SB]

390 Social Statistics I. 3 F S SS

Application of descriptive and inferential statistical methods to research problems in sociology. Prerequisites: SOC 101 or 301, passing a proficiency examination in basic algebra to be administered by the Department of Sociology or instructor approval and N1 General Studies requirement [Satisfies General Studies Requirement: N2]

391 Sociological Research. 3 F, S SS

Methods of sociological research including the fundamental assumptions underlying research and some practical experience in research design, data collection techniques and data analysis. Prerequisites: SOC 101 or 301, 390, or instructor approval [Satisfies General Studies Requirement: SB]

392 Practicum in Survey Research I. 3 F

Provides practical experience in conducting a significant research project: survey design, questionnaire construction, sampling, data collecting, coding and preliminary data processing. Prerequisite: SOC 391 or instructor approval [Satisfies General Studies Requirement: SB]

393 Practicum in Survey Research II. 3 S

Continuation of SOC 392. Provides practical experience in analysis and reporting survey data. Prerequisite: SOC 392 [Satisfies General Studies Requirement: SB]

401 Comparative Sociology. 3 F

Cross-cultural study of basic social institutions: the methodology of cross-cultural research. Prerequisite: ASB 102 or SOC 101 or 301, or instructor approval. [Satisfies General Studies Requirements: SB G]

410 Sociology of Religion. (3 S

Interrelationship of culture, society and religion; religion and social stratification; religion and economic and political institutions; social change and religion. Emphasis on American society and institutions. Prerequisite: 6 hours in sociology including SOC 101 or 301, or instructor approval [Satisfies General Studies Requirements: L2, SB]

415 The Family. 3 F S SS

The family considered from the institutional viewpoint; its historical development and its adaptation to a changing culture; the family system in many cultures. Prerequisite: 6 hours in sociology including SOC 101 or 301 or instructor approval [Satisfies General Studies Requirement: SB]

416 Marriage Problems in Contemporary Society. 3 S

Marriage and family problems in today's society from the viewpoint of personal and cultural adjustment. Prerequisite: 6 hours in sociology including SOC 101 or 301 or instructor approval [Satisfies General Studies Requirement: SB]

417 Family Violence. (3 F, S

A critical overview of current research and theory on several aspects of domestic violence including child maltreatment, spousal aggression and abuse of elders. Prerequisite: instructor approval. [Satisfies General Studies Requirements: SB H]

432 Human Ecology. 3 F S

Patterns and laws of societies: adjustments to the physical environment; distribution of communities and institutions. Prerequisites: 6 hours in sociology including SOC 101 or 301 college level algebra; or instructor approval [Satisfies General Studies Requirement: SB]

433 Demography. 3 S

Science of population analysis: problems in measurements of size, composition and changes in population

Prerequisites: 6 hours in sociology including SOC 101 or 301 and college level algebra or instructor approval [Satisfies General Studies Requirements: N2 SB]

440 Racial and Ethnic Minorities. 3 F S, SS

Problems of minorities in the United States and other racial and ethnic heterogeneous societies. Evaluation of theories of prejudice and of research dealing with discrimination, desegregation and assimilation. Prerequisite: 6 hours in sociology including SOC 101 or 301, or instructor approval [Satisfies General Studies Requirements: SB H]

446 Sociology of Crime. 3 F

The process of criminalization: exploring the behavior of the definers of crime and the behavior of those defined as criminals. Prerequisites: SOC 101 or 301, 340 or instructor approval [Satisfies General Studies Requirements: SB H]

448 Sociology of Aging. 3 F S

Social aspects of aging. Theoretical and methodological perspectives: problems of aging such as life satisfaction, retirement and adjustment to role loss. Prerequisite: SOC 101 or 301 or instructor approval [Satisfies General Studies Requirement: SB]

449 Sociology of Law. 3 S

Examination of law as an institution, its origins, operations and consequences. Emphasis on contemporary legal issues and problems. Prerequisite: SOC 446 or instructor approval [Satisfies General Studies Requirement: SB]

452 Sociology of Complex Organizations. 3 F

Sociological studies of government agencies, industrial firms, labor unions, military establishments and other large scale organizations. Prerequisite: 6 hours in sociology including SOC 101 or 301, or instructor approval [Satisfies General Studies Requirement: SB]

453 Social Class and Stratification. 3 S

Social classes and the function of these groupings in a society. Prerequisite: 6 hours in sociology including SOC 101 or 301, or instructor approval. [Satisfies General Studies Requirements: L2 SB]

454 The Afro-American in Modern Society. 3 S

Social and cultural heritage of Black Americans: achievements and current trends. Prerequisite: instructor approval [Satisfies General Studies Requirements: L2, SB H]

455 Collective Behavior. 3 S

Social causes and consequences of such non-institutionalized forms of behavior as crowds, riots, public social movements and revolutions. Prerequisite: 6 hours in sociology including SOC 101 or 301 or instructor approval [Satisfies General Studies Requirements: SB H]

456 Political Sociology. 3 S

Social factors associated with voting: nature and structure of the electorate and political parties, nature of national and international power structure. Prerequisite: SOC 101 or 301 or instructor approval [Satisfies General Studies Requirements: SB G H]

457 Sociology of Health and Illness. 3 F

Social aspects of physical and mental illness and sociological analysis of the health care system and its practitioners. Prerequisite: SOC 101 or 301 or instructor approval. [Satisfies General Studies Requirement: SB]

462 Social Control. (3 F

Significance of social control in society and the various methods used by individuals and groups to control others. Prerequisite: SOC 360 or instructor approval [Satisfies General Studies Requirements: L2 SB]

184 SOCIOLOGY SPEECH AND HEARING SCIENCE

464 Women's Roles. (3 S)

Sociological analysis of the development, nature and consequences of traditional and alternative roles of women in contemporary society. Prerequisite: SOC 101 or 301 or instructor approval. [Satisfies General Studies Requirements L2 SB]

483 History of Social Thought. (3 S SS)

Social thought in human culture. Background of modern sociology. Prerequisite: 6 hours in sociology including SOC 101 or 301, or instructor approval. [Satisfies General Studies Requirements SB H]

485 Sociology of Knowledge. (3 F)

Relationship between social conditions and the development of knowledge in modern society. Prerequisite: SOC 101 or 301, or instructor approval. [Satisfies General Studies Requirement SB]

486 Contemporary Theory. (3 S)

Contemporary issues and crises in social theory with major focus on particular theorists. Ideological factors in the philosophical issues: the nature of theory and its relationship with methodology. Prerequisite: SOC 101 or 301 or instructor approval. [Satisfies General Studies Requirement SB]

498 Pro-Seminar. (3 F S)

Topics to be selected. [Alternate Futures Satisfies General Studies Requirements SB G]

501 Practicum in Survey Research. (3) F S

A research practicum in survey field work, analysis and reporting in the Phoenix Area Study. Prerequisite: SOC 391 or equivalent.

502 Practicum in Survey Research. (3 F, S)

Continuation of SOC 501. Prerequisite: SOC 501

505 Social Statistics II: Multivariate Analysis. (3 F SS)

Analysis of variance, multiple regression, dummy variable regression, path analysis and related topics. Computer application to problem solving. Prerequisites: SOC 390 or equivalent; a proficiency examination. Enrollment in MAT 530 encouraged.

507 Social Statistics III: Advanced Multivariate Analysis. (3) S

Topics include discriminant analysis, logistic regression and LISREL and log-linear models studied through the application of computers. Prerequisite: SOC 505 or instructor approval.

515 Studies of the Family. (3 S)

Current developments in the study of marriage and the family. Prerequisite: instructor approval.

585 Development of Sociology. (3 F)

Major sociological theorists, including Durkheim, Weber, Marx, Parsons, Merton, Dahrendorf, Homans, Mead. Prerequisite: instructor approval.

586 Contemporary Sociological Theory. (3 S)

Analysis of major theories including structural functionalism, conflict, social exchange, symbolic interaction, role theory. Prerequisite: instructor approval.

587 Metasociology. (3 S)

Nature of sociological assumptions. Nature and form of sociological theories. Context of discovery grounded theory. Context of justification. Prerequisite: instructor approval.

591 Seminar. (1) 3 F S

595 Methodological Issues in Sociology. (3 S)

Basic methodological issues in the application of scientific methods to the study of human social life. Emphasis on

limited number of major works with contrasting approaches to issues. Prerequisite: SOC 391 or instructor approval.

Special Courses: SOC 298, 484, 492, 493, 494, 497, 498, 500, 584, 590, 592, 594, 599, 700, 780, 791, 799. See pages 43-44.

Speech and Hearing Science

PROFESSORS:

LaPOINTE (LL A 129A) CLUFF DORMAN,
MOWRER, PRATHER

ASSOCIATE PROFESSORS:

BACON, CASE, CHUBRICH

LECTURER CLINICAL SUPERVISORS:

HUEFFNER, KENNEY, MINTZ

CLINIC DIRECTOR:

WHALEY

Departmental Major Requirements

Bachelor of Science Degree Curriculum

Speech and Hearing Science. The B.S. degree consists of a minimum of 45 semester hours emphasizing the developmental and scientific aspects of language, speech and hearing. The following courses, or their approved equivalents, are required: SHS 105, 294 ST, Phonetics, 310, 311, 367, 375, 376, 384 and 494 Introduction to Speech and Language Disorders. Supporting courses from related fields must include COM 100, ENG 213 (or ASB 480), 301; MAT 118; PGS 100; PSY 230; or their equivalents. The remaining speech and hearing science courses to complete the major will be determined by the student in consultation with an advisor. A list of approved electives is available through the department.

Departmental Graduate Program

The Department of Speech and Hearing Science offers a program leading to the degree of Master of Science and Master of Natural Science. Consult the *Graduate Catalog* for requirements.

SPEECH AND HEARING SCIENCE

SHS 105 Introduction to Speech and Hearing Science. (3 F, S)

The normative and disordered processes of human communication.

305 Survey of Communication Disorders. (3 F, S)
 Role of the parent, teacher and others in support of evaluation and treatment of communication disorders Designed for nonmajors. [Satisfies General Studies Requirement SB]

310 Anatomical and Physiological Bases of Speech. 3 F
 A non-cadaveric study of anatomical systems which underlie human speech and language: respiration, phonation, articulation and related nervous system processes. Prerequisite: SHS 105.

311 Physical and Physiological Bases of Hearing. (3) S
 Physical characteristics of sound and the structure and function of the human auditory system. Prerequisite: MAT 118.

367 Speech and Language Development. (3 F)
 Process of speech and language development from birth through adulthood. Prerequisite: ASB 480 or ENG 213.

375 Speech Science. (3) S
 Normative aspects of speech, hearing and language. Prerequisites: SHS 310, 311.

376 Psychoacoustics. (3 F)
 Auditory processes underlying perception of sound. Subjective correlates of acoustic parameters, and perceptual responses to simple and complex auditory stimuli. Prerequisite: SHS 311.

384 Introduction to Hearing Disorders. (3) S
 Survey of peripheral and central hearing disorders: characteristics, management and effects on communicators. Prerequisites: SHS 311, 376.

400 Methods of Audiometry. 4 F
 Techniques and instrumentation used in measuring auditory threshold and audiogram interpretation. 3 hours lecture, 2 hours lab weekly. Prerequisites: SHS 311, 376, 384.

402 Modifying Communicative Behavior. 3 F
 Principles and techniques of modifying speech and language behavior. Prerequisite: SHS 105.

430 Psychology of Hearing-Handicapped Children. 3 N
 Effects of hearing impairment on child language acquisition, intellectual development, personality development and educational placement.

431 Nature of Fluency Disorders. (2) S
 History and nature of fluency disorders. Prerequisite: instructor approval.

435 Hearing Conservation. (3) S
 The causes and prevention of noise-induced hearing loss. Prerequisite: SHS 376.

450 Observation. 1) F S
 Supervised observation of evaluation and therapy representing the areas of language, speech and hearing. Prerequisite: instructor approval.

465 Language Acquisition. (3 F)
 Language development in the normal child. Prerequisite: instructor approval.

490 Childhood Language Disorders. (3 F)
 Introduction to the nature and treatment of language disorders in children. Prerequisites: SHS 310, 311, 367, 402.

494 Special Topics. (3) F S
 Topics may be selected from the following:
 a) Speech and language disorders
 b) Research
 c) Computer applications

495 Disorders of Articulation. 3 F
 Detailed analysis of disorders of articulation. Prerequisites: ASB 383, SHS 105, 310, 402.

496 Aural Habilitation: Children. 3 S
 Theories and practices in the education of hearing-handicapped children. Prerequisite: instructor approval.

502 Differentiation of Peripheral and Central Auditory Disorders. 3 F
 Prerequisite: SHS 400.

504 Aural Rehabilitation: Hearing Aids. 3 F
 Operation and application of amplifying devices relative to the aurally-handicapped. Prerequisite: SHS 400.

508 Pediatric Audiology. 3 S
 Audiologic testing and management of young children and infants. Prerequisites: SHS 400, instructor approval.

510 Advanced Hearing Science. 3 F
 Psychoacoustic and psychophysiological correlates of audition. Prerequisites: SHS 311, 320.

512 Medical Aspects of Speech and Hearing. (3 F S)
 Correlation of history and physical findings with pathophysiology and test results in speech and hearing abnormalities.

516 Physiological Measurements of Auditory Function. 3) S
 Theory and application of physiological techniques for assessing the auditory system. 3 hours lecture, 1 hour laboratory. Prerequisite: SHS 502 or 510.

531 Neurophysiology of Hearing. (3) N
 The neurophysiological processes of hearing. Prerequisites: SHS 311, 320.

545 Speech Perception and Production. (3) F
 Current progress in production and perception of speech. Prerequisite: SHS 375 or instructor approval.

566 Psychology of Language. 3 N
 Language and thought interaction.

574 Fluency Disorders and Treatment. (3) F
 Phenomenological assessment and theories of stuttering are presented followed by various treatment procedures for children and adults who stutter. Prerequisite: SHS 431 or instructor approval.

575 Neurogenic Disorders of Communication: Aphasia. 3) F
 Assessment and treatment of acquired neurogenic communication impairment.

576 Neurogenic Aspects of Speech Production: Motor Speech Disorders. 3 S
 Evaluation and treatment of the dysarthrias and apraxia of speech. Emphasis on acquired adult disorders.

577 Orofacial Disorders of Communication: Cleft Palate. (3) N
 Communication disorders related to anomalies of the orofacial structures. Prerequisite: SHS 310 or instructor approval.

578 Disorders of Voice. 3 S
 Communication disorders related to dysfunction of the phonatory and resonance systems of voice production, assessment and treatment. Prerequisite: SHS 310 or instructor approval.

580 Therapy: Practicum. 1-6) F S SS
 Supervised practicum in communication disorders. One-hour staffing and two hours of direct contact per week per hour of credit. May be repeated for credit. Prerequisite: instructor approval.

582 Differential Diagnosis of Communication Disorders. (3) F

Procedures for assessing speech/language disorders in children and adults. 3 hours lecture, 2 hours lab. Prerequisite: instructor approval.

584 Internship in Communication Disorders. (1-6) F, S, SS

Off-campus directed experiences in speech pathology, language disorders, or hearing disorders. May be repeated for credit. Prerequisite: approval of department; student must reserve enrollment by early registration.

591 Seminar. (3) F, S, SS

Selected topics regularly offered:

- (a) Autism and pervasive language disorders
- (b) Multiply-handicapped child

Special Courses: SHS 294, 298, 484, 492, 493, 494, 497, 498, 499, 500, 580, 584, 590, 592, 593, 598, 599. (See pages 43-44.)



Women's Studies

The Women's Studies Program is an interdisciplinary university program, housed in the College of Liberal Arts and Sciences. Core and affiliated faculty hold tenure or tenure-track positions in traditional academic departments. Information on faculty affiliation is provided in parentheses for reference.

PROFESSORS:

RUSSO (SS 104, Psychology); MAGENTA (Art); K. VALENTINE (Communication); EDELSKY (Elementary Education); LIGHTFOOT, NILSEN, SHINN (English); AHERN (Foreign Languages); GIFFIN, WARNICKE (History); JOHNSON, KELLY (Justice Studies); SHAFER (Educational Leadership and Policy Studies); WELLS (Health and Physical Education); CHASSIN; EISENBERG (Psychology); COUDROGLOU (Social Work); GORDON (Sociology)

ASSOCIATE PROFESSORS:

BRANDT (Anthropology); C. VALENTINE (Communication); GREENE, SENSIBAR (English); LOSSE, RODD, VASQUEZ (Foreign Languages); BAKER (Family Resources and Human Development); ROTHCHILD (History); JURIK, ZATZ (Justice Studies); ALLISON (Leisure Studies); COOK (Management); WILLIAMSON (Music); DANTICO (Political Science); METHA, MOORE (Psychology in Education); NIGG (Public Affairs); WOODMAN (Social Work); BENIN, LANER, SMITH, WEITZ (Sociology)

ASSISTANT PROFESSORS:

GUTIERREZ, MORGAN (English); GRUZINSKA (Foreign Languages); FUCHS, STONER (History); FERRARO (Justice Studies)

Major Requirements**Bachelor of Arts and Bachelor of Science Degree Curricula**

Women's Studies. Consists of 45 semester hours; 30 of these hours must be in women's studies, 15 in a single discipline other than women's studies, which constitute the student's related field. At least 30 of the 45 semester hours required for the major must be completed in upper-division courses. In addition, for the B.S. degree, students must complete six hours in statistics, computer science, or quantitative research

methods. This sequence must be approved by the student's advisor.

Required courses. Five courses are required. Students must complete (1) WST 100 or 300; (2) WST 498; (3) an upper division course which provides an historical perspective on the lives and contributions of women; (4) an upper division course that provides a humanities/fine arts perspective on the lives and contributions of women and (5) an upper division course on women in non-Western societies or a course on minority or ethnic women in American society. A list of approved courses is available each term in the program office.

The historical perspective requirement may be fulfilled by completing HIS 333, 370, 371, 422. The humanities perspective requirement may be fulfilled by completing ARA 485; ENG 461, 462, REL 390 or an approved special topics course. No course may be used to satisfy more than one requirement.

Electives in a single discipline. Majors must complete fifteen hours of courses in a discipline other than women's studies; this amounts to the completion of the minimum core requirements in a single field other than women's studies. These courses may be used to satisfy the general education requirements in the College of Liberal Arts and Sciences. In exceptional cases, a student may be permitted to focus on courses from more than one department. A student must secure approval for such a program of study through a petition.

Women's Studies Minor Requirements

The Women's Studies minor consists of 18 semester hours. Required courses are WST 100 (or 300), 498; and 12 additional hours of approved women's studies courses taken after consultation with a women's studies advisor.

Certificate Program in Women's Studies

The Certificate Program is equivalent to an interdisciplinary minor, consists of 21 hours, and is recommended for students outside the College of Liberal Arts and Sciences, graduate students and nondegree students. (See page 102 for a description of the certificate program.)

Graduate Studies

Although the Women's Studies Program does not offer a graduate degree, it is possible to pursue a graduate degree in some existing programs with a thesis or dissertation topic related to women's

studies. Information on such programs can be obtained from the Women's Studies Program office.

WOMEN'S STUDIES

WST 100 Women and Society. 3 F S

Interdisciplinary introduction examining critical issues in women's studies. Not open to students who have credit for WST 300. [Satisfies General Studies Requirements, SB, H]

294 Special Topics. 3 F S, SS

Topics vary by semester; check with Program Office for current description.

300 Women in Contemporary Society. 3 F S SS

Intensive interdisciplinary examination of such topics as gender roles, work, education, sexuality, politics, health and law. Not open to students who have credit for WST 100. [Satisfies General Studies Requirement SB]

457 Third-World Women. 3 F

Economic, sociopolitical, and demographic context for understanding the roles of third world women in health, family, work, education and community. Prerequisite: 6 hours of social science credit or instructor approval. Cross listed as FAS 494, NUR 457, SPF 457. [Satisfies General Studies Requirements SB, G]

484 Undergraduate Internship. 1-6 F S SS

Advance approval of Program Director required.

494 Special Topics. 3 F S SS

Topics vary by semester.

498 Pro-Seminar: Theoretical Issues in Women's Studies. 3 A

Reading and research on important theoretical issues in women's studies. [Satisfies General Studies Requirements L2 SB]

499 Independent Study. 1-6 F, S, SS

Topic agreed on in advance by instructor and student; approval of Program Office required.

590 Readings and Conference. 1-6 F S, SS

Topic arranged in advance between student and instructor; approval of Program Office required.

591 Seminar. 1-6 F S, SS

Topics vary by term; contact Program Office for current listing.

598 Special Topics. 1-6 F S SS

Topics vary by term; contact Program Office for current information.

The following courses are available through departments. Refer to the department listing for a course description.

- ARE 485 Women's View of Art
- ASB 211 Women in Other Cultures
- CED 591 Woman: Sense of Identity
- COM 316 Women and Communication
- ENG 461 Women and Literature
- FRE 431 French Women in Society and the Arts
- HIS 370 Women in U.S. History: 1600-1880
- HIS 371 Women in U.S. History: 1880-1980
- HIS 422 Social History of American Women
- JUS 422 Women and Crime
- JUS 560 Women and Crime
- PGS 331 Sexual Identification
- REL 390 Women and Religion

188 WOMEN'S STUDIES ZOOLOGY

SOC 417 Family Violence

SOC 464 Women's Role

SPF 515 Education of Women

Additional courses will appear as special topics these will vary by semester. Check with the Program Office or the department for a current listing.

Zoology

REGENTS' PROFESSOR:

ALCOCK

PROFESSORS:

KAMMER (LS C 226, ALVARADO, CHURCH
DOANE FISHER, HADLEY HAZEL LAWSON,
MCGAUGHEY, MINCKLEY OHMART,
RASMUSSEN RUTOWSKI, WOOLF

ASSOCIATE PROFESSORS:

CHANDLER, COLLINS FAETH, FOUQUETTE,
GOLDSTEIN, JUSTUS, MOORE RISSING,
SATTERLE ASMITH WALSBERG

ASSISTANT PROFESSORS:

CAPCO DOWLING MARTIN, G SMITH

INSTRUCTOR:

MILSTEIN

PROFESSORS EMERITI:

BENDER CAZIER CLOTHIER, COLE,
GERKING, HANSON, LANDERS
PATTERSON STAHNKE

Departmental Major Requirements

Bachelor of Science Degree Curriculum

Biology. Offered jointly by the Department of Zoology and the Department of Botany, students are advised by a member of either department. This major serves students desiring a broader program in the biological sciences than provided by the more specialized majors of the individual departments. The major consists of 43 hours and 20 hours in supplementary areas, plus a mathematics proficiency. Required major courses: 31 hours are BIO 181, 182, 320, 340; BOT 300, 360 (or ZOL 360); MIC 205 (or 220), 206; ZOL 350. The remaining 12 hours are to be selected so the total major hours reflect a balance between the two departments. Required supplementary courses are CHM 113, 115, 231 (or 331, 332, 335, 336; CSC 181 (or 183), MAT 210 (or any calculus), PHY 101 (or 111, 112, 113, 114).

Zoology Consists of 34 hours in major courses and 27 hours in required supplementary courses plus math proficiency. Required are: BIO 181,

182, 320, 340, 445; ZOL 280, 330, 331, 360 plus one of ZOL 270 or 350 or 354; CHM 113, 115; and either of the following sequences: CHM 331, 332, 335, 336 (or 261, 361; CSC 181 (or 183); MAT 210 (or any calculus), PHY 111, 112, 113, 114.

Wildlife Biology Two options are available.

The *wildlife management* option consists of 63 hours in major and supplementary courses, plus mathematics proficiency. Required are: BIO 181, 182, 217, 320, 340, 415; BOT 370; CHM 113, 115, 231 (or 331, 332, 335, 336; COM 225; ERA 370 or 360; MAT 210 (or any calculus); ZOL 354 (or 471 or 472, 360, 411, 412; and an additional, approved upper division plant course BOT or ERA.

The *fisheries management* option consists of 61 hours in major and supplemental courses, plus mathematics proficiency. Required are: BIO 181, 182, 217, 320, 340, 415, 426, CHM 113, 115, 231, COM 225, MAT 210 (or any calculus); ZOL 270, 350, 360, 413, 473.

These requirements meet the minimum for eligibility for the Federal Register. Students planning to enter graduate school from either option should take CHM 331, 332, 335, 336 instead of CHM 231 and should take PHY 111, 112, 113, 114.

Departmental Minor Requirements

The Zoology minor consists of 24 semester hours in BIO and ZOL courses, to include BIO 181, 182, plus 16 hours to be selected with approval of an advisor in the Department of Zoology; at least 12 hours must be upper division. Courses not available for credit in the Zoology major cannot be used for the minor. e.g., BIO 100, ZOL 201.

Bachelor of Arts in Education Degree Curriculum

Departmental Major Teaching Field Requirements

Biological Sciences Offered jointly by the Department of Zoology and the Department of Botany, the major consists of a minimum of 42 semester hours, plus at least nine hours in supporting courses. Required major courses are BIO 181, 182, 320, 340; BOT 300 (or 370), 360; MIC 205 (or 220), 206, ZOL 350, 360. The remaining courses in the major (seven hours minimum) must include one from each of the two departments. Required supporting courses are CHM 113, 115, BIO 480 is required in the professional education program.

Departmental Minor Teaching Field Requirements

(Secondary Education)

Biological Sciences Consists of 24 semester hours as follows: BIO 181, 182, 340; MIC 205 (or 220), 206; and eight additional hours in courses listed under biology, botany, microbiology and zoology, with the *exception* of the following. BIO 100, 218; BOT 108, ZOL 113, 300, 318 Supporting course: BIO 480 is required in addition to the 24 semester hours in biological sciences.

Departmental Graduate Program

The Department of Zoology offers programs leading to the degrees of Master of Science, Master of Natural Science and Doctor of Philosophy. Consult the *Graduate Catalog* for requirements.

BIOLOGY

For courses biology see *Biological Sciences* pages 109–110

ZOOLOGY

ZOL 113 Contemporary Zoology. 4 F S

Topics emphasizing socially relevant problems. Cannot be used for major credit in the biological sciences. 3 hours lecture, 3 hours lab

201 Human Anatomy Physiology. 4 F S SS

Structure and dynamics of the human mechanism. Cannot be used for major credit in the Department of Zoology. 3 hours lecture, 3 hours lab [Satisfies *General Studies Requirement S2*]

202 Human Anatomy Physiology. 4 F S SS

Continuation of ZOL 201. Cannot be used for major credit in the Department of Zoology. 3 hours lecture, 3 hours lab. Prerequisite: ZOL 201 or instructor approval

241 Human Genetics. 3 F S

Introduction to human heredity and variation. Cannot be used for major credit in the Department of Zoology. Prerequisite: a course in the life sciences

270 Vertebrate Zoology. 4 S

Characteristics, classification, evolution and natural history of the major groups of vertebrate animals. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182

280 Animal Behavior. 3 F

Evolutionary, genetic, physiological and ecological bases of animal behavior. Prerequisite: 4 hours of BIO or ZOL or instructor approval

300 Biogenetics of Man. 4 S

Concepts of ecology, heredity and evolution and their relation to human affairs. Cannot be used for major credit in life sciences

311 Animal Microtechnique. 2 N

Zoological microtechnique, including the preparation for microscopic examination of animal structures, tissues, cells and whole mounts. 6 hours lab. Prerequisite: BIO 182

316 History of Biology. 3 N

Focuses on 19th and 20th century considerations of biology as a discipline, evolution and problems of heredity, development and cell theory. Cross listed as HPS 330. Prerequisite: 6 hours in life sciences [Satisfies *General Studies Requirement H*]

318 History of Medicine. 3 N

Scientific study of the human body, changing theories of disease, evolution of operations, treatment, emerging institutionalization of medical practice. Cross listed as HPS 331. Prerequisite: 6 hours in life sciences [Satisfies *General Studies Requirements SB H*]

330 Developmental Anatomy. 3 F

General developmental biology, embryology and comparative structure of organ systems illustrated mainly by vertebrate examples. Prerequisite: BIO 182

331 Laboratory in Vertebrate Developmental Anatomy. 2 F, S

Morphology of representative embryonic and adult vertebrates. Two 3-hour labs. Prerequisite: BIO 182, ZOL 330 recommended

350 Comparative Invertebrate Zoology. 4 F

Characteristics, life cycles, adaptations, biology and evolution of invertebrate animals. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or instructor approval

354 General Entomology. 4 S 90

Form, activities and classification of insects. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182

360 Basic Physiology. 4 F S

Physiological mechanisms of the higher vertebrates. 3 hours lecture, 3 hours lab. Prerequisites: BIO 182, CHM 115, MAT 117

380 Sociobiology. 3 S

Survey of animal and human social behavior examined from an evolutionary perspective. Substitute for nonmajors. Prerequisite: ZOL 280 is recommended

394 Special Topics (Nonmajors). 2 3 N

Topics of current or special interest in one or more aspects of animal biology. Topics vary. Cannot be used for major credit in life sciences. Prerequisite: junior standing

411 Wildlife Habitat Management. 4 F

Principles, practices and techniques of managing habitats for wildlife. 3 hours lecture, 3 hours lab or field trips, weekend field trips. Prerequisites: BIO 217, 320; ZOL 471, 472; or instructor approval

412 Wildlife Population Management. 4 S

Principles, practices and techniques of managing wildlife populations. 3 hours lecture, 3 hours lab or field trips, weekend field trips. Prerequisite: ZOL 411.

413 Fisheries Management. 4 F

Principles and theory of fisheries management. 3 hours lecture, 3 hours lab or field trips, weekend field trips. Prerequisite: 10 hours of biology.

420 Field Zoology. 3 N

Experience in zoological field techniques. Requires weekend or on-campus field trips. Prerequisite: instructor approval

423 Population and Community Ecology. 3 F 89

Organization and dynamics of population and communities, emphasizing animals. Theoretical and empirical approaches. Prerequisite: BIO 320 or instructor approval

425 Animal Ecology. 3 N

Physiological and behavioral adaptations of individual animals to both abiotic and biotic environment. Prerequisite: BIO 320

190 ZOOLOGY

433 Animal Histology. (4) N

Microscopic study of animal tissues. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or instructor approval.

440 The Nucleus. (3) S '89

Experimental studies in chromatin and chromosome structure. Molecular mechanisms of chromosome movement and mechanics, cell population kinetics, the nucleolus and the nuclear envelope. Prerequisites: BIO 340; CHM 261, 335 or 361.

441 Principles of Human Genetics. (3) S '89

Genetics in human populations, including medical aspects. Prerequisite: BIO 340.

454 Aquatic Insects. (3) N

Systematics and ecology of aquatic insects. Prerequisite: ZOL 354.

465 Neurophysiology. (3) S '90

Detailed treatment of cellular and organismal neurophysiology and nervous system function. Prerequisite: ZOL 360.

466 Neurophysiology Laboratory. (2) S '90

Intracellular and extracellular electrophysiological recording techniques, histological preparations and dye-filling techniques. 6 hours Laboratory. Pre- or corequisite: ZOL 465.

470 Systematic Zoology. (3) S '91

Philosophy, theory and practice in interpreting patterns of animal diversity, including species concepts and speciation, nomenclature and taxonomy, evolutionary and phylogenetic classification. Prerequisites: junior standing; 18 hours in life science.

471 Ornithology. (3) S '90

The biology of birds. 2 hours lecture, 3 hours lab. Weekend field trips. Prerequisite: ZOL 270 or instructor approval.

472 Mammalogy. (4) F '90

Classification, structure, habits, ecology and distribution of mammals, emphasizing North American forms. 3 hours lecture, 3 hours lab or field trip. Weekend field trips. Prerequisite: ZOL 270 or instructor approval.

473 Ichthyology. (3) S '91

Systematics and biology of recent and extinct fishes. 2 hours lecture, 3 hours lab or field trip. Weekend field trips required. Prerequisites: ZOL 270, 425; or instructor approval.

474 Herpetology. (3) S '90

Systematics and biology of recent and extinct reptiles and amphibians. 2 hours lecture, 3 hours lab or field trip. Prerequisite: ZOL 270.

481 Research Techniques in Animal Behavior. (3) S '90

Experimental and field studies of animal behavior; description and quantification of animal behavior, interpretation of behavior within an evolutionary framework. 1 hour lecture, 6 hours lab. Prerequisite: ZOL 280.

515 Populations: Evolutionary Genetics. (3) F

Mathematical models in the description and analysis of the genetics of populations. Prerequisites: BIO 320, 415, 445; or instructor approval.

516 Populations: Evolutionary Ecology. (3) S

Principles of population biology and community ecology within an evolutionary framework. 2 hours lecture, 2 hours recitation. Prerequisites: BIO 415 (or MAT 210), 320; ZOL 515.

532 Developmental Genetics. (3) S '91

Genetic approaches to the analysis of development during the life cycle of eukaryotic organisms, role of genes in the unfolding of the differentiated phenotype. Prerequisite: BIO 443.

560 Comparative Physiology. (3) F

The analysis of function in invertebrates and vertebrates, emphasizing evolutionary trends in physiological systems. 3 hours lecture. Prerequisite: ZOL 360 or equivalent.

566 Environmental Physiology. (3) F '89

Physiological responses and adaptations of animals to various aspects of the physical environment. Prerequisites: BIO 320; ZOL 360.

568 Mammalian Physiology. (3) S '91

Detailed treatment of mammalian organ system functions emphasizing integrative mechanisms. 3 hours lecture. Prerequisite: ZOL 360 or equivalent.

569 Cellular Physiology. (3) F '90

Emphasizing the molecular basis for cell structure and function. 3 hours lecture. Prerequisites: ZOL 360; organic chemistry.

591 Seminar. (1-3) F, S

Topics such as the following will be offered:

- | | |
|------------------|-------------------------|
| (a) Behavior | (e) Physiology |
| (b) Cell Biology | (f) Evolution |
| (c) Ecology | (g) Adaptations |
| (d) Genetics | (h) Genetic Engineering |

May be repeated for credit.

Special Courses: ZOL 294, 394, 484, 492, 493, 494, 497, 498, 499, 590, 592, 594, 598, 599, 790, 791, 792, 799. (See pages 43-44.)



College of Architecture and Environmental Design

John Meunier, M.Arch.

Dean

Purpose

The practice of architecture and environmental design is the culturally responsible shaping of our environment from the scale of the cities we live in, to the buildings and interiors we inhabit, to the artifacts and products we use. What we design must be durable, useful, beautiful, appropriate to its context, and must not be a waste of resources, energy and materials. Designing our environment *is both an art, a technology, and a social science* that has a history as long as human culture. The goals of the faculty include offering students an education that becomes the basis for life long growth and improvement as professionals, advancing the discipline in both theory and practice, and improving the quality of the environment by making the expertise and knowledge of the faculty available to other professionals and to the public.

Organization

Academic Organization. The college is composed of three academic units: the School of Architecture, the Department of Design, and the Department of Planning. A fourth unit, the Professional Development Office, provides special programs for the public and offers advanced professional courses. Administration of the college is the responsibility of the dean, who in turn is responsible to the president of the university through the provost.

College Facilities. With the opening of an award winning 100,000 square foot expansion to the existing building in 1989, all the college's programs are now housed in a single complex. Facilities include design studios, lecture and seminar rooms, technology laboratories, offices for faculty, administration and student organizations, the College Library, the Gallery of Design,

the Media Center, the Shop, the Slide Collection, and computer laboratories. The bridge between the original building and the expansion places the college's review and display space at the heart of the complex.

The College Library. As a branch of the University Library, the College Library provides easy access to books, periodicals and reference materials for students, faculty and the professional community. The collection includes the Howe Architecture Library, more than 18,000 volumes, as well as special research collections on the work of Paolo Soleri and Frank Lloyd Wright.

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

Special Facilities. College programs are supported by several kinds of special laboratories. The college operates a computer aided design and graphics laboratory that is adjacent to a computer site managed by university Computing Services. The expansion also provides new space for special activities including the high bay research lab, the lighting lab, the solar research lab, the solar roofdeck work area, as well as space for the college's community outreach activities and programs of the Council for Design Excellence. The college's photographic laboratory and darkroom provide high quality equipment and space for research projects. A shop, equipped to handle wood, plastic, and metal supplements studio space. The college's Media Center includes traditional graphics and audiovisual equipment as well as portable video equipment. The Slide Collection, with more than 10,000 slides, is available for instructional use. The college also maintains materials testing equipment, and the Interior Design Building Materials Resource Center

Admission

Lower-Division Programs. New and transfer students who have been admitted to the university and have selected a college major are admitted to the lower division program of their choice. A separate application procedure is required for entry to upper division programs and graduate programs. Acceptance into lower division programs does not guarantee acceptance to upper division programs.

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

Upper-Division Programs. Admission to upper division programs is competitive. Consult requirements for each major for details. Students applying to more than one program must make separate application to each and must submit separate portfolios. Students not enrolled at ASU when they apply to upper division programs must also make a separate application to the university. Students not admitted to the upper division are not dismissed from the university and may reapply or may transfer to other programs. Students who plan on reapplying should contact the college academic advisor. Transfers into upper division programs are considered only if vacancies occur and are limited to students with equivalent course work who are competitive with continuing students.

Graduate Programs. For admission to the graduate programs in the College of Architecture and Environmental Design, see requirements and procedures under the respective academic units and the *Graduate Catalog*. Students must make separate applications and be admissible to both the Graduate College and to the academic unit administering the degree program selected.

Advisement

While the college and its academic units provide academic advising, *it is ultimately the responsibility of each student to fulfill academic and program requirements.* Advising and recordkeeping for lower division programs is the responsibility of the college academic advisor. Records for upper division program students are kept in the ap-

propriate academic units and advising is by the faculty and the head of the academic unit. General career advising is available from all faculty members. Administration of program requirements is the responsibility of the head of the academic unit and the dean.

Appeals Procedures. Academic appeals and requests for variances are typically first made to the student's advisor, then, if necessary, to the head of the appropriate academic unit, the College Standards Committee, and finally, the dean. Students who feel they have been unjustly treated in academic or other matters relating to their career as students may contact the college academic advisor or may take their grievance to the college ombudsperson.

Degrees

Undergraduate. The college offers curricula leading to a four year undergraduate degree: Bachelor of Science in Design. Students select one of the following majors within the respective academic units.

School of Architecture

B.S. Design, major in Architectural Studies

Department of Design

B.S. Design, major in Design Science

B.S. Design, major in Industrial Design

B.S. Design, major in Interior Design

Department of Planning

B.S. Design, major in Urban Planning

B.S. Design, major in Housing and Urban Development

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

Graduate. The Graduate College awards the master's degree to candidates who have successfully completed graduate programs offered in this college. Three degrees are offered: the professional degree, Master of Architecture (M.Arch.), the multidisciplinary degree, Master of Environmental Planning (M.E.P.) with a major in Environmental Planning, and the Master of Science (M.Sc.) degree with a major in Building Design.

Degree Requirements

Students seeking the Bachelor of Science in Design degree must satisfactorily complete a curriculum of a minimum of 132 to 153 semester hours, depending on the major. These require

ments include six hours of English proficiency and meet or exceed the General Studies requirement for the university.

Bachelor of Science in Design

Major in:	<i>Semester Hours</i>
Architectural Studies	134 or 135
Industrial Design	132
Interior Design	153
Design Science	132 or 153
Urban Planning	134
Housing and Urban Development	134

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A," "B," "C," "D" or "E") during a semester in residence at Arizona State University with a grade point average of 3.50 or better are eligible for the Dean's List. A notation of achieving the distinction of being listed on the Dean's List appears on the final grade report for that semester.

Special Honors at Graduation. At the time of graduation, students with academic distinction are awarded the respective designation *cum laude*, *magna cum laude* or *summa cum laude*. Also see university requirements for graduation with academic recognition, page 83.



General Studies Requirements

Each curriculum offered by the college meets or exceeds the General Studies requirements of the university. Courses are regularly reviewed to determine whether or not they meet one or more General Studies course credit requirements. See the listing of courses, pages 54–80.

The following key to General Studies credit abbreviations applies to each curriculum offered in the college:

**Key to General Studies
Credit Abbreviations**

- L1 Literacy and Critical Inquiry Core Courses (Intermediate level)
- L2 Literacy and Critical Inquiry Core Courses (Upper division)
- N1 Numeracy Core Courses (Mathematics)
- N2 Numeracy Core Courses (Statistics and Quantitative Reasoning)
- N3 Numeracy Core Courses (Computer Applications)
- HU Humanities and Fine Arts Core Courses
- SB Social and Behavioral Science Core Courses
- S1 Natural Science Core Courses (Introductory)
- S2 Natural Science Core Courses (Additional Courses)
- G Global Awareness Courses
- H Historical Awareness Courses

Graduation Requirements

In addition to completing departmental degree requirements, students must fulfill university graduation requirements. Students must apply for and pay a fee for a graduation requirements review.

Academic Standards

Lower-Division Retention Standards. Students in the college's lower-division programs are placed on probation when they fail to maintain a cumulative grade point average (GPA) of 2.00. Students on probation must observe rules or limitations the college Standards Committee imposes on their probation as a condition of retention. If after one semester on probation, the overall GPA is not at least a 2.00 and the conditions of probation have not been met, the student will be disqualified for a minimum of two full academic semesters. Appeals may be made to the college Standards Committee. Also see university retention standards, pages 48–49.

Upper-Division Retention Standards. Students in upper division programs are placed on probation when they fail to meet *any* of the following requirements:

1. Failure, incomplete, or withdrawal from any required course,
2. A semester GPA below 2.00,
3. A grade of "D" or "E" in a design studio or a design laboratory,
4. Violation of the college *Code of Student Responsibilities* or any admission agreement

Students on probation must observe rules or limitations that the Standards Committees or their academic unit places on their probation as a condition of continuation. Students will be removed from their program if:

1. After one semester on probation the requirements imposed are not met or the overall GPA is not above 2.00,
2. Failures or withdrawals in required courses are not resolved at the next offering of the course,
3. Failures or withdrawals from required sequential courses are not resolved,
4. Incompletes in required sequential courses are not completed before the first day of class of the next semester.

Students removed from programs are not guaranteed reinstatement in the program even if probation requirements or requirements placed on readmission are fulfilled. Appeals may be made first to the appropriate academic unit and, if necessary, to the college Standards and Appeals Committee. Also see university retention standards, pages 48–49

Incompletes. It is the student's responsibility to contact the instructor regarding the process of requesting and fulfilling an incomplete. Tardiness in contacting the instructor may result in a failing grade. Students are to submit a written request for an incomplete to the instructor. This request must include a justification, a listing of requirements that have not been fulfilled, and a proposed schedule of completion. The instructor reviews the request, proposes modifications if necessary, and submits a copy of the request to the appropriate program head (upper-division students) or the college academic advisor (lower division students). An incomplete in an upper division course that is a prerequisite for sequential courses automatically places the student on probation and denies enrollment in subsequent courses. Also see university requirements on incompletes, pages 45–46.

Withdrawals. University withdrawal regulations apply to lower-division courses. In addition, because the college's upper division curricula are modular and sequential and space in the programs is limited, students are expected to progress through their curriculum with their class. Withdrawal from a required upper division course automatically places a student on probation. Withdrawal from a required upper-division course in a required sequence automatically removes the student from the program beginning the subsequent semester. Also see university requirements on withdrawals, page 46.

Credit/No Credit. The only courses accepted toward graduation with a grade of pass fail or credit no credit are transfer freshman composition courses, internships, and field studies.

Foreign Study. The College of Architecture and Environmental Design maintains active communications with several foreign institutions offering professional course work similar to the programs of the college. This opportunity is available for students who wish to pursue professional studies at a foreign institution in lieu of resident course work for up to a maximum of one academic year. Interested students are encouraged to inform the head of their academic unit at the earliest possible date of any intentions for foreign study.

Exchange programs currently exist with the Universität Stuttgart, West Germany and the Universidad Autónoma de Guadalajara, Guadalajara, Mexico. A foreign study program in London and summer off campus courses are offered by the School of Architecture.

Students are also encouraged to consider for foreign travel for either a semester or an entire academic year. A leave of absence must be requested for foreign study and foreign travel. Each academic unit reserves the right to evaluate the content and the student's competency in each of the courses completed at foreign institutions.

Internships. Upper division students in the college are required to complete an internship program during the summer, normally between the third and fourth year of study.

Student Responsibilities

Code of Student Responsibility. The purpose of this code is to promulgate standards of conduct for students of the College of Architecture and Environmental Design and to establish procedures for reviewing violations. Students are expected to support and maintain the highest pro-

professional standards with regard to their individual conduct and their personal and common environments in the college. Copies of the *Code of Student Responsibilities* are available from the Office of the Dean and the college academic advisor.

Attendance. Attendance is expected at all classes, laboratories and seminars, and is a criterion for evaluating performance. Absences and missing work due to absences may result in failure of a course or academic probation. A student may not be excused from attending a class except for medical reasons or other serious personal conditions beyond the control of the student. Requests for special consideration must be submitted in writing to the instructor. If accepted, a student may be allowed to take a late or special examination or submit missing work. Tardiness in contacting the instructor is cause for denying acceptance. Also see university policy regarding religious holidays, page 1.

Employment. It is difficult for students in professional programs to carry part time employment while in school. Acceptance to any of the college's upper division programs presumes a commitment of a minimum of eight hours a day for professional studies. Prior work experience is not a requirement for admission to upper division programs.

Retention of Student Work. The college reserves the right to retain any or all projects or work submitted to meet course requirements for the college's future instructional, publication, and exhibition use.

Student Leave of Absence. Upper division students who withdraw from classes or do not continue sequentially in enrollment must request both a leave of absence and readmission in writing from the head of the appropriate academic unit. Leaves of absence are for one year increments and may be approved for personal reasons, travel, work, or additional study in other disciplines. Students on leave must make their written request for readmission prior to May 1 for the fall semester of the year of return, or November 1 for the spring semester, in order that a space may be reserved. Failure to request a leave of absence may result in removal from the program.

Special Programs

The college and its academic units regularly sponsor lecture series symposia and exhibits. In addition, there are regional and national meetings of educators and professionals that students and faculty attend. Academic units sponsor student

awards programs and regularly invite professionals and critics to student reviews of student projects. The college also participates with the University Honors College and offers courses accepted in that college.

General Information

Accreditation. The program in architecture leads to the Master of Architecture degree, which is accredited by the National Architecture Accrediting Board. The Bachelor of Science in Design with a major in Interior Design is accredited by the Foundation of Interior Design Education and Research. The following programs maintain affiliations with the following accrediting agencies: Planning American Planning Association, Industrial Design Industrial Design Society of America

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

Council for Design Excellence. The Council for Design Excellence has been created to consolidate a partnership between the College of Architecture and Environmental Design and key community leaders who share a vital interest in the development of high quality in the built environment of the Phoenix metropolitan area. By joining together professionals, business and civic leaders, students and faculty in a common pursuit of design excellence, the council seeks to make a profound difference in the quality of life.

Affiliations. The College of Architecture and Environmental Design maintains active affiliations with the following organizations:

ARCHITECTURE Arizona Society of Architects, the Central Arizona and the Rio Salado Chapters of the American Institute of Architects, the Association of Collegiate Schools of Architecture;

INDUSTRIAL DESIGN the Industrial Designers Society of America;

INTERIOR DESIGN the American Society of Interior Designers, the Interior Design Educators Council, the Institute of Business Designers;

PLANNING the American Planning Association, the Association of Collegiate Schools of Planning and the American Society of Landscape Architects.

Student Professional Associations. The purpose of the student associations is to assist students with the transition into professional life and to acquaint them with the profession relating to their program of study. These include:

- American Institute of Architecture Students
- College of Architecture and Environmental Design Pre Studies Organization
- Student Association of Interior Designers
- Student Chapter/American Planning Association
- Student Chapter American Society of Landscape Architects
- Student Chapter/Industrial Designers Society of America

School of Architecture

REGENTS' PROFESSOR:

COOK

PROFESSORS:

(ARCH 140), BOYLE
ER BES, McSHEFFREY, MEUN ER
PETERSON, RAPP SCHLUNTZ

ASSOCIATE PROFESSORS:

McG NTY SCHEATZLE, SHEYDAYI, ZYGAS

ASSISTANT PROFESSORS:

BERTELSEN CHRISTENSEN F F ELD
F NDLEY HARDIN, K M, McINTOSH
UNDERWOOD, WOOLSEY WU

PROFESSORS EMERITI:

ELLNER, HINSHAW JAKOB, OLIVER
RUMMEL STRAUB WH FFEN

Purpose

The architecture program at Arizona State University offers an integrated curriculum of professional courses and focuses on the design laboratory. The program reflects an awareness of the complex factors affecting the quality of the built environment. It seeks through scholarship, teaching, research, design, and community service to develop the discipline and the knowledge necessary to address the important environmental and design issues faced by society.

In addition to developing knowledge and skills in architectural design, building technology, and professional practice, students are expected to select electives to achieve an emphasis in one of several areas including solar and energy conscious design, computer aided architectural de-

sign, architectural administration, urban design, and building technology.

Organization

The School of Architecture's program is organized by the faculty under the direction and administration of the director and standing committees of the faculty.

Degrees/Majors

The faculty of the School of Architecture offer three degrees: the Bachelor of Science in Design with a major in Architectural Studies; the Master of Architecture; and the Master of Science with a major in Building Design.

The six year program in architecture culminates with the professional degree, Master of Architecture, which is accredited by the National Architectural Accrediting Board.

The professional level program in architecture consists of the final four years of course work, i.e., the final two years of the B.S. in Design degree and the two years required to complete the Master of Architecture degree.

In cooperation with the College of Business, a dual degree program, Master of Architecture/Master of Business Administration, has been established. Students contemplating dual matriculation are advised to select electives appropriate to this program at the undergraduate level.

The degree, Master of Science with a major in Building Design, provides opportunities for advanced and specialized studies and research in building science. Areas of emphasis include computer-aided design, passive solar design and energy technology design, and analysis, and advanced architectural administration. Students entering this program typically have the professional Bachelor of Architecture or Master of Architecture degree, or undergraduate degrees in areas such as physics, engineering or design. For particulars, see the *Graduate Catalog*.

Admission

Lower-Division Program. New and transfer students who have been admitted to the university and who have selected Architectural Studies are admitted to the lower division architecture program, without separate application to the School of Architecture. Completion of lower division requirements does not assure acceptance to the upper division professional program.

Transfer credits for the lower division program are reviewed by the college faculty. To be admissible to this curriculum, transfer courses must be

equivalent in both content and level of offering. A review of samples of work is required for studio classes. Consult the college academic advisor for an appointment

Entering lower division students who are not prepared to enroll in some of the required courses will be required to complete additional university course work. These additional prerequisite courses do not apply to the Bachelor of Science in Design degree requirements.

Upper-Division Professional Program. Admission to the upper division, professional level program is competitive and limited by available resources. Admission is awarded to those applicants demonstrating the highest promise for professional success, including evidence of ability and prospect for future significant public service.

Transfer students who have completed the equivalent required lower division course work may apply to the upper division program. Prior attendance at Arizona State University is not required for application to the upper division program. Applicants who already hold a bachelor's degree in another field may be accepted to the upper division program if they have accomplished the lower division requirements.

To be eligible for application to the upper division program, the following is required:

1. Admission to Arizona State University. Note that application and admission to Arizona State University is separate from application and admission to the upper division program,
2. Completion of lower division requirements (a minimum of 63 hours) or equivalents as approved by the college academic advisor and the faculty of the school,
3. A minimum university cumulative grade point average (GPA) of 3.00 as well as a 3.00 GPA based only on the required lower division courses or equivalents.
4. Submission of a portfolio. (For detailed information about this requirement, see the following section, application procedures.)

In an unusual circumstance, when the admission standard deficiency is slight, written evidence of extenuating circumstances is convincing, and promise for success is evident, a student may be granted admission to the upper division on a *provisional* basis.

Students not admitted to the upper-division program are not dismissed from the school and may reapply or may transfer to other programs. Students who intend to reapply should meet with the college academic advisor.

Applications for transfer into the upper division professional program are considered only if

vacancies occur. Transfer applicants must demonstrate equivalent course work has been completed and applicants must be academically competitive with continuing students

Students with a four year degree, Bachelor of Science in Design (with a major in Architectural Studies or equivalent degree from another school which offers an accredited professional degree in architecture) should apply directly to the graduate program.

Advisement

Advising for the lower division curriculum is through the college academic advisor. Advising for upper-division students is by assigned faculty advisors.

Degree Requirements

The degree, Bachelor of Science in Design with a major in Architectural Studies, requires a minimum of 134 hours of required and approved course work. Most lower division students will pursue option A; however, those who intend to eventually seek an advanced degree in either engineering or building science are encouraged to fulfill the requirements outlined in option B

The accredited professional degree, Master of Architecture, requires an additional 56 hours of approved graduate level course work. For detailed information consult the *Graduate Catalog*

**School of Architecture
Lower-Division Requirements
Option A**

		<i>Semester Hour</i>
English (6)		
ENG 101	First Year Composition or ENG 105 if qualified	3
ENG 102	First Year Composition ... or HU elective if ENG 105	3
Literacy and Critical Inquiry (3)		
COM 225	Public Speaking ² or approved communication substitute	3
Numeracy 12		
MAT 119	Finite Mathematics ... or approved mathematics or statistics elective	3
MAT 210	Brief Calculus ⁷ or advanced calculus substitute	3
ECE 105	Introduction to Languages of Engineering ³ or approved programming language	3
ECE 106	Introduction to Computer Aided Engineering ² or approved programming language	3

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Humanities Fine Arts 13	
APH 100 Introduction to Environmental Design I ¹	2
APH 101 Introduction to Environmental Design II	2
Approved Humanities/Fine Arts Electives ²	9
Social Behavioral Sciences 9	
ECN 112 Microeconomic Principles ² or ECN 111 Macroeconomic Principles	3
Approved Social/Behavioral Science Electives ³	6
Natural Sciences 8	
PHY 111 General Physics	3
PHY 133 General Physics Laboratory	1
PHY 12 General Physics ²	3
PHY 114 General Physics Laboratory ³	1
Studio Courses ⁴ 12	
AVC 141 Design Graphics	2
AVC 160 Freehand Perspective Drawing I	2
AVC 161 Freehand Perspective Drawing II	2
ADE 221 Design Fundamentals I	3
ADE 222 Design Fundamentals II	3
Lower Division Minimum Total	63

Transfer credits are reviewed by the college and evaluated as admissible to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering.

- ¹ This course satisfies a General Studies requirement. See course description for specific requirement(s) each course fulfills.
- ² See prerequisites for ECE 105. These should be completed in high school.
- ³ Portfolio review is required for transfer studio work. See the college academic advisor for an appointment.

**School of Architecture
Lower-Division Requirements
Option B**

	<i>Semester Hours</i>
English 6	
ENG 101 First Year Composition	3
or ENG 105 if qualified	
ENG 102 First Year Composition	3
or HL elective if ENG 105	
Literacy and Critical Inquiry 3)	
COM 225 Public Speaking ²	3
or approved communication substitute	
Numeracy 19	
MAT 290 Calculus I ¹	5
MAT 291 Calculus II	5
MAT 274 Differential Equations	3
ECE 105 Introduction to Languages of Engineering	3
ECE 106 Introduction to Computer Aided Engineering	3

Option B Engineering Requirements 2)	
ECE 210 Engineering Mechanics I Statics	2
ECE 312 Engineering Mechanics II Dynamics ⁴	3
ECE 314 Introduction to Deformable Solids ⁴	2
ECE 383 Probability and Statistics ⁴	2

Humanities/Fine Arts (7)	
APH 100 Introduction to Environmental Design I ¹	2
APH 101 Introduction to Environmental Design II ²	2
Approved Humanities/Fine Arts Electives ²	3
Social Behavioral Sciences (8)	
ECN 112 Microeconomic Principles ² or ECN 111 Macroeconomic Principles 3)	3
Approved Social/Behavioral Science Electives	5
Natural Sciences (8)	
PHY 121 University Physics I: Mechanics ⁴	3
PHY 122 University Physics Laboratory I ²	1
PHY 131 University Physics II: Electricity and Magnetism ³	3
PHY 132 University Physics Laboratory II ⁴	1
Studio Courses ⁵ 12)	
AVC 141 Design Graphics	2
AVC 160 Freehand Perspective Drawing I	2
AVC 161 Freehand Perspective Drawing II	2
ADE 221 Design Fundamentals I	3
ADE 222 Fundamentals II	3
Lower Division Minimum Total	65

- ¹ Transfer credits are reviewed by the college and evaluated as admissible to this curriculum. To be admissible, transfer courses must be equivalent in both content and level of offering.
- ² This course satisfies a General Studies requirement. See course description for specific requirement(s) each course fulfills.
- ³ See prerequisites for ECE 105. These may be completed in high school.
- ⁴ These courses may be taken at the upper division level as approved electives and are not required prior to admission to the upper division program. However, course time conflicts can be avoided by taking them before applying to the upper division.
- ⁵ Portfolio review is required for transfer studio work. See academic advisor for an appointment.

**School of Architecture
Upper-Division
Professional Program Requirements
Junior Year**

Fall (17	<i>Semester Hours</i>
ADE 321 Architectural Design/Process Determinants	3
ANP 331 Environmental Analysis	3
APH 313 History of Western Architecture I ²	3

ATE 353	Architectural Construction I	3
ATE 361	Building Structures I ¹	3
AVC 301	Architectural Communications I	2
Spring (17)		
ADE 322	Architectural Design/Environmental Determinants	5
ANP 431	Architectura Programming Methods ²	3
APH 314	History of Western Architecture II	3
ATE 351	Environmental Control Systems	3
ATE 362	Building Structures II ³	3
Summer (3)		
ARP 484	Internship	3
Senior Year		
Fall (17)		
ADE 421	Architectural Design/Human and Behavioral Determinants	5
APH 446	20th Century Architecture I ¹	3
ATE 461	Building Structures III ³	3
ATE 452	Environmental Control Systems II	3
Approved Professional Emphasis Elective 3		
Spring (17)		
ADE 422	Architectural Design/Societal Determinants	5
APH 447	20th Century Architecture II	3
ATE 462	Building Structures IV ³	3
ATE 451	Architectural Construction II	3
Approved Professional Emphasis Elective 3		
Upper-Division Total		71
B.S. Design Minimum Total		134

¹ These courses may be completed prior to admission to the upper division. If already completed, students may substitute an approved professional emphasis elective.

² This course satisfies a General Studies requirement. See course description for specific requirement(s) each course fulfills.

³ Approved substitute courses are accepted from College of Engineering and Applied Sciences for option B students.

General Information

Upper-Division Professional Program Application Procedures. Students should write to the college academic advisor for the application form well in advance of the application deadline. For additional information on portfolios, ask for a copy of the *Portfolio Seminar* brochure from the college academic advisor.

Upper-Division Application Deadlines. *April 13.* Portfolio and application documents due in the School of Architecture office by 4:00 P.M.

June 13 If the spring 1990 semester includes transfer course work (i.e., course work taken at an institution other than Arizona State University), a

student must submit his/her own transcripts to the School of Architecture no later than June 13. These may be copies. A second set of official transcripts must be sent to the university Office of Undergraduate Admissions. Application is not complete until the university receives official transcripts for transfer course work. (For those transfer students whose academic term ends in June rather than May, this deadline may be extended upon the written request of the applicant.)

July 2 Acceptance notices mailed no later than July 2.

Return of Letter of Acceptance. A signed receipt of acceptance of admission must be received by the School of Architecture by the date indicated on the Notice of Acceptance. Alternates may be accepted at a later date if space becomes available.

Matriculation Accepted students are expected to begin their upper division professional program at the beginning of the immediate fall term. There is no spring admission to the upper division.

Portfolio Format Requirements. Each applicant is responsible for obtaining the following documents and including them in the portfolio. Application materials are submitted at one time in a presentation binder (portfolio) with plastic sleeves (8 1/2" x 11" format only). The student's name is to be affixed to the outside. Items must appear in the following order:

Page 1 Application form, completely filled out with page one visible. (Application forms are available from the college academic advising office.)

Page 2 Application form with page two visible.

Page 3 All high school transcripts. Put all these into one sleeve.

Page 4. College transcripts. Include all college transcripts for both ASU and transfer work. Includes all work through the fall 1989 semester. Copies are acceptable. The academic advisor will forward your spring 1990 ASU transcripts. (For those with spring semester 1990 transfer work, the student is responsible for submitting these transcripts by June 13 so they may be added to their portfolio. The student is also responsible for getting an official transfer transcript sent directly to the Office of Undergraduate Admissions.)

Page 5 Evidence of admission (or readmission) to ASU. This may be a copy of the ASU Certificate of Admission or a Student Information System printout showing enrollment status obtained at a Registrar's Site.

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Following Pages (usually 10–20 sheets). Include sufficient examples of studio and laboratory work to show the depth of the student's design and drawing skills. Include freehand and hardline drawings and examples of two- and three-dimensional design and graphics. Include a concise caption for each item that explains the work and list other pertinent information as applicable, as well as names of other team members, length of project, course and project descriptions.

Students are encouraged to include additional materials, written or pictorial, that provide additional evidence of skills and abilities, as well as aptitude and commitment to the major. When any work submitted is not completely original, the source must be given. When work is of a team nature, the applicant's role should be clearly indicated. Original examples or slides must not be submitted. All examples must be photographs or other reproduction graphic media.

Return of Portfolios. Application documents (pages 1–5) remain the property of the School of Architecture. However, the remaining portfolio will be returned after admissions review provided the applicant encloses a self-addressed return mailer with sufficient prepaid postage. Portfolios may be claimed in person after July 16. If the applicant provides written permission, another person may claim the portfolio. After one year, unclaimed portfolios are discarded. While care will be taken in handling the portfolios, no liability for lost or damaged materials is assumed by the college or the school.

Professional Emphasis Electives. Students, with the approval of their advisor, select their required upper division professional emphasis electives from the following areas: architectural office management (also courses in the College of Business); construction technology and administration (also courses in the Department of Construction); landscape architecture (also courses in the Departments of Planning, Botany, and the School of Agribusiness and Environmental Resources); structural systems design (also courses in the College of Engineering and Applied Sciences); architectural history, theory, or preservation (also courses in art history in the College of Fine Arts, or philosophy in the College of Liberal Arts and Sciences); environmental research, analysis, and programming (also courses in the Departments of Sociology and Psychology); solar design and technology (also courses in the College of Engineering and Applied Sciences), energy conservation and adaptive reuse (also courses in the De-

partment of Planning); urban and regional planning, environmental psychology, and sociology; interior architecture (also courses in the Department of Design); computer aided design (also courses in the Department of Computer Science); and advanced architectural communications.

General Studies Requirements

The architecture curriculum exceeds the General Studies requirements of the university. For more information about university General Studies requirements, see pages 50–53. Specific courses in the curriculum that fulfill the required General Studies distribution requirements are indicated with a letter and number code, see page 53 or 193 for the key.

Courses

Subject matter within the school is categorized in the following instructional areas:

Architectural Administration and Management. AAD courses focus on the organizational and management aspects of architectural practice, including management coordination, administrative procedures, ethics, legal constraints, and the economics of practice.

Architectural Design and Technology Studios. ADE courses require the synthesis of knowledge and understanding gained from other course work and develop an understanding of design theory and design skill through a series of comprehensive design projects. Students apply analytical methods, compare alternative solutions, and develop sophisticated technical and conceptual results.

Architectural Philosophy and History. APH courses develop an understanding of architecture as both a determinant and a consequence of culture, technology, needs, and behavior in the past and present. Studies are concerned with theory as well as the rationale behind methods and results of design and construction. Case studies are both American and international.

Architectural Technology. ATE courses develop knowledge of the technical determinants, resources, and processes of architecture. These studies focus on the science and technology of design and construction, including materials, building systems, acoustics, lighting, structural systems, environmental control systems, computer applications to design and technology, and both passive and active solar systems. Emphasis is on measurable and quantifiable aspects.