

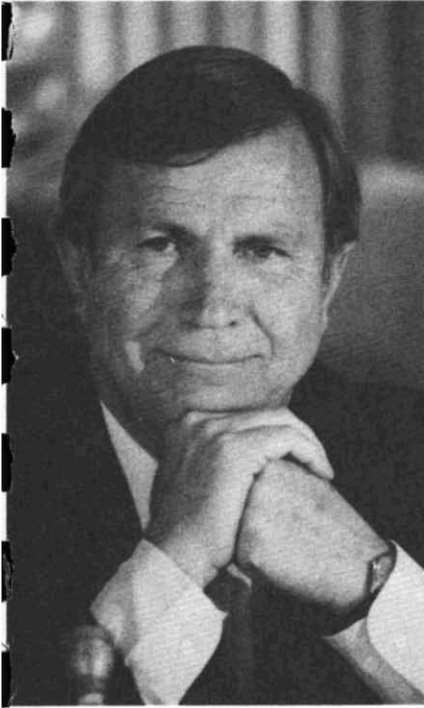
ASU BULLETIN

Arizona State University



General Catalog
1991-92





Dear ASU Students
and Prospective Students

It is with pride and pleasure that I introduce the Arizona State University *1991-92 General Catalog*. It is intended to put a great deal of important information at your fingertips, and I hope you will find it helpful as you plan your university experience.

The catalog includes a voluminous listing of programs, courses, requirements, and services, as befits a major comprehensive university. We hope the book is organized in a manner that makes it easy to find the information most applicable to you and your course of studies.

Although the catalog will answer many of your questions, nothing will substitute for the guidance your advisor can provide. I urge every student to work closely with an advisor in planning his or her academic program.

On behalf of Arizona State University, I wish your experience here to be a challenging and fulfilling one.

Sincerely,

A handwritten signature in black ink, which appears to read "Lattie F. Coor". The signature is fluid and cursive, with the first name being the most prominent.

Lattie F. Coor
President

2 CREDITS

Credits

Cover

Photo Entrance to Hayden Library by Dave Ragsdale,
University Media Services

The Charles Trumbull Hayden Library houses the
university's largest multidisciplinary collection.
The underground entrance was added in 1989
along with 97,000 additional square feet of
service area. See pages 17–18 for more
information.

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Arizona State University

General Catalog 1991-92

All colleges, schools, divisions, and departments establish certain academic requirements that must be met before a degree is granted. Advisors, directors, department chairs, and deans are available to help the student understand 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 is not granted. For this reason, it is important for all students to acquaint themselves with all regulations to keep themselves informed throughout the 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 summarizes the total requirements the student must currently 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 materials—information, requirements, regulations—published in this catalog.

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 *ASU Insight* and/or the *University Bulletin* of all faculty and staff publications at the beginning of each semester.

Refer to Appendix A for Arizona State University's statement on Affirmative Action.

Arizona State University complies with the Family Educational Rights and Privacy Act of 1974 as amended (see page 57).

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Academic Organization

ASU West

Multidisciplinary Units: Applied Sciences, Engineering and Technology; Arts and Sciences; Business; Education and Human Services

College of Architecture and Environmental Design

Schools: Architecture; Design
Department of Planning

College of Business

Schools: Accountancy; Health Administration and Policy
Departments: Business Administration; Decision and Information Systems; Economics; Finance; Management; Marketing

College of Education

Division of Curriculum and Instruction

Programs: Adult Education, Early Childhood Education; Educational Media and Computers, Elementary Education, Multicultural Education; Reading and Library Science; Secondary Education; Special Education

Division of Educational Leadership and Policy Studies

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

Division of Psychology in Education

Programs: Counselor Education; Counseling Psychology, Educational Psychology; Learning and Instructional 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; Manufacturing and Industrial Technology

School of Engineering

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

College of Extended Education

College of Fine Arts

Schools: Art; Music
Departments: Dance; Theatre

College of Law

College of Liberal Arts and Sciences

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

College of Nursing

College of Public Programs

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

Departments: Communication; Leisure Studies

Graduate College

School of Social Work

University Honors College



University Calendar

July 1991

S	M	T	W	T	F	S
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August 1991

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September 1991

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December 1991

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1991

Fri., July 12	Priority date for receipt of Undergraduate Admissions or Readmission credentials
Sun.-Fri., Aug. 18-23	Orientation and advisement for new students
Thurs., Aug. 22	New Faculty Reception and Dinner New Faculty Orientation
Consult <i>Schedule of Classes</i>	Registration and Drop/Add
Mon., Aug. 26	Instruction begins
Mon., Sept. 2	Classes are excused for Labor Day
Fri., Sept. 20	Unrestricted withdrawal deadline
Tues., Oct. 15	December graduation filing deadline (no late fee required), which must be met to have name appear in the commencement program
Tues., Oct. 22	Mid-semester scholarship reports are due in Office of Registrar
Fri., Nov. 1	Restricted course withdrawal deadline
Mon., Nov. 11	Classes are excused for Veterans Day
Thurs.-Fri., Nov. 28-29	Classes are excused for Thanksgiving recess
Thurs., Dec. 5	Restricted complete withdrawal deadline
Wed., Dec. 11	Instruction ends
Thurs., Dec. 12	Reading day
Fri.-Sat., Dec. 13-14; Mon.-Thurs., Dec. 16-19	Final examinations
Fri., Dec. 20	Commencement
Sat., Dec. 21	Mid-year recess begins

1992

Fri., Dec. 13, 1991	Priority date for receipt of Undergraduate Admissions or Readmission credentials
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Fall Semester

Spring Semester

January 1992

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March 1992

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May 1992

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June 1992

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28	29	30				

Wed.-Fri.,
Jan. 8 10

Orientation and advisement for new students

Consult *Schedule of Classes*

Registration and Drop/Add

Mon., Jan. 13

Instruction begins

Mon., Jan. 20

Classes are excused for Martin Luther King Jr. Day

Fri., Feb. 7

Unrestricted withdrawal deadline

Fri., Mar. 13

May graduation filing deadline (no late fee required), which must be met to have name appear in the commencement program

Mid-semester scholarship reports are due in Office of Registrar

Sun.-Sun.,
Mar. 15-22

Classes are excused for spring recess

Fri., Mar. 27

Restricted course withdrawal deadline

Thurs., Apr. 23

Restricted complete withdrawal deadline

Wed., Apr. 29

Instruction ends

Thurs., Apr. 30

Reading day

Fri. Sat., May 1 2;
Mon. Thurs.,
May 4-7

Final examinations

Fri., May 8

Commencement

1992

Summer Sessions

Mon., June 1

Instruction begins for first five week session and eight week session

Mon., June 8

Unrestricted withdrawal deadline for first five week session and eight week session

Instruction begins for first supplemental session

Mon., June 15

Unrestricted withdrawal deadline for first supplemental session

Fri., June 19

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

Fri., June 26

Restricted complete withdrawal deadline for first five week session

Restricted course withdrawal deadline for first supplemental session

August graduation filing deadline (no late fee required), which must be met to have name appear in the commencement program

12 UNIVERSITY CALENDAR

July 1992

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
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August 1992

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September 1992

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October 1992

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November 1992

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December 1992

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5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Thurs., July 2

First five week session ends

Restricted complete withdrawal deadline for first supplemental session

Fri., July 3

Classes are excused for Independence Day

Mon., July 6

Instruction begins for second five week session

Fri., July 10

First supplemental session ends

Mon., July 13

Unrestricted withdrawal deadline for second five week session

Instruction begins for second supplemental session

Fri., July 17

Restricted complete withdrawal deadline for eight week session

Mon., July 20

Unrestricted withdrawal deadline for second supplemental session

Fri., July 24

Eight week session ends

Restricted course withdrawal deadline for second five week session

Fri., July 31

Restricted complete withdrawal deadline for second five week session

Restricted course withdrawal deadline for second supplemental session

Fri., Aug. 7

Second five-week session ends

Restricted complete withdrawal deadline for second supplemental session

Commencement

Fri., Aug. 14

Second supplemental session ends

1992

Fall Semester

Mon., Aug. 24

Instruction begins

Fri., Dec 18

Commencement

1993

Spring Semester

Tues., Jan. 19

Instruction begins

Fri., May 14

Commencement

General Information

Mission

Arizona State University has emerged as a leading national and international research and teaching institution with a primary focus on Maricopa County, Arizona's dominant population center. This rapidly growing, multicampus public research university offers programs from the baccalaureate through the doctorate for approximately 44,000 full time and part time students through its main campus in Tempe, the ASU West campus in northwest Phoenix, a major educational center in downtown Phoenix, and other instructional, research, and public service sites throughout Maricopa County. Arizona State University is a modern university that applies the strongest features of the traditional major research university to the rapidly evolving needs of Maricopa County and the state. Arizona State University is governed by the Arizona Board of Regents.

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

arly achievement, and to outstanding public service and economic development activities.

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 student regent serving for one year with the elected governor and state superintendent of public instruction as members *ex officio*.

The regents select and appoint the president of the university, who is the liaison between the Arizona Board of Regents and the institution. The president is aided in the administrative work of the institution by the provosts, vice presidents, deans, directors, department chairs, faculty, and other officers. Refer to "Academic Organization," pages 8-9.

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

The faculty and students of the university play an important role in educational policy, with 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

14 GENERAL INFORMATION

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

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

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

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

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

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

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

of the Normal School. It would be another year before the territory became a state.

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

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

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

The phenomenal growth of the college began after termination of World War II. Dr. Gammage had foreseen that the G.I. Bill of Rights would flood campuses everywhere with returning veterans. Many of the veterans who had received military training in Arizona had fallen in love with the state and vowed to return after the war. The numbers within one year were staggering: in the fall semester of 1945, 553 students were enrolled; over the weekend semester break in January 1946, enrollment increased 110% to 1,163 students. Successive semesters saw continuing increased enrollment.

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

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

The next three presidents—Harry K. Newburn, 1969-71, John W. Schwada, 1971-81, and J. Russell Nelson, 1981-89—and Interim President Richard Peck, 1989, led the university to increased academic stature, expansion of the cam

us—a 300-acre ASU West campus serves the west side of the Phoenix metropolitan area, and smaller units such as the Downtown Center serve the Phoenix business community—and rising enrollment. With more than 43,000 students, ASU is the fifth largest university in the nation.

On January 1, 1990, Dr. Lattie F. Coor, a native Arizonan, became 15th in the institution's succession of principals and presidents. He has spotlighted undergraduate education, research, cultural diversity, and economic development as the "four pillars" of the university's future agenda and has taken steps in these areas by further defining the role of ASU West and by initiating the establishment of the College of Extended Education, approved by the Arizona Board of Regents July 20, 1990.

Athletics

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

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

Dr. Gammage realized that athletics was a way to garner monetary support from the community.

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

In 1979, the university joined the Pacific Athletic Conference (PAC 10). In 1987, ASU became the first Arizona football team to play in the Rose Bowl, defeating the University of Michigan Wolverines 22-15.

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 Master of Architecture degree program 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 programs in Planning are affiliated with the American Planning Association. The programs in Industrial Design are affiliated with the Industrial Design Society of America.



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Business. The College of Business and its School of Accountancy are accredited by the American Assembly of Collegiate Schools of Business (AACSB). The AACSB is the recognized accrediting agency in the field of business education. Of the more than 600 schools nationally that offer undergraduate and graduate business programs, only 272 are accredited by the AACSB. The School of Health Administration and Policy is accredited by the Accrediting Commission on Education for Health Services Administration.

Education. Programs in the College of Education are accredited by the American Psychological Association, the National Association of School Psychologists, and the National Council for the Accreditation of Teacher Education. Programs are also approved by the State Board of Education (Arizona) and are affiliated with the University Council for Educational Administration.

Engineering and Applied Sciences. Programs in the College of Engineering and Applied Sciences are accredited by the American Council for Construction Education and the Accreditation Board for Engineering and Technology, Inc.

Fine Arts. Programs in the College of Fine Arts are accredited by the National Association of Schools of Music, the National Association of the Schools of Dance, and the National Association of Schools of Theatre.

Law. Programs in the College of Law are accredited by the American Bar Association, and the college is a member of the Association of American Law Schools.

Liberal Arts and Sciences. Programs in the College of Liberal Arts and Sciences are accredited by the following institutions: American Psychological Association; American Speech-Language Hearing Association; National Accrediting agency for Clinical Laboratory.

Additional college scholarly memberships with nationally established standards of scholarly performance include the following: American Alliance for Health, Physical Education, 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 Teach-

ing 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 Philosophical Association; American Physical Society; American Political Science 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; Animal 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 History; North American Society for Sports Psychology and Physical Activity; Psychological 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 of the Western Institute of Nursing.

Public Programs. Programs in the College of Public Programs are accredited by the Accrediting Council on Education in Journalism and Mass Communication and the National Association of Schools of Public Affairs and Administration.

Social Work. Programs in the School of Social Work are accredited by 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 156,000). Nearby are the municipalities that make up the fast-growing Valley of the Sun: Chandler, Glendale, Mesa, Scottsdale, and other communities.

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

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

ASU Research Park. The mission of the research park is to attract to Tempe new research and development firms that broaden the base for potential research among 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 the National Association of Purchasing Management and 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 the ASU effort to become a major research university by attracting high quality private and public research firms and institutes.

ASU Sun Cities. The ASU Sun Cities educational facility is located at the Bell Plaza Professional Building South, 17220 Boswell Boulevard, in Sun City, Arizona, the nation's largest retirement community. The courses offered are predominantly noncredit and include a curriculum tailored specifically to the interests of the retirement community. Each year more than 150 courses from approximately 30 disciplines are taught. Weekly lectures also are available throughout the year in a variety of subjects. See page 474 for further information.

ASU West. ASU West is an upper division campus of Arizona State University located in northwest Phoenix to serve the higher educational needs of residents of western Maricopa County. As a comprehensive campus, the institution is developing a broad spectrum of educational, personal, and professional opportunities based on academic programs that share a liberal arts foundation and an interdisciplinary emphasis.

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. Fletcher Library was opened in March 1988, and the Sands Classroom Building was opened in the spring of 1989. The core campus was completed in March 1991.

Classes and services are also offered at ASU West Montebello, the American Graduate School of International Management, and other off campus locations. See pages 573-577 for further information.

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 in downtown Phoenix at the Mercado, 502 E. Monroe, the Downtown Center offers courses of interest to employees in private businesses and government agencies and to individuals seeking personal growth and enrichment. The courses are taught during daytime and evening hours. Information about the ASU curricula and programs are available by calling 602/965-3046. The center also has a personal computer training program teaching noncredit computer courses.

University Libraries and Collections

The collections of the university's libraries comprise more than 2.6 million volumes, approximately 3.1 million microform units, and more than 34,000 periodical and serial subscriptions. Computer access to commercially produced bibliographic databases and the ability to borrow research materials from other libraries enhance local resources. ASU is a member of the Association of Research Libraries and the Center for Research Libraries.

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

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Government Documents, Instruction and Information Services, Interlibrary Loan and Document Delivery Services, Microforms, Rare Books, Reference, Reserve, and Archives and Manuscripts, 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.

Entrance to Hayden Library is via a 97,000 square foot underground addition completed in early 1989.

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

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.

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 and listening facilities for individuals and groups are 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 the publications of its faculty, students, and staff are preserved in this collection, located in the historic President's Home on Tyler Mall.

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, photographic, 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.

Performing and Fine Arts Facilities

Grady Gammage Memorial Auditorium. Designed by Frank Lloyd Wright and named for the late President Grady Gammage, this versatile center for the performing arts 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, with 58 ranks of pipes—the building contains classrooms and workshops for the College of Fine Arts. During the 1989-90 season, the building celebrated its 25th anniversary.

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.

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

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

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

Drama City. A 5,000-square-foot black-box facility, Drama City is the Department of Theatre's performance laboratory for the public presenta-

tion of experimental, avant-garde, alternative, and nontraditional works.

University Dance Laboratory. An integral part of the Nelson Fine Arts Center, this flexible performance space is designed specifically for 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.

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

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

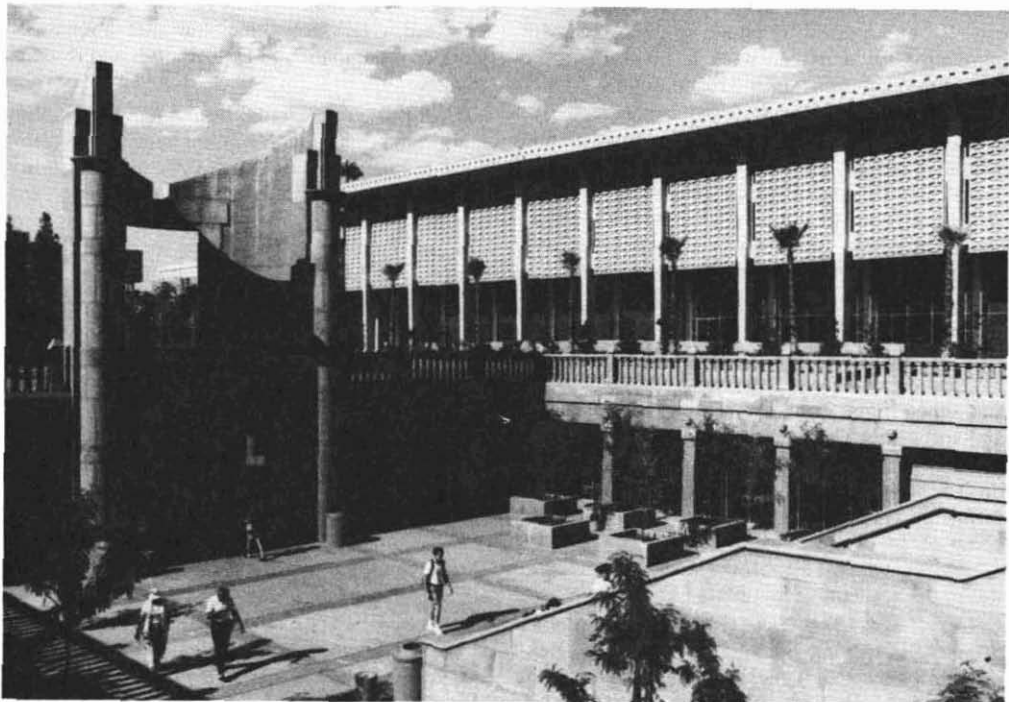
The gallery devoted to Latin American art features folk art as well as paintings by celebrated 20th-century artists Rivera, Siqueiros, and Tamayo. The museum also displays many fine examples of 19th- and 20th-century crafts interspersed with painting and sculpture.

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

Harry Wood Gallery. Housed in the Art Building (ART 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 the Public Broadcasting Service (PBS) and broadcasts 24 hours daily. Program information is available from the KAET program manager (602/965-3506).



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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. In formation Resources Management (IRM) provides a variety of equipment and services to meet the computing needs of students, faculty, and staff.

IRM computing facilities and services are offered at no charge to the university community for use in academic pursuits. Instructional, research, and individual computer accounts are used to access IRM equipment and may be obtained at the Computer Accounts Office. Proof of current registration is required to obtain computer accounts.

IRM operates eight computing sites located throughout the main campus. ASU West provides similar computing access. Many academic units maintain their own extensive computing facilities that are networked to IRM systems. At many sites, both terminals and microcomputers are available. The microcomputers located in IRM computing sites are connected to local networks, providing easy access to shared data, software, printers, and plotters. Site terminals are connected to the mainframes through a high speed communications system. The mainframes can also be accessed by phone so that 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 on line tutorials, videotaped and written materials, and noncredit seminars.

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

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

IRM provides the following computing facilities to the academic community.

CRAY X-MP 18se. The CRAY supercomputer 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 exponential ranges are important. The CRAY is networked to the IBM and the VAX via a Hyper channel network for data transfers and access to output devices.

IBM 3090. The IBM 3090 is a supercomputer-class machine. The IBM 3090 runs the batch oriented MVS operating system with interactive text editing. 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 speed vector processing applications. Appropriate software can run on the VF at super computer speeds.

IBM 3084. The IBM 3084 mainframe runs the CMS interactive operating system supporting full screen editing and interactive program execution. Software on the IBM 3084 features statistical packages, graphics, and several programming languages. The IBM 3084 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 the ASU connection to BITNET, a national and international network of more than 1,000 universities and research centers.

VAX 6000. This Digital Equipment Corporation mainframe runs the VMS interactive operating system, known for its ease of use and flexibility. Software on the VAX consists of several text editors and a wide variety of programming languages, including several for artificial intelligence, graphics, and other applications. The VAX is networked with the IBM 3090 for data transfers and access to its output devices.

Microcomputers. ASU has long been a leader in the scope and quality of educational microcomputing. IRM provides more than 350 IBM and IBM compatible microcomputers (PC through 386) and more than 150 Apple Macintosh microcomputers (Plus through IIfx). All microcomputers are linked to local area networks. The microcomputers are equipped with a variety of software, including word processors, spreadsheets, databases, programming languages, and graphics applications, among others. All networks provide draft and laser printers and centralized software access.

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 160,000 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.

Academic Assessment and the Office of University Evaluation

The Office of University Evaluation is a research and service facility focusing on assessing and improving the effectiveness of the university's undergraduate academic programs. To accomplish this, the office conducts, coordinates, and manages research designed to measure the degree to which courses, curricula, and academic programs impart knowledge to students. The results of these studies, or assessments, are used to refine course content and teaching skills and to enhance the intellectual integrity of an ASU education.

In order for the university to assess and improve its academic programs, periodic measurement of student perceptions and intellectual growth must be obtained. If asked by the university, students are expected to participate in one or more evaluative procedures in general studies and/or their major field of study. These evaluative procedures are designed to assess the efficacy of the teaching and learning experience at the university and will not be used in individual grading. The information obtained is one of the means used to improve the quality of the educational experience for this and future generations of Arizona State University students.

Interdisciplinary Studies

Adult Development and Aging. The Adult Development and Aging Program (ADAP) brings together faculty from several disciplines to teach courses related to adult development and aging, to collaborate on gerontological research, and to participate in projects of service to older adults.

ADAP offers an undergraduate minor in Gerontology. The minor consists of 18 credit hours—six hours of required and 12 hours of elective course work. Courses related to aging are taught throughout the university by faculty who are active contributors to research, theory, and public policy and practice. In addition,

ADAP provides students with opportunities to gain practical experience in working with elderly people. A Practicum in Gerontology, held at the Veteran's Administration Hospital, is available to students who have completed some gerontology course work. ADAP also helps students find rewarding volunteer positions in community programs for older adults. For more information, refer to the current Student Handbook in Gerontology or call 602 965 3225.

Energy Studies. An expanding instructional and research involvement in energy matters exists through the following three curricular paths:

1. *general studies, which emphasize energy as an elective beyond the scope of a chosen major* (for more information, contact the chair of the Energy Studies Committee, listed in the current *Schedule of Classes*);
2. *specific studies in the Department of Planning (College of Architecture and Environmental Design), usually for those pursuing the Master of Environmental Planning degree; and*
3. *specific studies in the College of Engineering and Applied Sciences, usually for those seeking a degree in a branch of engineering.*

Environmental Studies. The Center for Environmental Studies 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 College of Fine Arts and the College of Liberal Arts and Sciences.

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

Medieval and Renaissance Studies. Significant opportunities for the study of medieval and Renaissance culture exist at ASU. 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, call 602/965-5900 or write: Director, ACMRS, SS 224C, Arizona State University, Tempe, Arizona 85287-2301. Scholars in ACMRS represent a variety of disciplines, including art, history, languages, literature, music, philosophy, religion, and science.

Southeast Asian Studies. The study of Southeast Asian languages, linguistics, societies, religions, political systems, and historical traditions is offered through a variety of courses in the social sciences, humanities, and other disciplines. In addition, Thai and Indonesian are taught regularly through the Department of Foreign Languages. Hayden Library houses a collection of monographs and periodicals on Southeast Asia in Western languages, Thai, and Indonesian. Students may enroll in a course of study leading to a Certificate in Southeast Asian Studies.

The Program for Southeast Asian Studies organizes conferences, colloquia, and similar events that bring together scholars and students with diverse disciplinary perspectives on Southeast Asia. The program publishes a semiannual newsletter, *Suvannabhumi*, invites to campus visiting scholars of Southeast Asia, and offers a limited number of graduate assistantships.

For information on a course of study for undergraduate and graduate students and on other pro-

gram activities, please call 602/965-4232 or write to the Program for Southeast Asian Studies, Arizona State University, Tempe, Arizona 85287-3101.

Women's Studies. An interdisciplinary perspective on women serves as a vehicle for critical explorations of the following: 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 images, roles, and status of women and to make a research contribution to the field. For more information, refer to the current women's studies brochure, or contact the director or associate director of the Women's Studies Program (602/965-2358).



Undergraduate Enrollment

Arizona State University shares with other colleges and universities a tradition of service and academic excellence that is hundreds of years old. Its purpose is the exchange of knowledge and the pursuit of wisdom. What makes this university special is its commitment to 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. Anyone giving evidence of suitable preparation—usually by way of acceptable academic credentials—is welcome to the university without regard to race, religious creed, or national origin.

Under the constitution and the laws of the State of Arizona, jurisdiction 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 expectations in conduct include avoiding irresponsible use of alcohol and the use, possession, distribution, or possession with intent of distribution of illegal drugs. The university enforces its conduct rules through sanctions imposed for violations. The university also cooperates fully with law enforcement agencies to enforce all laws relating to alcohol 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, and other health-related issues.

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

The university has a strong interest in its students' conduct. Students are expected, as part of their obligations of enrollment, to become familiar with the *Student Code of Conduct*. Violations of the *Student Code of Conduct*, whether committed by individuals or groups, are subject to university discipline. 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 *Student 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 with 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 a professional studying for an advanced degree or career change. The ASU student may live in residence halls or with sororities or fraternities on campus or may commute from one of the many communities in metropolitan Phoenix. Each of the 50 states and more than 100 foreign countries have students enrolled at ASU.

The university is organized into six distinct administrative areas. Student Affairs, one of the six areas, is responsible for the delivery of a variety of services and developmental programs in support of students' university needs and educa-

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tional pursuits. These programs and services are based upon human development research that advocates that a person develop culturally, emotionally, intellectually, morally, physically, psychologically, socially, and spiritually. 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 facilities, service offerings, and human resources available. Campus agencies guiding students in this learning process include Career Services, Counseling and Consultation, Educational Development, the Memorial Union, Recreational Sports and Student Activities, Residence Life, Student Health, Student Life, and Student Publications. Each of these areas provides specialized learning opportunities that contribute to an environment that fosters both personal and academic growth.

The university'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
 Agribusiness
 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
 Exercise Science/Physical
 Education
 Family Resources and Human
 Development*
 Finance
 Geography*
 Geology
 History*
 Industrial Technology
 Interdisciplinary Studies*
 Journalism*
 Justice Studies
 Management
 Manufacturing Engineering
 Technology
 Marketing
 Mathematics*
 Microbiology
 Operations/Production
 Management
 Physics
 Political Science*
 Psychology*
 Purchasing and Logistics
 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

Bachelor of Science in

Engineering

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

Bachelor of Science in Nursing

Bachelor of Science in Planning

Urban Planning

Bachelor of Social Work

* The major is 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 Arizona 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 Tuition and Registration

Full-time Students. Students registered for seven or more hours are considered full time for fee payment purposes. See "Enrollment Verification Guidelines," page 49. The amounts listed below are per academic semester. For information on in state versus out of state residency classification see "Residency Classification Procedures and Policies," page 29.

Tuition and registration fees are as follows:

Semester Hours	Resident Fees*	Nonresident Tuition and Fees*
1	\$ 80	\$ 289
2	160	578
3	240	867
4	320	1,156
5	400	1,445
6	480	1,734
7	764	2,022
8	764	2,311
9	764	2,600
10	764	2,889
11	764	3,178
12 or more	764	3,467

* Students are charged fees in addition to the registration fee. See page 32.

Summer Sessions, Off-Campus Academic Services, and Correspondence

For information on fees, contact the Office of Summer Sessions and/or the College of Extended Education.

Further information on these services is included in "Summer Sessions," pages 489-490, and "College of Extended Education," pages 473-475.

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 Complex Fee. All students who take at least one class on the main campus (except university employees) must pay a mandatory Student Recreation Complex fee. Full time (seven or more hours) students are charged \$25 per semester. Part-time and summer students pay a partial amount. See the current semester *Schedule of Classes* for further information.

Financial Aid Fee. All students must pay a financial aid fee. Full-time (seven or more hours) students are charged \$8 per semester. Part-time and summer students pay a partial amount. Fees collected from students are matched by the State of Arizona and used to create a Financial Aid Trust Fund, from which student grants are awarded under the usual financial aid eligibility criteria. See the current *Schedule of Classes* for further information.

Private Music Instruction

One half hour of instruction weekly \$40.00
 One hour of instruction weekly \$60.00
 More than one hour of instruction weekly music majors only \$60.00

Musical Instrument Rental Charge

Charge for use of university-owned musical instruments \$25.00
 Consult the School of Music for specific information.

Late Registration

Fee assessed on registrations beginning with the first day of each session \$10.00

Admission Application

Nonrefundable fee paid by undergraduate applicants residing outside Arizona \$25.00

Transcripts

Official transcripts for currently enrolled students \$1.00 each
 Official transcripts for nonenrolled students \$5.00/first copy

Additional copies ordered at the same time are \$1.00 each. Requests for official transcripts should be made at least two weeks in advance of the time desired.

Copies of Educational Records Other Than 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

A late fee of \$5.00 is added to the charge noted above if not paid on or before the deadlines shown in the "University Calendar," pages 10-12

ID Card

Replacement fee	\$5.00
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Replacement because of wear or deterioration is free of charge.

Comprehensive Examination

Fee paid by all students seeking to establish credit by examination	\$7.50 per semester hour
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Parking Decals. A parking decal must be purchased for motor vehicles parked on campus. Annual decals range from \$30.00 for motorcycle parking to \$105.00 for controlled access parking.

When obtaining an ASU parking decal, it is necessary to submit verification that each vehicle being registered is in compliance with State of Arizona emission 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 emissions test result obtained from a State of Arizona-authorized emission testing facility if the vehicle is registered in another Arizona county or state. The fee for this emission inspection is \$7.50 per vehicle

If you have any questions regarding this policy or parking at ASU, please call 602/965-6124 for assistance.

Parking Violations. Violations of the parking regulations are subject to citations and fines. Appeals to parking citations may be filed within 14 calendar days from the issuance date with the hearing appeals officer and, after payment, may be further appealed to the Parking Citation Appeals Board. Unpaid parking citations are delinquent financial obligations subject to provisions of the section on Delinquent Financial Obligations. Any person owing five or more unpaid parking citations or \$100.00 in unpaid parking citations is subject to having his or her vehicle impounded. A \$50.00 minimum fee is assessed if immobilization is required. If the vehicle is towed, an additional charge may be applied.

Returned Checks and Credit Card Payments. 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. Repay-

ment of a returned check or credit card must typically be in cash.

The university may have arrangements with its bank to redeposit automatically for a second time checks for which there are insufficient funds. No service charge is assessed by ASU until a check is returned to ASU; however, the payer may be assessed a service charge by his or her bank

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 enrolled during the semester.

On-Campus Housing. For information on student housing, see "Residence Life," pages 92-93.

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 a previously returned check from a bank.

Financial Aid. Students receiving financial aid may use their expected aid to pay registration and tuition. See the current *Schedule of Classes* for further information.

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 Services Section 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 withdrawal form is presented to any one of the

28 FEES, DEPOSITS, AND OTHER CHARGES

registrar sites. Students withdrawing for medical or other extenuating circumstances may contact the Comptroller's Office Student Fee Payment Section, SSV B235, for refunds that may be available under these circumstances.

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

<i>Withdrawal Date</i>	<i>Refund</i>
Before 1st 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 assessed by the department.

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

Late Registration. These fees are not refundable.

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

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

Residence Halls. Refunds to students departing from residence halls before the 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 checkout occurs. Students departing during the last two weeks of the semester are charged the full semester rate for meals. No refunds are made for meals missed.

Checkout. A student's checkout is based on the date Residence Life is notified on a prescribed checkout 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 for the net of amounts due the university. When the last day of a refund period falls on a weekend or holiday, a withdrawal form must be submitted to one of the registrar sites during operating hours on the workday preceding the weekend or holiday. Refunds are normally paid by check and are mailed to the student's local address.

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

Arizona Board of Regents' Policy 4-103B, which applies to ASU, 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, located in ADM 109.

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. Several criteria must be met. Students interested in becoming an Arizona resident for tuition purposes should contact the Residency Classification Section as soon as possible after arriving in the state. Call 602/965 7712, or direct inquiries to: Residency Classification Section, Arizona State University, Tempe, Arizona 85287-0312.

Financial Aid

The primary responsibility for financing a college education belongs to students and their families. The Student Financial Assistance Office assists 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 (e.g., loss of parent's income or change in residency classification). 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, and 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, the American College Testing Family Financial Statement, or the United Student Aid Funds Single File Form is acceptable. Any form should be completed in January or February preceding the academic year the

student anticipates attending ASU. Students are notified by mail regarding any additional items or documents needed to complete their applications. These items may include copies of federal tax returns, proof of valid visa, and proof of registration with the Selective Service. The deadline for complete applications is March 1. Applications completed by this date are considered for all grant funds. Applications completed after this date are processed; however, they are considered late applications. Late applications may receive limited grant dollars and a higher proportion of loan or work dollars

A statement of need letter is sent to all applicants. This letter estimates expenses and contribution for the school year and specifies the amount of the applicant's financial need. If students have financial need in excess of \$500, they receive a separate Financial Aid Notification. This letter informs them of the types and amounts of aid they are eligible to receive through ASU. Applicants should read carefully all correspondence received from the Student Financial Assistance Office.

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

Types of Financial Aid and Major Programs

More than 21,000 students receive financial aid resources that total more than \$93.5 million. There are four categories of financial aid: scholarships, grants, loans, and employment.

Scholarships

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

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

Private Donor Scholarships. More than 6,000 students at ASU receive private donor scholarships. Most of these scholarship funds are provided by employers, private individuals, or organizations, and corporations. In most cases, the private donor has a criteria used by the Scholarship Office to identify candidates for a particular scholarship.

University Scholarships. More than 5,200 students receive a scholarship generally in the value of tuition and fees from university sources. The largest source for university scholarships is the authorized Waiver Program by the Arizona Board of Regents. In addition, many scholarships are funded from a General Endowment Fund that receives the yield of a permanent endowment. Some of the typical areas targeted for these scholarships are: top academic seniors in Arizona high schools, minority and underrepresented students, students who demonstrate leadership, students who demonstrate scholastic or scientific abilities, disabled students, and older nontraditional students.

Grants

Like scholarships, grants are provided to students without repayment or service obligation. However, the criterion to receive a grant is generally a calculation of financial need. More than 7,500 students receive some form of grant.

Pell Grant. The Pell Grant program is funded by the federal government and is a basic financial resource to low and moderate income students. Eligibility is determined through the Financial Aid Application process by the federal government. Under this program, the university converts entitlements to cash grant payments. A student may be eligible for a maximum grant of \$2,400 per year.

Supplemental Grant. Funds are received from the federal government by the university, which is required to match the funds. The Financial Assistance Office then determines the eligibility of a

student based on a specific calculation of exceptional financial need. Generally, recipients of the Pell Grant are eligible to receive a Supplemental Grant. Maximum grants are \$2,000.

State Student Incentive Grant. This program is a three-partner program of federal, state, and university funding. Similar to the Supplemental Grant, students' needs are calculated, and those with a high financial need may receive this particular form of funding. It is restricted to residents of Arizona. Maximum grants are \$1,000.

Arizona Trust Fund. This grant source is provided in partnership between ASU students and the state legislature. These funds are provided to predominantly resident, undergraduate, and underrepresented students with a high financial need. Maximum grants are \$1,000.

University Grant. University Grants are generally reserved as the last financial aid program to be used to resolve a student's need. Grants range from \$200 to \$1,000.

Loans

About 10,000 students borrow approximately \$35 million. A variety of loan programs are provided to assist students and, in some cases, parents in the financing of their college education.

Stafford Student Loan. Through the Stafford Student Loan program, the federal government guarantees loans from private lenders to students. The university must, through a needs analysis process, determine the eligibility for each loan applicant. Repayment is made after graduation at 8% interest for the first four years and increases to 10% for years five through 10. However, no repayment during the enrollment period is required, and the federal government pays the interest on the loan during the enrollment period. Freshmen and sophomores may borrow up to \$2,625 per year, and juniors and seniors may borrow up to \$4,000 per year.

Perkins Loan. The Perkins Loan program is similar to the Stafford Student Loan program. However, the funding source is the federal government, and matching funds are provided by the university. In this particular program, the university is the lender, and repayments after graduation are made to the university at a 5% interest rate. There is no interest charged or accumulated during the period of enrollment. Annual loan maximums are \$1,500.

Supplemental Loan. Supplemental Loans are available to students who may need to borrow

from more than one program. This is generally the second program used for those students. Additionally, students who do not have a demonstrated financial need may borrow under this program. The principal differences of this program are that there is no subsidy and that interest must be repaid during the enrollment period or is accrued until graduation. The interest rate is about 12%. Maximum loans are \$4,000 per year.

Parent Loans. The Parental Loan for Undergraduate Students (PLUS) is made to parents, not students. The intent is to help parents make a contribution to their children's education. There is no subsidy to this program, and parents begin to repay this loan within 60 days after the loan is taken. The interest rate is about 12%. Maximum annual loan limits are \$4,000.

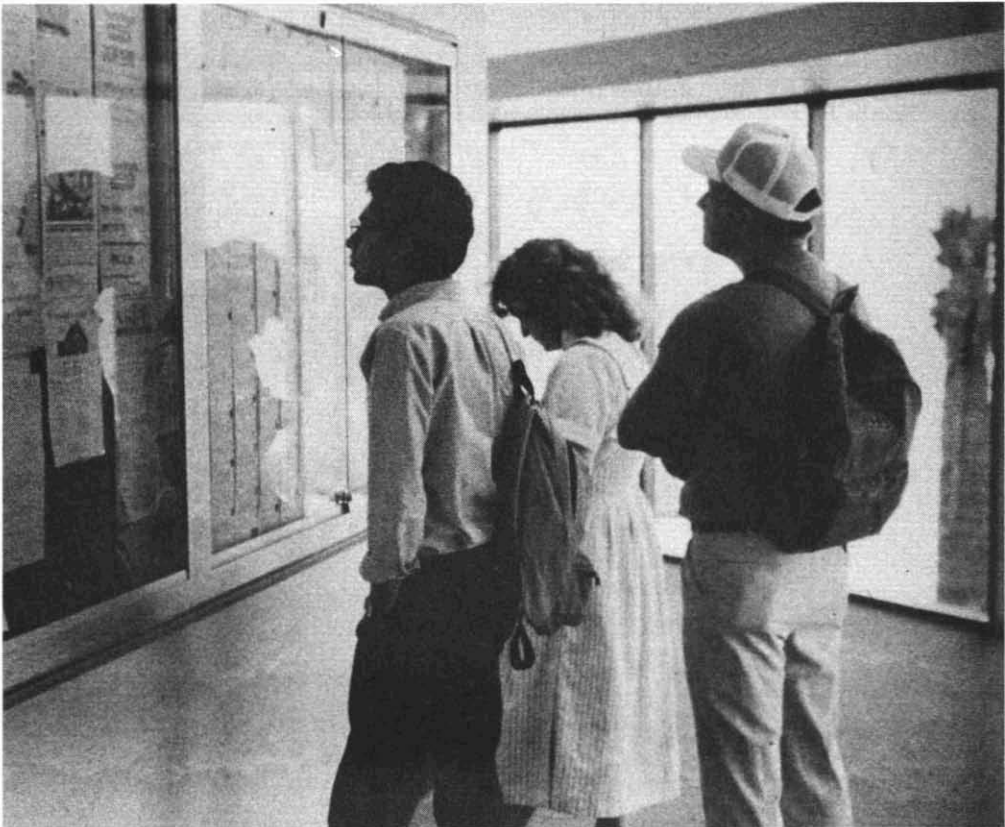
Employment

Approximately 7,000 students earn \$25 million from on-campus part-time student employment programs.

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

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

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



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1991-92 TYPICAL STUDENT BUDGETS

Cost/Allowance Category	Standard Budget	Living with Parents
Room and Board	\$ 4,110	\$ 1,500
Personal (Including Travel)	\$ 2,500	\$ 2,300
Living Total¹	\$ 6,610	\$ 3,800
Fees ²	\$ 1,590	\$ 1,590
Books and Supplies (15 hour course load)	\$ 480	\$ 480
Resident Total³	\$ 8,680	\$ 5,870
Nonresident Tuition*	\$ 5,406	\$ 5,406
Nonresident Total³	\$14,086	\$ 11,276

¹ Living expenses (room, board, personal expenses) are stated for a nine month period

² Tuition and fees are subject to change without notice. Only nonresidents pay tuition. Fees include registration, trust fund, and recreation fees.

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. Actual costs may vary according to lifestyle. Financial aid awards are intended to assist a student in satisfying this budget.

New Student Procedures

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

Admission to ASU

Admission. Students seeking admission should complete an application and have transcripts sent directly to Undergraduate Admissions. See page 34. 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 before 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.

University Honors College. New students should investigate the challenges and advantages of the University Honors College. See pages 98 100. Call 602/965 2359 for more information.

Transfer Students. Transfer students should note the number of semester hours on the Certificate of Admission. The grade index determines admission only and is not part of a student's ASU GPA. 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," pages 47–48.

Transfer students should check with the First-Year Composition Office at 602/965 3853 to determine if they have met the First Year Composition requirement. See page 89.

A transfer student who has completed 87 or more semester hours must file a program of study with the ASU Graduation Office. See page 90. Call 602/965–3256 for more information.

Financial Assistance

Students seeking financial assistance should apply early. March 15 is the priority deadline. See

pages 26–27, 29 31, and 92. Call 602 965 3355 for more information.

Students borrowing a student loan for the first time must attend an entrance interview before receiving the loan funds.

Housing

Students seeking ASU housing are strongly encouraged to apply at least six months in advance. See pages 92 93 Call 602/965 3515 for more information.

Orientation

Students are encouraged to attend orientation, where questions regarding advisement, registration, student ID's, books, meal tickets, and other pertinent topics are answered. *The Bridge* provides information on orientation. Call 602/965 2677 for more information.

Measles Immunization. All ASU students born after December 31, 1956, need to provide documentation of measles immunization. Students immunized before January 1, 1980, must be reimmunized. Call 602/965 3346 for more information.

Student ID. A new student should obtain an ASU student ID card. See pages 49 and 92. Call 602 965 3171 for more information.

Parking. Students planning to park on campus should purchase a parking decal. See page 27. 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 exams 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 42–43 Call 602/965 2622 for more information.

34 NEW STUDENT PROCEDURES / UNDERGRADUATE ADMISSION

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.

Architecture and Environmental Design	602/965 3584
Business	602/965-4227
Education	602/965 3877
Engineering and Applied Sciences	602/965 5150
Fine Arts	602/965-6647
Law	602/965-6181
Liberal Arts and Sciences	602/965-6506
Nursing	602/965 2987
Public Programs	602/965 1058
Social Work	602/965-6081
University Academic Advising Center	602/965-4464
University Honors College	602/965 2359

Registration

See page 49.

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/Billing Statement includes payment deadlines. See the "University Calendar," pages 10-12, for pertinent deadlines.

Schedule of Classes. Students may pick up class schedules and Course Request Forms at Registrar Sites: Payne Education Hall (EDB 42), Social Sciences Building (SS 102), Business Administration Building (BA 141), Engineering Center (ECB 103), and ASU West. See the "Campus Map," pages 586-587.

Register for Classes. See the *Schedule of Classes* 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 Sessions Bulletin*. Call 602/965 3175 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 53. Call 602/965 3175 for more information.

Withdrawal. A student seeking withdrawal from a course should consult the *Schedule of Classes* for procedures. See pages 53-54. Call 602/965 3175 for more information.

Summer School. Summer sessions schedules are available in February. See pages 489-490.

Change Majors

See "Academic Advisement," pages 47-48.

Grade Appeals

If a student believes there is a discrepancy between the grade earned and the one received, the student may appeal the grade. See Appendix B, page 585. 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 note taking, 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 the university by getting to know professors, joining student organizations, and taking advantage of the university's myriad cultural and social opportunities that enhance the educational experience. See the *Arizona State University Handbook and Calendar*.

Undergraduate Admission

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

Prospective students may call 602/965 7788 (toll free numbers 1/800/252 ASU1 for out-of-state applicants and 1/800/325-9371 for in-state) or may write to the Undergraduate Admissions Office for information including application materials. With reasonable advance notice, the Undergraduate Admissions Office arranges 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, school, 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 are 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 ASU 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. a \$25 nonrefundable application fee (required of all applicants applying as nonresidents or residing outside Arizona).

Applicants are urged to apply and to have their materials sent as soon as possible. This enables university officials to make an early decision concerning the applicant's admission and permits 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 before the first day of classes.

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

Domicile Affidavit. Like other state supported colleges and universities, ASU 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 is classified as 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 and 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 or transmitted by facsimile (fax) machine are not accepted.* High school transcripts must show GPA, rank in class, and date of graduation. Applicants with fewer than 36 semester hours of transferable college or university credit must also have official high school records submitted. An English translation of all non English 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 years of high school. Transfer applicants who have completed fewer than 36 semester hours of acceptable college or university work must submit ACT or SAT scores, which are used to complete competency requirements and for course placement.

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

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Admissions Testing Program, Box 592-R, Princeton, New Jersey 08540.

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

Applicants whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL) in place of the ACT or SAT *if* (1) they have not attended a high school in the United States where English is the language of instruction for their junior and senior years *or* (2) they have not graduated from a U.S. college or university where English is the language of instruction.

A minimum score of 500 is required. Applicants to the School of Engineering, Department of Computer Science and Engineering, and the Department of Construction must score a minimum of 550 to be admitted into professional engineering curricula.

Immunization Requirements. Every newly admitted student 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 are not permitted to register until the immunization history, including measles immunizations proof, is on file with Student Health.

Adequate proof of immunization is:

1. record of measles immunization received after January 1, 1980;
2. record of blood test showing immunity; or
3. proof of diagnosed measles case.

Health Standards. 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 that 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. To be eligible for admission to ASU, 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 (4.00 - A)
	ACT ¹	SAT	
Arizona residents			
Top Half	<i>or</i> 22	<i>or</i> 930	<i>or</i> 2.50 high school GPA
Nonresidents ²			
Top Quarter	<i>or</i> 24	<i>or</i> 1010	<i>or</i> 3.00 high school GPA

College Transfers

Transferable Semester Hours	GPA (4.00 - 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	2.00 college GPA	Application and college transcripts
Nonresidents ³		
See above	2.50 college GPA	See above

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

² 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.

³ 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

These may be met by combinations of high school courses, college courses, and test scores. Transfer students with 36 or more transferable semester hours and students 22 years of age or older at the 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 competency requirements.)

English

Four years high school English composition/literature based	<i>or</i>	Minimum test score: ACT English 21* or SAT Verbal 450	<i>or</i>	Three semester hours (one course) 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	<i>or</i>	Minimum test score: ACT Math 20* or SAT Math 500	<i>or</i>	Two pre-college level three semester hour courses in algebra or one transferable three semester hour course in college algebra
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Laboratory Science

Two years high school, 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 Science Reasoning 20 The test score may not be from same subject as high school credit earned.	or	Two transferable four semester hour college level lab science courses in different subject areas
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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-level American history course
B One year high school social science (e.g., European history, world history, sociology, geography, government, anthropology)	or	Minimum score on ATP European History/World Cultures Achievement 545	or	One transferable three-semester hour college-level social science course

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

Students should also note the following:

1. A minimum 2.00 average (4.00 A) must be earned in the courses taken in each of the four competency areas. See pages 55-56, "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 pages 55-56, which explains procedures to meet these competencies.)
3. Competencies may be met by combinations of high school and college courses or test scores.
4. based on considerations such as academic potential, work experience, and leadership ability;
3. an average score of 50 or greater on the General Education Development (GED); or
4. completion of at least nine semester hours of college freshman level academic studies (at a community college or summer or evening sessions at a university, or both) with a GPA of 2.50 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.

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, Arizona 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

The School of Engineering recommends three and a half high school years of mathematics, including advanced algebra, geometry, and trigonometry. Calculus is recommended. The laboratory sciences chosen should include at least one unit in physics and one year of chemistry. One year 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 before Graduation from High School. Admission may be granted to high school seniors who submit a six semester or

seven semester transcript that shows academic quality and rank in class in keeping with admission standards and who complete the steps in the undergraduate admission procedures. Admission is *confirmed* when a verification of the high school graduation showing the final GPA, the rank in class, and the date of graduation has been received in the mail by the Undergraduate Admissions Office directly from the high school. In addition, students who are 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.

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

Anyone interested in admission as a nondegree undergraduate student at ASU must submit the following to the Undergraduate Admissions Office: (1) Nondegree Undergraduate Application for Admission (including Domicile Affidavit) and (2) a \$25 nonrefundable application fee (for applicants applying as nonresidents or residing outside Arizona).

No more than 15 hours of completed nondegree work may be applied to a degree program if the completed courses meet specific requirements within a degree program. A nondegree student who decides to work toward a bachelor's degree must *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 is not permitted to register again in nondegree status. Nondegree students are not eligible to receive most types of financial aid, nor are they eligible to receive certain benefits such as veteran benefits.

Transfer Applicants

Arizona Applicants. An Arizona applicant for transfer admission must have a cumulative GPA of 2.00 or higher (see specific college requirements listed in Arizona transfer applicant section above) on a 4.00 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 GPAs: Computer Science 2.50; Construction 2.25; Engineering 2.50; Speech and Hearing Science 2.50, and Technology 2.25. Other academic units may have different GPA requirements to enroll in junior or senior level courses.

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

Applicants having completed fewer than 36 semester hours of 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 is awarded for traditional course work successfully completed at institutions of higher learning as indicated by ASU and the Arizona Board of Regents. *Whether the specific credits can be applied toward a degree depends on the requirements of the department, division, school, or college in which the student is enrolled.* There are several qualifications:

- 1 Transfer credit is not given for courses in which the lowest passing grade ("D") or a failing grade was received.

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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 GPA at ASU.

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

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

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

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

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

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

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

Community college students who plan to transfer to ASU at the end of their first or second years are strongly advised to plan their community col-

lege courses to meet the requirements of the curricula they select.

Students Attending Other Arizona Community Colleges. To determine the equivalency of courses between Arizona institutions and those offered at ASU, a student should refer to the *Arizona Higher Education Course Equivalency Guide* in consultation with his or her academic advisor. Provided his or her college attendance has been continuous, a student is permitted to follow the degree requirements specified in the ASU catalog in effect at the time he or she began community college work. See pages 89-90, "Guidelines for Determination of Catalog Year."

Admission before Receipt of Final Transcript. Students enrolled in other colleges and universities are considered for admission on the basis of meeting all admission requirements, except for a final transcript of work in progress. This final transcript must be sent to the Undergraduate Admissions Office from the issuing institution immediately after the work in progress has been completed. Hand-carried transcripts are not accepted. *Admission is 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 are cancelled, and any registration fees paid are returned.

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

An applicant for transfer admission whose academic record fails to meet ASU scholarship admission standards is denied admission. Such an applicant, however, may write a letter of appeal accompanied by letters of recommendation to the University Undergraduate Admissions Board, Arizona State University, Tempe, Arizona 85287-0112, for reconsideration of his or her application. The decision of this board is final.

Admission of International Applicants Who Attend on F-1 or J-1 Visas

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

1. to meet the minimum GPA requirements for nonresident applicants (see page 39);
2. to submit a financial statement assuring adequate resources to support themselves while in residence at the university;
3. to have all required admissions materials and credentials reach the Undergraduate Admissions Office at least two months before the beginning of the semester for which application is being made (an English translation of all non English documents is required);
4. to pay a nonrefundable application fee of \$25 in U.S. funds; and
5. to meet all appropriate immigration standards and requirements.

Applicants whose native language is not English are required to take the Test of English as a Foreign Language (TOEFL) in place of the ACT or SAT *if* (1) they have not attended a high school in the United States where English is the language of instruction for their junior and senior years *or* (2) they have not graduated from a U.S. college or university where English is the language of instruction

A minimum score of 500 is required. Applicants to the School of Engineering, Department of Computer Science and Engineering, and the Department of Construction must score a minimum of 550 to be admitted into professional engineering curricula.

All required application materials must be received by the Undergraduate Admissions Office no later than May 15 for fall applicants and October 15 for spring applicants.

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, and other topics should be addressed to the American Language and Culture Program, Arizona State University, Tempe, Arizona 85287 3106. Acceptance into the American Language and Culture Program is separate from admission to the university. For additional information, see page 473.

Admission of Disabled Applicants

Persons with disabilities who meet academic qualifications are encouraged to apply for admission to ASU

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

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 that allow each qualified disabled student access to educational, social, and cultural/recreational opportunities available within the university community. Each student is encouraged to function independently and to develop his or 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 93.) Eligibility 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 or her own personal care assistance

To ensure a smooth transition into the university community, prospective students with disabilities are encouraged to call 602/965 1234 or write Disabled Student Resources, Arizona State University, Tempe, Arizona 85287 3202.

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Special Programs for Advanced Placement and Credit

A maximum of 30 hours of credit is awarded for any or all programs, including ASU comprehensive and proficiency examinations

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 is given for any examination with a score of 2 or 1.

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

Exam	Score	Semester Hours	Equivalency
Art History	5 or 4	6	ARS 101, 102
	3	3	ARS 101 or 102
Art Studio—Drawing Art—Studio—General	5, 4, or 3		Department evaluates all portfolios for determination of advanced placement or credit
Biology	5 or 4	8	BIO 181, 182
	3	4	BIO 181
Chemistry	5 or 4	9	CHM 113, 115
	3	4	CHM 113
Computer Science AB	5 or 4	6	CSE 100, 101
Computer Science A	5 or 4	3	CSE 100
Economics Introductory Macroeconomics	5 or 4	3	ECN 111
Economics Introductory Microeconomics	5 or 4	3	ECN 112
English—Language and Composition	5 or 4	6	ENG 101, 114 eligible for ENG 102H
English Literature and Composition	5 or 4	6	ENG 101, 110 eligible for ENG 102H
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
	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

Exam	Score	Semester Hours	Equivalency
	3	8	FRE 201, 205 GER 201, 202 SPA 201, 202
History American or European	5 or 4	6	HIS 103 and 104 or HIS 101 and 102
	3		Department evaluates examination and recommends credit
Mathematics—Calculus AB	5, 4, or 3	4	MAT 270
Mathematics—Calculus BC	Same as for Calculus AB; with a 5 or 4, additional credit may be granted upon departmental approval		
Physics B	5 or 4	6	PHY 111, 112
	3	3	PHY 111
Physics C Electricity and Magnetism	5 or 4	4	PHY 112, 114, or upon departmental approval credit may instead be granted for PHY 131, 132
Physics C Mechanics	5 or 4	4	PHY 111, 113; or upon departmental approval credit may instead be granted for PHY 121, 122
Political Science American Government and Politics	5 or 4	3	POS 110
Comparative Government and Politics	5 or 4	3	POS 150

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 is *not* given where (1) it duplicates credit previously earned by the student at the university or accepted by the university for work done elsewhere or (2) 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 require-

ments in natural sciences (S1 and S2) and literacy and critical inquiry (L1 and 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 limit of 60 semester hours of credit does not apply to subject examinations.

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General Examinations	Semester Hours	Equivalency
English Composition	None	With essay qualifies for ENG 105
Humanities	6	Elective credit
Mathematics	3	MAT 106
Natural Sciences	8	Elective credit
Social Sciences and History	6	Elective credit
Subject Examinations	Semester Hours	Equivalency
American Government	3	POS 110
American History 6)		
Early Colonization to 1877	3	HIS 103
1865 to the Present	3	HIS 104
American Literature	6	ENG 341, 342
Analysis and Interpretation of Literature	3	Elective credit
Calculus with Elementary Functions	4	MAT 270
College Algebra	3	MAT 117
College Algebra and Trigonometry	3	MAT 118
College Composition	None	With satisfactory essay qualifies for ENG 105
College French	8	FRE 101, 102
College German	8	GER 101, 102
College Spanish	8	SPA 101, 102
Computers and Data Processing	3	Elective only credit
English Literature	3	Elective credit
Freshman English	None	Recommend college composition subject exam
General Biology	8	BIO 181, 182
General Chemistry	9	CHM 113, 115
General Psychology	3	PGS 100

Subject Examinations	Semester Hours	Equivalency
Human Growth and Development	None	No credit
Introduction to Macroeconomics	3	ECN 111 (Students must score a 75 or higher to receive credit.)
Introduction to Management	None	No credit
Introduction to Microeconomics	3	ECN 112 (Students must score a 75 or higher to receive credit.)
Introductory Accounting	6	ACC 211, 212 (Students must score a 75 or higher to receive credit.)
Introductory Business Law	3	Elective credit
Introductory Marketing	None	No credit
Introductory Sociology	3	SOC 101
Trigonometry	None	No credit
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 EDB 302, or call 602/965 7146.

International Baccalaureate Diploma/Certificate. 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 qualifies the student to receive credit for up to two introductory courses while a grade of 4 qualifies a student to receive credit for one introductory course. No credit is awarded for the English as a Second Language examination. Credit is awarded as follows:

Exam	Score	Semester Hours/Equivalency
Biology	7, 6, or 5	8 BIO 181 and 182
	4	4 BIO 181
Chemistry	7, 6, or 5	9 CHM 113 and 115
	4	4 CHM 113
English A	7, 6, or 5	6 ENG 101 and 110
	4	3 ENG 110
English B	<i>no credit awarded</i>	
Foreign Language A or B	<i>no credit awarded</i>	

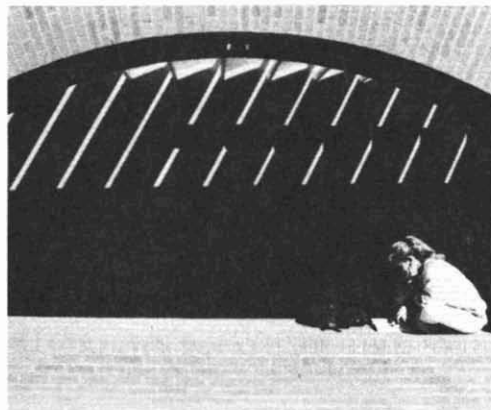
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Exam	Score	Semester Hours/Equivalency
History—American	7, 6, or 5	6 HIS 103 and 104
	4	3 HIS 103
History—European	7, 6, or 5	6 HIS 101 and 102
	4	3 HIS 101
Math	7, 6, 5 or 4	4 MAT 270
Physics	7, 6, or 5	8 PHY 111, 112, 113, and 114
	4	4 PHY 111 and 113

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

A number of restrictions apply. The student must be enrolled at ASU with *no more than 100 semester hours of credit earned*. The examinations must be taken during the first two semesters in residence 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 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 is prepared by the instructor who normally conducts the course, and it is comprehensive in nature and scope. The instructor and other experts designated by the chair grade the examination, using letter grades "A," "B," "C," "D," or "E." If the grade is "C" or better, a mark of "Y" is entered on the student's permanent record; otherwise, no entry is made. Credit by examination is indicated as such on the record. The student is notified by mail of the result of the examination. In cases of failure ("D" or "E"), the student is *not* given an opportunity to repeat the examination.

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

Proficiency Examinations. Proficiency examinations are given:

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

48 ACADEMIC ADVISEMENT / READMISSION / ACADEMIC RENEWAL

College of Engineering and Applied Sciences

ECG 115 965 5150
Hours: M F 8 00 5 00

College of Fine Arts

GHALL 127 965-6647)
Hours: M F 8 00 5 00

College of Law

LAW 101 (965 7207)
Hours: M F 8 00 5 00

College of Liberal Arts and Sciences

SS 111 (965-6506)
Hours: M F 8 00 5.00

College of Nursing

NUR 108 965 2987)
Hours: M F 8 00 5 00

College of Public Programs

WILSN 203 (965 1058)
Hours: M F 8 00 12 00
1 00 5.00

Graduate College

WILSN Lobby 965 3521)
Hours: M Th 10 00 7:00
F 10 00 2:00

School of Social Work

WHALL 137 965-6081)
Hours: M F 9:00 12 00
1 00 4:00

University Academic Advising Center

MCENT Lobby (965-4464)
Hours: M Th 8:00 6 30
F 7.00 4:00
Sa 9:00 12 00

University Honors College

MCL 112 (965 2359)
Hours: M F 8:00 5 00

Readmission to the University

Undergraduate students who have previously attended ASU but have not been enrolled at this institution for one semester or more are 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 ASU, it is necessary for the student to have on file an official transcript of all academic work taken. Failure to report such attendance is considered misrepresentation and falsification of university records. In addition, it is considered cause for Records Hold action and withholding of further registration privileges.

An applicant for readmission to a classified program must meet the requirements for good standing (page 55) 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 Ad-

missions Board. Nondegree applicants for readmissions must have a minimum GPA of 2.00. If not, the applicant must apply to ASU through Undergraduate Admissions.

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

Academic Renewal

Academic renewal is a university policy administered for the purpose of recalculating the ASU cumulative GPA of undergraduate students who have been readmitted to a degree program after an absence of at least five continuous calendar years and who have completed in good standing a minimum of 12 college approved additional hours in residence. Students may have the former academic record before the five year absence (including transfer credits accepted in the same manner as if the credits were community college transfer credits. That is, earned hours are carried forward for up to 64 hours of credit in which a grade of "C" or better was earned. The cumulative GPA is based only on credits earned subsequent to the student's re entry. All graduation residency, academic recognition residency, and GPA requirements must be fulfilled after academic renewal.

A request for academic renewal follows this procedure:

1. Students interested in academic renewal must request the Application for Academic Renewal from the Readmission Section of the Registrar's Office or the dean of the college offering the major.
2. The Application for Academic Renewal may be submitted immediately upon readmission but not later than the start of the third semester after readmission.
3. The Application for Academic Renewal is submitted by the student to the dean of the college offering the major.
4. The dean specifies in advance a minimum of 12 credit hours.
5. When the approved credits are completed with a cumulative GPA of 2.50 or higher, the dean forwards the Application for Academic Renewal to the Registrar's Office for processing.

Academic renewal may be effected only once during a student's academic career and is transferable among colleges. Eligibility for graduation is based on the ASU cumulative GPA after academic renewal. However, a student's complete record before and after academic renewal remains on the transcript and may be taken into consideration when a student applies for undergraduate professional or graduate programs.

Registration

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

Eligibility. Only eligible students may register for courses at ASU. An eligible student is either continuing from the previous semester or has been admitted or readmitted to the university. See "Undergraduate Admission," pages 34-35, and "Readmission to the University," page 48.

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 needs to obtain a student identification card. This photo identification card is valid for the duration of the student's enrollment at ASU.

Photo IDs are issued throughout the semester at the Payne Registrar Site, EDB 42. Refer to page 7, "ID Card Replacement."

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 pay-

ment tendered is unauthorized, incomplete, or received after the due date, registration fees are considered not paid.

Schedule of Classes. The *Schedule of Classes* is published each semester and distributed without charge. It 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 Colleges of Engineering and Applied Sciences or Architecture and Environmental Design). A student wishing to register for more than the maximum must petition the standards committee of the college in which he or she is enrolled and must present an approved override at the time of registration.

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

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

Enrollment Verification Guidelines. The following general guidelines are used to verify enrollment. The registrar is responsible for such verifications.

	<i>Regular Semester</i>	<i>Full-Time</i>	<i>Half Time</i>	<i>Half Time</i>
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
<i>Five Week Summer Session</i>				
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	
<i>Eight Week Summer Session</i>				
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 ASU is any educational program that requires *alternating classroom and work experience* in government or industry. The work experience exists for its educational value.

Full time Status of Co-op Students. A co-op student, during a work semester, is identified as both co-op and full time by the university if he or she was full time during a "cooperative education" course.

Rights and Privileges of Co-op Students During their work semesters, co-op students have the rights, privileges, and protections with regard to university matters—accorded to full time students, except financial aid assistance. They maintain catalog continuity and have student access to university facilities and events.

Financial Aid for Co-op Students Co-op students are not identified to lenders (including ASU) as being in loan repayment status. They have an "in school" full time enrollment status. Co-op students do not receive any financial aid disbursement during their co-op semesters *nor are such awards transferred to another semester.* The student is responsible for notifying Student Financial Assistance as soon as plans for a co-op term are made but no later than 10 days before the co-op term begins. The department or school is responsible for notifying Student Financial Assistance of students approved for co-op terms.

Traveling Scholar Program. The Traveling Scholar Program is a cooperative program between the three state universities designed to enable students to take advantage of programs or special resources that are not available at their own institutions. Any undergraduate student with a GPA of at least 2.50 or graduate student with a GPA of at least 3.00 enrolled *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 institutions. Contact the Records Information Section for additional information and the application form.

Classification of Courses

Course Information

Information about all courses that may be offered by ASU appears in the *General Catalog*, published annually every spring. Classes scheduled for the current or upcoming fall or spring semester are listed in the *Schedule of Classes*, published before the beginning of every semester. Classes

scheduled for the summer sessions are listed in the *Summer Sessions Bulletin*, published every spring. Information about courses that apply toward graduate programs also appears in the *Graduate Catalog*, published each spring.

Course Numbering System

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

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

500–799 (Graduate-Level) Courses. These courses are designed for graduate students. However, an upper division undergraduate student may enroll in these courses with the approval of his or her 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 page 483 and the *Graduate Catalog*.

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

Omnibus Undergraduate Courses

Internship 484. Structured practical experience following a contract or plan, supervised by faculty and practitioners. Internships range in credit from one to 12 semester hours.

Special Topics 294, 394, and 494. These courses cover topics of immediate or special interest to a faculty member and students. They range in credit from one to four semester hours.

Pro-Seminar 498. These courses involve small group study and research for advanced students within their majors. Major status in the department or approval of the instructor is required. These courses range in credit from one to seven semester 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 honors 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 GPA 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 offering the course. A special class fee may be required. These courses range in credit from one to three semester hours.

Special Liberal Arts Courses. LIA 100 University Adjustment and Survival and LIA 101 Use of Research Libraries are interdisciplinary courses offered by the College of Liberal Arts and Sciences and are open to all students

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 and graduates for 6-12.

Honors Courses. The courses listed as 298 and 492 (Honors Directed Study), 493 (Honors

Thesis), and 497 (Honors Colloquium) and all courses with the HON prefix are reserved for students in the University Honors College. These courses range in credit from one to six semester hours.

Omnibus Graduate Courses

	<i>Semester Hours</i>
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
592 Research	1 12
593 Applied Project	1 12
594 Conference and Workshop	1 12
595 Continuing Registration	0
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
695 Continuing Registration	0
700 Research Methods	1 12
780 Practicum	1 12
783 Field Work	1 12
784 Internship	1 12
790 Reading and Conference	1 12
791 Seminar	1 12
792 Research	1 15
793 Applied Project	1 12
795 Continuing Registration	0
799 Dissertation	1 15

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

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

Key to Course Listing Abbreviations

- GLG Departmental prefix designation
- 410 Course number
- (3) Three 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'91, S'92 Course offered every other year on semester indicated
- N Course not regularly offered

Grading System

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

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

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 – Withdrawal |
| I – Incomplete | X – Audit |
| Y – Satisfactory | |

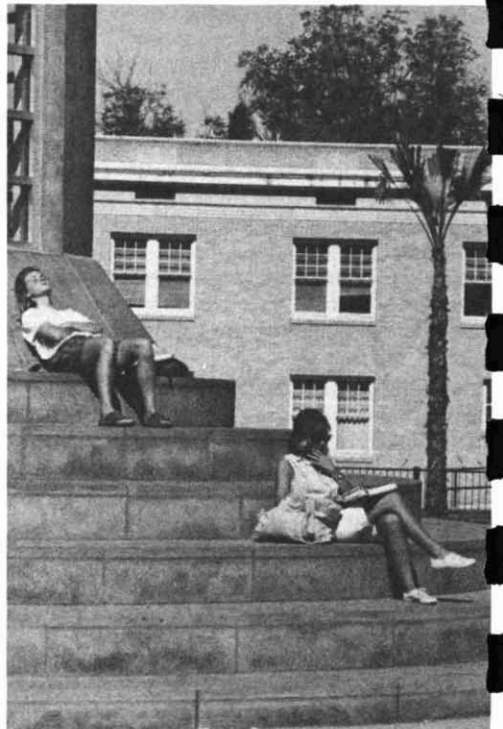
* Appears only on unofficial copy of ASU transcript.

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 50-minute class exercise per week per semester. To obtain credit, a student must be properly registered and must pay fees for the course.

Audit Enrollment. A student may choose to audit a course, in which case the student attends regularly scheduled class sessions but no credit is earned. The student should obtain the instructor’s approval before registering and paying the fees for the course.

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



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

Remedial Enrollment. A mark of "RC" (remedial credit) or "RN" (remedial no credit) may be assigned for this grading option. The course appears on an unofficial ASU transcript, but does not appear on the grade report or official ASU transcript and is not included in earned hours. Remedial hours are included in verification of enrollment for purposes of loan deferment and eligibility.

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

Incomplete. A mark of "I" (incomplete) is given by the instructor only when a student who is otherwise doing acceptable work is unable to complete a course because of illness or other conditions beyond the student's control. The mark of "I" should be granted only when the student can complete the unfinished work with the same instructor. However, an incomplete ("I") may be completed with an instructor designated by the department chair if the original instructor later becomes incapacitated or is otherwise not on campus. The student is required to arrange with the instructor for the completion of the course requirements. The 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" are changed to a grade of "E" for purposes of evaluating graduation requirements for undergraduate students. Marks of "I" received in the fall 1983 semester or thereafter for undergraduate courses that have been on a student's record for more than one calendar year are automatically changed to a grade of "E." An undergraduate student does not reregister or pay fees for a course for which an incomplete "I" has been received in order to complete the course.

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

Drop/Add. Students registering 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 drop/add periods. During this period, a student may drop one or more (but not all) scheduled courses without penalty. Courses that are dropped do not appear on the student's transcript and fees paid are fully refunded, depending on the student's remaining hours. A student who wishes to withdraw from all courses during the drop/add period must process an unrestricted withdrawal.

Unrestricted 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 Sessions Bulletin*.

Restricted Withdrawal. Between the fourth week and the end of the 10th week of a semester, students may withdraw with a mark of "W" from courses only 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 Sessions 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; and, 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 or zero hour labs and recitations.

Instructor-Initiated Withdrawal. An instructor may withdraw a student from a course with a mark of "W" or a grade of "E" only in cases of disruptive classroom behavior. A student may appeal an instructor initiated withdrawal to the

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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 is permitted to withdraw from the university or to conduct any registration transaction in the last two weeks of the semester. Complete withdrawal deadline dates pertinent to summer enrollment are in the *Summer Sessions 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. Normally, a medical withdrawal request is made in cases where serious illness or injury prevents a student from continuing courses and an incomplete or another arrangement with the instructor is not possible. Consideration is usually for complete withdrawal. This policy applies both to cases involving physical health problems and those involving mental or emotional difficulties.

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

Grade Points. For the purpose of computing the grade point average (GPA), grade points are assigned to each of the grades for each semester hour as follows: "A," four points; "B," three points; "C," two points; "D," one point; "E," zero points. GPAs are rounded to the nearest 100th of a grade point.

Grade Point Average. Grade points earned for a course are multiplied by the number of semester hours to produce honor points. For example, receiving an "A," which is assigned four grade points, in a three-semester-hour course would produce 12 honor points. The grade point average (GPA) is obtained by dividing the total number of honor points earned by the total number of semester hours graded "A," "B," "C," "D," or "E." Other grades do not carry grade points. Semester GPA is based on *semester* net hours. Cumulative GPA is based on *total* net hours.

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 the dean of the college concerned. This applies also to the grade of "I" incomplete. See "University Policy for Student Appeal Procedures on Grades," Appendix B, page 585.

Repeating Courses. An undergraduate course taken at ASU may be repeated for credit if the grade of "D," "E," or "W" or a mark of "X" is received. Undergraduate courses in which grades of "D" or "E" are received may be repeated only once.

When an undergraduate student repeats a 100 or 200 level course and receives a "C" or better, the student may have the "D" or "E" deleted from calculation of the GPA by filing a Deletion Form with the Office of the Registrar. To be eligible for the deletion of a "D" or "E" grade, the course must be repeated at ASU. Students who have graduated are not eligible to delete the grade for a course that was taken before the award of the ASU bachelor's degree.

When an undergraduate student repeats a 300- or 400 level course, the student's cumulative GPA and the transcript reflect both grades.

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

Demonstration of Mastery. An undergraduate student who receives a "D" in a course in which a "C" or 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 computed in the student's GPA.

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

Final Grade Report. A grade report is sent to each student at the end of each semester to the permanent address of record. *It is the responsi-*

ability of the student to keep the Office of the Registrar informed of address changes

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

When a hold is placed on a record, the following results may occur:

1. No official or unofficial transcript is issued.
2. Registration privileges are suspended.
3. Other student services may be revoked.

The hold remains effective until removed by the initiating office. It is the student's responsibility to clear the conditions causing the hold.

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

1. the student's name or former name(s);
2. the student ID number;
3. the date of birth; and
4. the dates of attendance.

No transcript is issued in cases 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 for the first copy. Additional copies ordered at the same time are \$1.00 each.

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 are not accepted from third parties without a written release from the student. For information on parental access to records, see "Access to Records," page 57

Retention and Academic Standards

Class Standing of Students

- 1 Freshman, 24 or fewer 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 fewer	1.60
25–55	1.75
56 or more	2.00

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

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

For purposes of retention or transfer, an individual college may set higher GPA standards; otherwise, the university standards prevail. See the college sections of this catalog or contact the college deans' offices for statements regarding college retention standards.

Meeting Admission Competencies

New students are required to have completed a specific number of courses in the areas of American history, English, laboratory science, mathematics, and social science. Students who are exempt from these requirements include transfer students with 36 or more transferable semester hours, students admitted by GED, and students who are 22 years of age or older by the first day of the semester. An admitted student who needs to meet competencies in one or more of these areas must satisfy the requirement within one year of the beginning of his or her 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 that May Be Used to Meet Competencies
American history	HIS 103 or 104
English	ENG 071 or 101 or 105 or 107
Laboratory science*	<i>Life Sciences</i> BIO 100 or 181 or 182 or BOT 108 or ZOL 113 or 201 <i>Chemistry</i> CHM 101 or 113 or 117 <i>Physics</i> AST 111 and 125 or AST 112 and 126 or PHS 110 or PHY 101 or 105 or 111 and 113 or 112 and 114 or 121 and 122 or 131 and 132
Mathematics	MAT 106 or 117 or 118 or 119 or 210 or 260 or 270 or 290

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Social science ASB 102, ECN 111 or 112, GCU 102 (or 121 or 141), HIS 100 or 101 or 102, PGS 100, POS 101 or 110 or 120 or 150 or 160, SOC 101

* The laboratory science requirement is designed to demonstrate competency in two separate laboratory science areas. Therefore, for example, if one lab science competency has already been met in life 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

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

A student wishing to appeal the dismissal should submit a petition through his or her college. The colleges have three options in reviewing these appeals. The college may

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; or
3. deny the petition.

College actions are forwarded to the Office of the Registrar for processing.

Dean's List. Undergraduate students who earn 12 or more graded semester hours ("A," "B," "C," "D," or "E") during a semester in residence at ASU with a GPA of 3.50 or better are eligible for the Dean's List. A notation regarding Dean's List achievement appears *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, and 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 Services Section respectively. Students should contact their advisors or

the appropriate office for additional information on satisfactory progress requirements.

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

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

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

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

Disqualification is exercised at the discretion of the college and becomes effective on the first day of the semester following college action. *A disqualified student is notified by the dean of the college and or the registrar and is not allowed to register in a fall or spring semester at the university until reinstated.* A student who has been disqualified may appeal to the college standards committee. A student who is disqualified may not attend as an unclassified student.

Reinstatement. 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 Readmission Section (SSV Lobby B114) or directly to the college to which the student wishes and is qualified to transfer.

To be reinstated into an ASU college other than the disqualifying college, the student must submit an application for reinstatement to the University Undergraduate Admissions Board through the Readmissions section of the Office of the Registrar.

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 Office of the Registrar.

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.

Academic Integrity. The highest standards of academic integrity are expected of all students. The failure of any student to live up to these standards may result in suspension or expulsion from the university and/or other sanctions as specified in the academic integrity policies of the individual colleges. Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, or facilitating such activities. The university and college academic integrity policies are available from the Office of the Provost and from the deans of the individual colleges.

Suspension/Expulsion for Academic Dishonesty. All decisions relating to expulsion or suspension that are concerned with academic dishonesty are the sole prerogative of the dean of the school or college in which the student has been admitted. These decisions of suspension or expulsion can be appealed in accordance with established university procedures. Application for reinstatement may be made to any of the academic units within the university after the specified period of suspension.

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.

Student Records

Family Educational Rights and Privacy Act of 1974

This act, known as the Buckley Amendment, sets forth the requirements governing the protection of the privacy of the educational records of students who are or have been in attendance at ASU.

Definitions

Eligible Student. For the purpose of this act, an *eligible student* is defined as any individual formally admitted to and enrolled at ASU or the

parents of a *dependent* eligible student. Dependence is defined by Section 152 of the Internal Revenue Code of 1954.

Record. This term includes any information or data recorded in any medium, including, but not limited to: handwriting, print, tapes, film, microfilm, microfiche, and electronic means.

Types of Information

Educational Record. This term refers to those records that are directly related to a student and 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. This term includes the following student information: name, local and permanent addresses, 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. This term includes the name of a student, the student's parent, or other family member(s), a personal identifier such as the student's Social Security number, a list of personal characteristics, or other information which would make the student's identity easily traceable and any information, including directory information, that the student has indicated will not be released.

Access to Records

An eligible student or a parent of a dependent eligible student may inspect and review the student's educational records. Some form of photo identification must be displayed before access to educational records is allowed.

Directory information may be released to any one without consent of the student unless the student has indicated otherwise. Students may request that this information not be released by completing a form in the Office of the Registrar. Request to withhold this information excludes 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. A parent of a dependent student may challenge

denial of such access by producing the most current copy of Internal Revenue Form 1040. If that form lists the student in question as a dependent, the parent is required to sign an affidavit that affirms that the student is his or her dependent. The affidavit is retained by the registrar. Upon receipt of the affidavit, the university makes student records available to the parent for the rest of that calendar year as specified under the Buckley Amendment.

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

Location of Policy and Records

The custodian of Educational Records at ASU is the Office of the Registrar. Copies of this policy are available in the following offices: 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 also maintains a directory that lists all education records maintained on students by ASU.

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 that frees the person to enjoy the diversity of human potentiality. In addition to the four principles, the program recognizes the value of sustained experience in the acquisition of a skill or the mastery of a body of knowledge, the increasing importance of literacy and numeracy skills because of the rapid growth of modern

knowledge, the utility of historical perspective and the internationalization of modern life.

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

- 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 as follows:

- 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, in 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 historical awareness 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 it is 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 are 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, interpretation, and evaluation of evidence. Any field of university study may require unique critical skills that have little to do with language in the usual sense, 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 to 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 (Six 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 discourse is required. 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 is required. This course can be taken in the student's major discipline and can count toward the major's semester hour requirements.

2. Numeracy

The numeracy requirement is intended to ensure that students have skill in basic mathematics, can use mathematical analysis in their chosen fields, and can understand how computers can make mathematical analysis more powerful and efficient. Numeracy thus has three components. First, the acquisition of essential skill in basic mathematics requires the student to complete a

course in College Algebra or to demonstrate a higher level of skill by completing a course for which College Algebra is a prerequisite. The second component, the real world application of mathematical reasoning, requires the student to take a course in the use of quantitative analysis to solve problems of substance. Many students may use courses in statistics to satisfy this requirement. The third component of numeracy requires use of the computer to assist in serious analytical work. Computers are widely used to study the implications of social decisions or to model physical systems, and computer modeling courses are available in many major programs.

Requirement (Six 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 fits this category.

(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 fit this category. The course selected can be taken in the student's major discipline and can 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 fit this category. The course selected can be taken in the student's major discipline and can 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

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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 (Six to Nine 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:

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

(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 (Six to Nine 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.

(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 to contribute to the quality of society. Knowledge of methods of scientific inquiry and mastery of basic scientific principles and concepts, in particular those that relate to matter and energy in living and non-living systems, are stressed. Firsthand exposure to scientific phenomena in the laboratory is important in developing and understanding the concepts, principles, and vocabulary of science. At least one of the two laboratory courses required in the natural sciences core area must include an introduction to the fundamental behavior of matter and energy in physical or biological systems.

Requirement (Eight Semester Hours). (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 is required.*

(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 is required.*

Awareness Areas

Requirement (Six Semester Hours)

1. Global Awareness

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

Courses that meet the requirement in global awareness are of one or more of the following types: (1) area studies that are concerned with an examination of culture specific elements of a region of the world; (2) the study of foreign lan-

guage; (3) studies of international relationships, particularly those in which cultural change is facilitated by such factors as social and economic development, education, and the transfer of technology; and (4) studies of cultural interrelationships of global scope such as the global interdependence produced by problems of world ecology.

Requirement: One of the approved courses in the global awareness course list, either in the group of courses that simultaneously satisfy a core area requirement or in the group of courses that satisfy the global awareness requirement only is required. Courses that 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 that can be useful in shaping the present and future. Because historical forces and traditions have created modern life and lie just beneath its surface, historical awareness is an aid in the analysis of present-day problems. Also, because the historical past is a source of social and national identity, historical study can produce intercultural understanding by tracing cultural differences to their origins in the past. Even the remote past may have instructive analogies for the present.

The historical awareness area consists of courses that are historical in method and content. In this area, the term "history" designates a sequence of past events or a narrative whose intent or effect is to represent such a sequence. The requirement presumes that these are human events and that history includes all that has been felt, thought, imagined, said, and done by human beings. History is present in the 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 that simultaneously satisfy a core area requirement or in the group of courses that satisfy the historical awareness requirement only is required. Historical awareness courses that 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. Students should note that this list includes courses approved for General Studies credit as of fall semester 1991. Since courses are occasionally added to and deleted from the list,

students should always consult the *Schedule of Classes* each semester to see which courses currently meet General Studies requirements. A student receives the General Studies credit a course carries in the semester in which the course is taken, with one exception: a course listed on an approved Program of Study but subsequently deleted from the General Studies list retains the General Studies credit it carried when the Program of Study was approved. Under each core and awareness area, courses are presented alphabetically by college name and by course prefix. The course prefix is followed by course number and course title. The number in parentheses following the course title indicates the semester hours of credit. The letter following the semester hours of credit indicates when the course will be offered:

- 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 '91, S '92 ... 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 is also 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 Sciences Core Courses
- S1 Natural Sciences Core Courses (Introductory)
- S2 Natural Sciences Core Courses (Additional Courses)
- G Global Awareness Courses
- H Historical Awareness Courses

General Studies Courses

COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL DESIGN		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
ANP	431 Architectural Programming Methods. (3) F		L2									
APH	100 Introduction to Environmental Design I. (2) F, S						HU				G	H
	101 Introduction to Environmental Design II. (2) F, S						HU				G	H
	300 World Architecture I/Western Cultures. (3) F, S										G	H
	301 World Architecture II/Eastern Cultures. (3) S										G	H
	304 American Architecture. (3) N						HU				G	H
	305 Contemporary Architecture. (3) N						HU				G	H
	313 History of Western Architecture I. (3) F						HU					H
	314 History of Western Architecture II. (3) S											H
	348 Theory of Built Environments. (3) N						HU					H
	441 Ancient Architecture. (3) N						HU					H
	443 Renaissance Architecture. (3) N						HU					H
	444 Baroque Architecture. (3) N						HU					H
	445 18th-Century Architecture. (3) N						HU					H
	446 20th-Century Architecture I. (3) F						HU				G	H
	447 20th-Century Architecture II. (3) S						HU				G	H
DSC	100 Introduction to Environmental Design. (2) F, S						HU				G	H
	101 Contemporary International Design/Theory. (3) S						HU				G	H
	223 Introduction to Interior Design. 2 S						HU					H
	310 History of Interior Design I. (3) F						HU					H
	311 History of Interior Design II. (3) S						HU					H
	316 20th-Century Design I. (3) F						HU					H
	317 20th-Century Design II. (3) S						HU					H
	318 History of Graphic Design. (3) F						HU					H
	412 History of Decorative Arts in Interiors. 3 F						HU					H
PLA	310 History of Landscape Architecture. (3) N						HU					H
	420 Theory of Urban Design. (3) F (Cross listed as PUP 420.)						HU					H
PUP	100 Introduction to Environmental Design I. (2) F, S, SS						HU				G	H
	101 Introduction to Environmental Design II. 2) F, S						HU					H
	301 Introduction to Urban Planning. (3) F, S, SS		L1									H
	412 History of the City. (3) S											H
	420 Theory of Urban Design. (3) F (Cross listed as PLA 420.)						HU					H

COLLEGE OF BUSINESS

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

COLLEGE OF EDUCATION

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
EDP	310	Educational Psychology. (1-6) F, S SS						.SB				
	454	Introduction to Statistical Data Analysis in Education. (3) F, S SS			N2							
EMC	321	Computer Literacy. (3) F S SS				N3						
	323	Computer Applications. (3) F S				N3						
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				
SPT	457	Third-World Women. (3) F						.SB			G	

(Cross listed as FAS 494 NUR 457/WST 457)

COLLEGE OF ENGINEERING AND APPLIED SCIENCES			L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
AGB	101	Food Chain. (4) F										G	
	444	Agribusiness Analysis. (3) S		L2								G	
	450	International Agricultural Development. (3) F							SB			G	
	453	World Agricultural Resources. (3) S										G	
	458	International Agribusiness. (3) N										G	
ASE	485	Engineering Statistics. (3) F, S, SS				N2							
BME	202	Global Awareness within Engineering Design. (3) F (Cross- listed as STE 202)	L1										
CEE	400	Microcomputer Applications in Civil Engineering. (3) F, S					N3						
CET	250	Digital Systems and Microprocessors. (3) F, S					N3						
CHE	351	Measurements Laboratory. (2) F (Both CHE 351 and 352 must be taken to secure L1 credit)	L1										
	352	Transport Laboratories. (2) S (Both CHE 351 and 352 must be taken to secure L1 credit)	L1										
	461	Process Control. (3) F					N3						
CON	101	Introduction to Construction. (3) S, F						HU				G	
	389	Construction Cost Accounting and Control. (3) F, S					N3						
	453	Construction Labor Management. (3) F, S											H
	495	Construction Planning and Scheduling. (3) F, S					N3						
CSE	101	Introduction to Computer Science II. (3) F, S, SS					N3						
	180	Computer Literacy. (3) F, S, SS					N3						
	181	Applied Problem Solving with BASIC. (3) F, S, SS					N3						
	183	Applied Problem Solving with FORTRAN. (3) F, S					N3						
	200	Concepts of Computer Science. (4) A					N3						
	225	Assembly Language Programming (Motorola). (3) F, S, SS (Cross- listed as EEE 225)					N3						
	226	Assembly Language Programming (Intel). (3) F, S, SS (Cross- listed as EEE 226)					N3						
ECE	106	Introduction to Computer-Aided Engineering. (3) F, S					N3						
	383	Probability and Statistics for Engineers. (2) F, S, SS				N2							
	400	Engineering Communications. (3) F, S, SS		L2									
EEE	225	Assembly Language Programming (Motorola). (3) F, S, SS (Cross- listed as CSE 225)					N3						
	226	Assembly Language Programming (Intel). (3) F, S, SS (Cross- listed as CSE 226)					N3						

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
ERA	346	Natural Resource Conservation. (3) S										
	350	Applied Quantitative Methods. (3) F			N2						G	
ETC	400	Technical Communications. (3) F S SS	L2									
ICG	310	Computer Graphics Fundamentals. (3) S				N3						
	312	Computer-Aided Design and Drafting. (3) F				N3						
	412	Computer Graphics Modeling. (3) F				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									
MET	416	Applied Computer Integrated Manufacturing. (3) F S				N3						
	460	Manufacturing Capstone Project. (3) S	L2									
STE	202	Global Awareness within Engineering Design. (3) F	L1									
		<small>Cross listed as BME 202</small>										
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
	202	Art of the Non-Western World II. (3) A					HU				G	H
	300	Introduction to Art. (3) F S					HU					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

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	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: European Art 1780-1830. (3) A						HU					
434 Romanticism and Realism: European Art 1800-1855. (3) A						HU					
436 Impressionism and Late 19th-Century European Art. (3) A						HU					
438 Art of the 20th Century I. (3) A						HU					
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
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					
459 Writing Art Criticism. (3) N						HU					
462 Precolumbian Art I. (3) A						HU					H
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	
469 Mexican Art. (3) A						HU					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					H
ART 444 Computer Art I. (3) F, S					N3						
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		L2				HU					
401 Dance History I. (3) F						HU					H
402 Dance History II. (3) S						HU					H

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		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
325	Peoples of Southeast Asia. (3) F.										G	
330	Principles of Archaeology. (3) F.							SB				
331	Old World Prehistory I. (3) F.											H
332	Old World Prehistory II. (3) S											H
333	New World Prehistory. (3) F.		L2					SB				H
334	Arctic Anthropology. (3) S.										G	
335	Southwestern Anthropology. (3) N.							SB				H
337	Pre-Hispanic Civilization of Middle America. (3) S.											H
338	Archaeology of North America. (3) N.											H
351	Psychological Anthropology. (3) S.						HU	SB				
353	Death and Dying in Cross-Cultural Perspective. (3) S							SB				
363	Death and Dying in Cross-Cultural Perspective. (4) F							SB				
383	Linguistic Theory: Phonetics and Phonology. (4) F							SB			G	
412	History of Anthropology. (3) F.		L2					SB				
416	Economic Anthropology. (3) F.		L2					SB				
480	Introduction to Linguistics. (3) F.							SB				
481	Language and Culture. (3) S.							SB				
483	Sociolinguistics and the Ethnography of Communication. (3) N.							SB				
ASM	101 Human Origins and the Development of Culture. (3) F. S.							SB		S2		H
342	Human Biological Variation. (4) S.									S2		
343	Primate Biology. (3) F.											H
344	Fossil Hominids. (3) N.							SB				H
345	Disease and Human Evolution. (3) F.											H
348	Social Issues in Human Genetics. (3) S.							SB				
452	Dental Anthropology. (4) F.									S2		
455	Primate Behavior Laboratory. (3) N.											
494	Special Topics: Roles in Computer Anthropology. (3) S.		L2			N3						
AST	111 Introduction to Astronomy I. (3) F, SS (Both AST 111 and 125 must be taken to secure S1 and S2 credit)								S1	S2		
112	Introduction to Astronomy II. (3) S, SS (Both AST 112 and 126 must be taken to secure S1 and S2 credit.)								S1	S2		
125	Astronomy Laboratory I. (1) F. (Both AST 111 and 125 or AST 125 and 321 must be taken to secure S1 and S2 credit)								S1	S2		
126	Astronomy Laboratory II. (1) S (Both AST 112 and 126 or AST 126 and 322 must be taken to secure S1 and S2 credit)								S1	S2		
321	Solar System Astronomy. (3) F, SS (Both AST 125 and 321 must be taken to secure S1 and S2 credit)								S1	S2		

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
322	Stars, Galaxies, and the Universe. (3) S SS (Both AST 126 and 322 must be taken to secure S1 and S2 credit)								S1	S2		
BIO	100 The Living World. (4) F S								S1	S2		
	181 General Biology. (4) F, S								S1	S2		
	182 General Biology. (4) F, S								S1	S2		
	330 Ecology and Conservation. (3) F									S2	G	
	415 Biometry. (4) F				N2							
	420 Computer Applications in Biology. (3) F					N3						
	428 Biogeography. (3) F		L2									
	445 Organic Evolution. (3) F		L2									
BOT	108 Plants and Society. (4) F, S, SS								S1	S2		
	300 Survey of the Plant Kingdom. (4) F									S2		
CDE	232 Human Development. (3) F, S							SB				
	430 Infant/Toddler Development in the Family. (3) F							SB				
	437 Observational and Naturalistic Methods of Studying Children. (3) S							SB				
CHI	201 Intermediate Chinese. (5) F										G	
	202 Intermediate Chinese. (5) S										G	
	207 Chinese for International Professions II. (10) S										G	
	309 Chinese Conversation. (2) F										G	
	310 Chinese Conversation. (2) S										G	
	311 Chinese Conversation. (2) F										G	
	312 Chinese Conversation. (2) S										G	
	313 Advanced Chinese. (3) F										G	
	314 Advanced Chinese. (3) S										G	
	321 Chinese Literature. (3) F						HU					
	322 Chinese Literature. (3) S						HU				G	
	413 Introduction to Classical Chinese. (3) F						HU					
	414 Introduction to Classical Chinese. (3) S						HU					
CHM	101 Introductory Chemistry. (4) F S								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, S								S1	S2		
	118 Advanced General Chemistry. (5) F, S								S1	S2		

70 UNIVERSITY GENERAL STUDIES COURSES

			L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
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						HU					
	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					
	321	Introduction to Shakespeare. (3) F, S						HU					
	332	Major American Novels. (3) A		L2									
	341	American Literature. (3) F S						HU					H
	342	American Literature. (3) F S						HU					H
	352	Short Story. (3) F, S						HU					
	355	History of the Drama. (3) S						HU					H
	356	Biblical Backgrounds of Literature. (3) F, S						HU					H
	357	Introduction to Folklore. (3) N						HU					
	358	African-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					
	400	History of Literary Criticism. (3) S						HU					
	413	History of the English Language. (3) F, S						HU					H
	415	Medieval Literature. (3) F						HU					
	416	Chaucer: Canterbury Tales. (3) F						HU					
	417	Chaucer: Troilus and Criseyde and the Minor Works. (3) S						HU					

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
	418	Renaissance Literature. (3) F.					HU					
	419	English Literature in the Early 17th Century. (3) S	L2				HU					
	421	Shakespeare I. (3) F, S					HU					H
	422	Shakespeare II. (3) F, S					HU					
	423	English Drama to 1600. (3) S 92					HU					H
	424	Jacobean and Caroline Drama. (3) S 91					HU					H
	425	Romantic Poetry. (3) F.					HU					
	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					HU					H
	429	Milton. (3) F, S					HU					
	430	19th-Century British Cultural Backgrounds. (3) N	L2				HU					H
	435	19th-Century American Poetry. (3) S					HU					H
	439	Drama from Dryden to Sheridan. (3) S 91					HU					
	440	American Literature to 1815. (3) N					HU					
	441	20th-Century American Drama. (3) N					HU					
	443	American Poetry, 1900-1945. (3) F					HU					
	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					
	451	The Novel to Jane Austen. (3) F					HU					H
	452	The 19th-Century Novel. (3) S					HU					H
	453	The American Novel to 1900. (3) F					HU					H
	454	The American Novel, 1900-1945. (3) F					HU					H
	457	American Poetry Since 1945. (3) S					HU					
	458	American Novel Since 1945. (3) S	L2				HU					
	460	Western American Literature. (3) S					HU					H
	461	Women and Literature. (3) N					HU					
	462	20th-Century Women Authors. (3) F					HU					
	463	European Drama from Ibsen to 1914. (3) N					HU					H
	464	European Drama from 1914 to the Present. (3) N					HU					
	471	Literature for Adolescents. (3) F, S					HU					
FAS	330	Personal Growth in Human Relationships. (3) F, S						SB				
	331	Marriage and Family Relationships. (3) F S						SB				
	354	Consumer Economics: Issues. (3) N						SB				

72 UNIVERSITY GENERAL STUDIES COURSES

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
357	Family Resource Management. (3) N.											
435	Advanced Marriage and Family Relationships. (3) F.							SB				
494	Special Topics: Third-World Women. (3) F. (Cross listed as NUR/SPFWST 457.)							SB			G	
FLA	150 Introduction to East Asian Culture. (3) S						HU				G	
323	Survey of Soviet Literature in Translation. (3) F, S						HU					
400	Linguistics. (3) S							SB				
415	Bilingualism and Languages in Contact. (3) F							SB				
420	Foreign Literature in Translation. (3) F, S						HU				G	H
480	Methods of Teaching Foreign Languages. (3) F.							SB				
FON	441 Advanced Human Nutrition II. (3) S		L2									
FRE	201 Intermediate Grammar Review. (4) F, S, SS										G	
203	French Conversation. (4) F, S, SS										G	
205	Intermediate Reading. (4) F, S						HU				G	
207	French for International Professions II. (8) S										G	
311	French Conversation. (3) F, S										G	
312	French Composition. (3) F, S										G	
319	Business Correspondence and Communication. (3) S										G	
321	French Literature. (3) F, S		L2				HU					H
322	French Literature. (3) F, S		L2				HU					H
411	Advanced Spoken French. (3) F, S										G	
412	Advanced Written French. (3) F, S										G	
415	French Civilization. (3) S						HU				G	
441	French Literature of the 17th Century. (3) N						HU					H
442	French Literature of the 17th Century. (3) N						HU					H
445	French Literature of the 18th Century. (3) N						HU					
452	French Novel of the 19th Century. (3) N		L2				HU					
461	Pre-Atomic Literature. (3) F						HU					
462	Post-Atomic Literature. (3) S						HU					
471	The Literature of Francophone Africa and the Caribbean. (3) N		L2				HU					
GCU	102 Introduction to Human Geography. (3) F, S							SB				
121	World Geography. (4) F, S							SB			G	
141	Introduction to Economic Geography. (3) F, S							SB				
240	Introduction to Southeast Asia. (3) F (Cross listed as ASB/H S POS REL 240)							SB			G	

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
253	Introduction to Cultural and Historical Geography. (3) A										
322	Geography of Anglo-America. (3) F										
323	Geography of Latin America. (3) F										
325	Geography of Europe. (3) S										
326	Geography of Asia. (3) S										
327	Geography of Africa. (3) F										
328	Geography of Middle East and North Africa. (3) A										
332	Geography of Australia and Oceania. (3) A										
350	The Geography of World Crises. (3) F										
351	Population Geography. (3) F										
352	Political Geography. (3) S										
357	Social Geography. (3) A										
359	Cities of the World I. (3) F										
360	Cities of the World II. (3) S										
361	Urban Geography. (3) F, S										
375	Introduction to Geographic Research Methods. (3) F										
423	Geography of South America. (3) F										
424	Geography of Mexico and Middle America. (3) S										
426	Geography of the Soviet Union. (3) S										
GER 201	Intermediate German. (4) F S SS										
202	Intermediate German. (4) F S SS										
311	German Conversation. (3) F										
312	German Conversation. (3) S										
313	German Composition. (3) S										
319	Business Correspondence and Communication. (3) N										
321	German Literature. (3) F										
322	German Literature. (3) S										
411	Advanced Grammar and Conversation. (3) F										
412	Advanced Grammar and Composition. (3) S										
415	German Civilization. (3) S										
416	German Civilization. (3) F										
GLG 101	Introduction to Geology I (Physical). (3) F, S SS (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.)										

74 UNIVERSITY GENERAL STUDIES COURSES

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
103	Introduction to Geology I-Laboratory. (1) F, S, SS (Both GLG 101 and 103 must be taken to secure S1 and S2 credit)								S1	S2		
104	Introduction to Geology II-Laboratory. (1) S (Both GLG 102 and 104 must be taken to secure S1 and S2 credit)								S1	S2		
GPH												
111	Introduction to Physical Geography. 4) F, S								S1	S2		
212	Introduction to Meteorology I. 3) F (Both GPH 212 and 214 must be taken to secure S2 credit)									S2		
214	Introduction to Meteorology Laboratory. (1) F (Both GPH 212 and 214 must be taken to secure S2 credit.)									S2		
381	Geography of Natural Resources. 3) A							SB				
GRK							HU					
301	Greek Literature. (3) F						HU					
302	Greek Literature. (3) S											
HIS												
100	Western Civilization. (3) F, S							SB				H
101	Western Civilization. (3) F, S							SB				H
102	Western Civilization. (3) F, S							SB			G	H
103	The United States. (3) F, S							SB				H
104	The United States. (3) F, S							SB				H
107	Introduction to Japan. (3) A							SB			G	H
240	Introduction to Southeast Asia. (3) F (Cross listed as ASB GCU POS REL240.)							SB			G	H
270	Judaism in American History. (3) N							SB				H
303	American Cultural History. (3) F, S							SB				H
304	American Cultural History. (3) F, S							SB				H
305	Asian Civilizations. (3) F, S							SB			G	H
306	Asian Civilizations. (3) F, S							SB			G	H
320	Ancient Greece. (3) A							SB				H
321	Rome. 3) A							SB				H
322	The Middle Ages. (3) A							SB				H
323	The Middle Ages. (3) A							SB				H
324	Renaissance. (3) F							SB				H
325	Reformation. (3) S		L2					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

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
332 20th-Century Europe. (3) N							SB			G	H
333 Women and Society in Europe. (3) N						HU	SB				H
335 Family, Class, and Society in Europe, 1700-1980. (3) N							SB				H
351 England. (3) F, S							SB				H
352 England. (3) F, S							SB				H
357 19th-Century West. (3) F							SB				H
358 The West in the 20th Century. (3) 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) A. (Cross listed as REL 365)						HU				G	H
366 The Modern Middle East. (3) S							SB			G	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							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
417 Constitutional History of the United States. (3) N							SB				H
418 Constitutional History of the United States. (3) N							SB				H
419 American Urban History. (3) A							SB				H
420 American Urban History. (3) A							SB				H
421 History of American Labor. (3) A							SB				H

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
422 Social History of American Women. (3) A							SB				H
423 Recent American Intellectual History. (3) A							SB				H
424 The Hispanic Southwest. (3) N							SB				H
425 The American Southwest. (3) N		L2					SB				H
426 Indian History of the Southwest. (3) S							SB				H
428 Arizona. (3) A							SB				H
430 20th-Century Chicano History. (3) A							SB				H
431 The French Revolution and the Napoleonic Era. (3) N							SB				H
433 Modern France. (3) A							SB			G	H
434 Hitler: Man and Legend. (3) N							SB				H
435 Modern Germany. (3) A							SB			G	H
437 Eastern Europe and the Balkans. (3) A							SB				H
438 Eastern Europe and the Balkans. (3) A							SB			G	H
441 Imperial Russia. (3) A							SB				H
442 The Soviet Union. (3) A							SB			G	H
443 Russia and the United States. (3) A							SB			G	H
445 Tudor England. (3) A							SB				H
446 Stuart England. (3) A							SB				H
449 Modern Britain. (3) A							SB			G	H
450 British Constitutional History. (3) A							SB				H
451 The British Empire. (3) A							SB				H
452 Economic History of Europe. (3) N							SB				H
453 Economic History of Europe. (3) N							SB			G	H
454 Intellectual History of Modern Europe. (3) A							SB				H
455 Intellectual History of Modern Europe. (3) A							SB				H
456 History of Spain. (3) N							SB				H
457 History of Spain. (3) N							SB				H
460 Spanish South America. (3) N							SB				H
461 Spanish South America. (3) N							SB				H
463 Intellectual and Cultural History of Latin America. (3) N							SB				H
464 The United States and Latin America. (3) N							SB			G	H
466 Mexico. (3) A							SB				H
467 Mexico. (3) A							SB				H
468 Brazil. (3) N							SB				H
469 Chinese Thought and Way. (3) N							SB				H

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
470	Chinese Thought and Way. (3) N											
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												
321	Man and Machine. (2) A											
322	Science and Technology in History. (3) F, S						HU					
323	Science and Technology in History. (3) F, S						HU					
330	History of Biology: Conflicts and Controversies. (3) N (Cross listed as ZOL 316)											
331	History of Medicine. (3) N (Cross listed as ZOL 318.)							SB				
402	Technology, Society, and Human Values. (3) A						HU					
HUM												
110	Contemporary Issues in Humanities (3) F, S						HU					
301	Humanities in the Western World. (4) F, S						HU					
302	Humanities in the Western World. (4) S		L1				HU					
413	Comedy: Meaning and Form. (3) S						HU					
414	Tragedy: Meaning and Form. (3) A						HU					
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	
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
446	Italian Literature of the 18th and 19th Century. (3) N						HU					H
449	20th-Century Italian Literature. (3) N						HU				G	

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
PGS	100	Introduction to Psychology. (3) F, S, SS						.SB				
	222	Human Sexual Behavior. (3) F, S						.SB				
	270	Psychology of Adjustment. (3) F, S, SS						.SB				
	304	Effective Thinking. (3) A	L1									
	306	Environmental Psychology. (3) F, S, SS						.SB				
	315	Personality Theory and Research. (3) F, S, SS						.SB				
	331	Gender Role Development. (3) N						.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				
	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					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					
	314	Philosophy of Science. (3) A					HU					
	315	Philosophy of Language. (3) A					HU					
	316	Metaphysics. (3) A					HU					
	317	Philosophy of Mind. (3) A					HU					
	318	Philosophy of Religion. (3) A					HU					

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
	325	Philosophy of Social Science. (3) N					HU	SB				
	332	19th-Century Philosophy. (3) N					HU					
	350	Philosophical Argument and Exposition. (3) F, S			L2							
	402	Empiricism. (3) N					HU					
PHS	110	Fundamentals of Physical Science. (4) F, S							S1	S2		
PHY	101	Introduction to Physics. 4) F, S							S1	S2		
	111	General Physics. (3) F, S, SS (Both PHY 111 and 113 must be taken to secure S1 and S2 cred t.)							S1	S2		
	112	General Physics. (3) F, S, SS (Both PHY 112 and 114 must be taken to secure S1 and S2 cred t.)							S1	S2		
	113	General Physics Laboratory. 1) F, S, SS (Both PHY 111 and 113 must be taken to secure S1 and S2 cred t.)							S1	S2		
	114	General Physics Laboratory. (1) F, S, SS (Both PHY 112 and 114 must be taken to secure S1 and S2 cred t.)							S1	S2		
	121	University Physics I: Mechanics. (3) F, S, SS (Both PHY 121 and 122 must be taken to secure S1 and S2 cred t.)							S1	S2		
	122	University Physics Laboratory I. (1) F, S, SS (Both PHY 121 and 122 must be taken to secure S1 and S2 cred t.)							S1	S2		
	131	University Physics II: Electricity and Magnetism. 3) S, SS (Both PHY 131 and 132 must be taken to secure S1 and S2 credit.)							S1	S2		
	132	University Physics Laboratory II. (1) S, SS (Both PHY 131 and 132 must be taken to secure S1 and S2 cred t.)							S1	S2		
	241	University Physics III: Thermodynamics, Optics, and Wave Phenomena. (3) N (Both PHY 241 and 242 must be taken to secure S1 and S2 cred t.)							S1	S2		
	242	University Physics Laboratory III. (1) N (Both PHY 241 and 242 must be taken to secure S1 and S2 credit.)							S1	S2		
POR	201	Intermediate Portuguese. (5) S										G
	313	Portuguese Composition and Conversation. (3) F										G
	314	Portuguese Composition and Conversation. (3) S										G
	321	Luso-Brazilian Literature. (3) N					HU					
	472	Luso-Brazilian Civilization. (3) N.					HU					G
POS	101	Political Ideologies. (3) F, S						SB				
	110	Government and Politics. (3) F, S						SB				
	120	Political Issues and Public Policy. (3) A						SB				
	150	Comparative Government. (3) F, S						SB				G
	160	Global Politics. (3) F, S						SB				G

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
170	American Legal System. (3) F, S						SB				
240	Introduction to Southeast Asia. (3) F (Cross-listed as ASB GCU/HIS REL 240.)						SB			G	
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			SB				
410	Urban Government and Politics. (3) A						SB				
422	Politics of Bureaucracy. (3) N						SB				
423	Politics of Budgeting. (3) N						SB				
424	Regulatory Politics. (3) N						SB				
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					H
445	Asian Political Thought. (3) A						SB			G	H

82 UNIVERSITY GENERAL STUDIES COURSES

		L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
446	Problems of Democracy. (3) A.											
450	Soviet Union and Eastern Europe. (3) A						HU	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. (12) A							SB				
485	Political Economy. (3) A							SB				
486	International Political Economy. (3) A							SB			G	
498	Pro-Seminar. (3) A		L2									
PSY												
230	Introduction to Statistics. (3) F S SS				N2					S2		
290	Research Methods. (4) F. S	L1										
330	Statistical Methods. (3) S				N2							
REL												
100	Religions of the World. (3) F. S.						HU				G	
200	The Study of Religious Traditions. (3) A.		L1				HU				G	
201	Religions and the Modern World. (3) A		L1				HU					
210	Introduction to Judaism. (3) A		L1				HU					H
240	Introduction to Southeast Asia. (3) F Cross listed as ASB GCUH S POS 240										G	
270	Introduction to Christianity. (3) A						HU					H
305	Ritual, Symbol, and Myth. (3) A		L2				HU				G	

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
310	Western Religious Traditions. (3) A										
315	Hebrew Bible (Old Testament). (3) A	L2				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 (Cross listed as HIS 365)					HU				G	H
371	New Testament. 3 A					HU					
372	Formation of the Christian Tradition. (3) A					HU					H
381	Religion and Moral Issues. (3) A	L2				HU					
385	Contemporary Western Religious Thought. (3) A	L2				HU					
390	Women and Religion. (3) A					HU				G	
410	Judaism in Modern Times. 3 N					HU					H
415	The Jewish Mystical Tradition. (3) A					HU					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	
464	The Islamic Mystical Tradition. (3) N					HU				G	
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
201	Intermediate Russian. (4) F, SS									G	
202	Intermediate Russian. (4) S, SS									G	
211	Basic Russian Conversation. (3) F									G	
212	Basic Russian Conversation. (3) S									G	

RUS

84 UNIVERSITY GENERAL STUDIES COURSES

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
311	Russian Composition and Conversation. (3) F									G	
312	Russian Composition and Conversation. (3) S									G	
321	Survey of Russian Literature. (3) A	L2				HU					H
322	Survey of Russian Literature. (3) A	L2				HU					H
323	Survey of Soviet Literature. (3) A	L2				HU				G	
411	Advanced Composition and Conversation I. (3) F									G	
412	Advanced Composition and Conversation II. (3) S						SB			G	
417	Applied Russian Phonetics I. (2) N						SB				
418	Applied Russian Phonetics II. (2) N						SB				
420	Russian Poetry. (3) N	L2				HU					H
421	Pushkin. (3) N	L2				HU					
423	Dostoyevsky. (3) N	L2				HU					
424	Tolstoy. (3) N	L2				HU					
425	Chekhov. (3) N	L2				HU					
426	Soviet Dissident Literature (1917-Present). (3) N	L2				HU				G	
430	Russian Short Story. (3) N	L2				HU					H
441	Survey of Russian Culture. (3) N	L2				HU				G	H
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				
332	The Modern City. (3) F, S						SB				
333	Population. (3) F, S, SS						SB			G	
340	Sociology of Deviant Behavior. (3) F, S, SS						SB				
341	Modern Social Problems. (3) F, S, SS						SB				
348	Overview of Aging. (3) F, S, SS (Cross listed as HDE 395)						SB				
351	Industrial Sociology. (3) S						SB				
352	Social Change. (3) F, S						SB			G	H
360	Sociological Psychology. (3) F, S						SB				
361	Variant Sexuality. (3) F						SB				
362	Sociology of Adolescence. (3) F, S						SB				
365	The Sociology of Mass Communication. (3) F, S						SB				
390	Social Statistics I. (3) F, S, SS			N2			SB				
391	Sociological Research. (3) F, S, SS						SB				

	L1	L2	N1	N2	N3	HU	SB	S1	S2	G	H
401							SB			G	
410		L2					SB			G	
415							SB				
416							SB				
417							SB				
432							SB				
433				N2			SB				
440							SB				H
446							SB				
448							SB				
449							SB				
452		L2					SB				
453							SB				
454		L2					SB				H
455							SB				H
456							SB			G	
457		L2					SB				
462		L2					SB				
464							SB				
483							SB				H
485							SB				
486							SB				
498							SB			G	
SPA											
201										G	
202										G	
203										G	
204										G	
207										G	
313										G	
314										G	
319										G	
325						HU				G	
412										G	
413										G	
420							SB				

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										
	250	Introduction to Organizational Communication. (3) F, S, SS							SB				
	263	Elements of Intercultural Communication. (3) F, S							SB			G	
	308	Empirical Research Methods in Communication. (3) F, S, SS		L2									
	320	Communication and Consumerism. (3) A							SB				
	321	Rhetorical Theory and Research. (3) F, S, SS		L2				HU					
	329	Persuasion. (3) F, S, SS						HU	SB				
	344	Oral Traditions in Literature. (3) N						HU					
	363	Intercultural Communication Processes. (3) F, S, SS							SB			G	
	371	Language, Culture, and Communication. (3) A										G	
	410	Interpersonal Communication Theory and Research. (3) F, S, SS							SB				
	421	Rhetoric of Social Issues. (3) A						HU					
	430	Leadership in Group Communication. (3) N							SB				
	450	Theory and Research in Organizational Communication. (3) F, S, SS							SB				
	456	Political Communication. (3) F, S Cross listed as MCO 456.)							SB				
	457	Communication and Information Diffusion. (3) F							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				
	474	Legislation of Morality. (3) F, S, SS		L2					SB				
MCO	120	Media and Society. (3) F, S							SB				
	402	Communications Law. (3) F, S, SS		L2									
	418	History of Communications. (3) F, S							SB				H

University Degree Requirements

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

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

Grade Point Requirements. The minimum cumulative GPA is 2.00 for all courses taken at ASU for a baccalaureate degree.

First-Year Composition Requirement. Completion of both ENG 101 and 102 or ENG 105 with a grade of "C" or better is required for graduation from ASU in any baccalaureate program (see page 47). International students from non-English-speaking countries may meet the First-Year Composition requirement by completing ENG 107 and 108 with a grade of "C" or better.

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

The transfer student must file an application in his or her college for Adjustment of Freshman Composition Requirements, along with a transcript and catalog descriptions of the composition courses to be transferred. The application, available in each college, should be filed immediately upon transfer of course work to ASU so that the student will be able to enroll in an additional composition course, if required to do so.

For more information, the student should go to the appropriate college or school listed below:

College of Architecture and Environmental Design ARCH 141

College of Business—BA 140

College of Education EDB 7

College of Engineering and Applied Sciences ECG 115

College of Fine Arts—GHALL 127

College of Liberal Arts and Sciences SS 111

College of Nursing NUR 108

College of Public Programs WILSN 203

School of Social Work WHALL 137

Refer to "Building Abbreviations," page 588, and "Directory," pages 589–590, for more information.

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

Guidelines for Determination of Catalog Year. The *General Catalog* is published annually. Department, division, school, college, and university requirements may change and are updated often. In determining graduation requirements, an undergraduate student may use only one edition of the *General Catalog*. Continuous attendance is defined by enrollment in and completion of at least one course in the fall and spring semesters, not summer sessions. Students may choose to follow any subsequent catalog while remaining in continuous attendance.

1. A student who has been in continuous attendance at ASU or who has not had a break or breaks in attendance that total more than two semesters usually follows the degree requirements specified in the *General Catalog* in effect for his or her first fall or spring semester at ASU.
2. A student who attends an Arizona community college and transfers to ASU without breaks in attendance that total more than two semesters may elect to use the *General Catalog* in effect at the time of his or her first enrollment at the community college.
3. A student who has been readmitted after a period of nonattendance exceeding two semesters or after attending an institution other than ASU or an Arizona community college for a period exceeding two semesters, graduates under the requirements for graduation as stated in the *General Catalog* at the time of reenrollment.
4. A student who completes one undergraduate degree program at ASU, is readmitted into a second undergraduate degree program for the immediately following semester, and attends that semester does not maintain the catalog

90 GENERAL GRADUATION INFORMATION

year under which he or she 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. Completion of course work in a summer session does not apply in determining catalog requirements.
6. A nondegree student who is admitted to a degree program may follow the catalog requirements in effect during his or her first fall or spring semester at ASU, provided he or she has met the requirements of continuous attendance.
7. Correspondence course work is not resident credit; therefore, it does not meet the definition of continuous attendance and does not apply toward catalog determination.
8. All guidelines for catalog determination apply to disqualified and/or dismissed students

Inquiries about these guidelines may be directed to the student's academic advisor.

Program of Study Requirements. A student must file an Undergraduate Program of Study for graduation within the semester he or she earns his or her 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 are prevented from further registration.

Programs of study and procedural information are available from the Graduation Section, SSV B113A, or any Registrar's Site.

Application for Graduation Requirements. The following steps are required to complete the graduation process:

1. Register for the final semester.
2. Pay the graduation fee at the University Cashier's Office. Note the deadline date listed in the "University Calendar," pages 10-12.
3. Submit the fee receipt to the Graduation Section, SSV B113A, and apply for graduation. The program of study is reviewed at this time and the graduation date and eligibility to graduate are verified.
4. Complete all course work listed on the Undergraduate Program of Study by graduation date.

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

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

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 he or she 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 89-90, "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 that 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 requirements for a second baccalaureate degree. In order to petition for a waiver of such university requirements, the normal department, division, school, and college forms and procedures are used, before 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 ASU to qualify for graduation with academic recognition for a baccalaureate degree. A student with a cumulative GPA of 3.40-3.59 graduates *cum laude*, 3.60-3.79 graduates *magna cum laude*, or 3.80-4.00 graduates *summa cum laude*. The cumulative GPA for these designations is based on only ASU course work. ASU correspondence grades are not calculated in the honors GPA. All designations of graduation with academic recognition are indicated on the diploma and the ASU transcript. Graduation with academic recognition applies only to undergraduate degrees.

A student who has a baccalaureate degree from ASU and is pursuing a second baccalaureate degree at ASU (with a minimum of 30 hours of resident credit) is granted academic recognition on the second degree based on the semester hours

earned subsequent to the posting of the first degree. If 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 is based on the GPA earned for the second ASU degree. Inquiries about graduation with academic recognition may be directed to the Graduation Section, 602/965-3256.

Second Baccalaureate Degree. The student seeking a second baccalaureate degree must meet admission criteria for that degree. 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.

Concurrent Degrees. More than one baccalaureate degree may be pursued concurrently if prior approval is given by the standards committee(s) of the college(s) offering the degrees. A minimum of 30 additional hours is required.

Graduate Degrees. See the "Graduate College" and "College of Law" sections for graduate degrees offered and statements of requirements

for graduate degrees. A separate *Graduate Catalog* may be obtained from the Graduate College.

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 class. 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 various areas of Student Affairs and in the service and developmental programs offered by each.

Undergraduate Admissions

For many undergraduates, the first introduction to ASU 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 students. 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, 21,000 students received approximately \$90 million in 1989-90.

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 office. 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 strategically located Registrar Sites, one of which is at ASU West, 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 change and scheduling, veteran certification for educational benefits, transcript services, dispersion of student identification cards, 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 6,100 students. Housing arrangements include non-coed residences, coed residences, and facilities used by the majority of the 25 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.

Rooms are available in a variety of plans. 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 may exceed supply. While students must be admitted to the university to live in a residence hall, applications are accepted before official admission to the university. An actual assignment is not 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.

This is a community outreach service that 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.

This office provides a broad range of support services including: academic, career, and personal counseling; orientation and mobility for the blind; campus orientation; and 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.

The Disabled Student Resource Office 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 Physically Challenged Program in the Student Recreation Center, Complex.) Students are fully integrated into campus life and all activities. For additional information, call 602/965 1234.

The Upward Bound Program. This 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. This program 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 and 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. Opportunities for leadership and community involvement help students prepare for their roles as responsible citizens. Through their involvement in student activities, workshops, and student governance, students learn the qualities of democratic leadership and the skills to be successful students.

The special needs of nontraditional populations such as international students, commuter students, and adult re-entry students are also 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 Adult Re-entry Center, ASU Student Foundation, the Cultural Diversity Program, the Educational Support Program offering tutoring, Understanding the University Experience (Hispanic Mother/Daughter Program), the Voluntary Action Program, registration of student organizations, student conduct, exit interviews, the Woman's Student Center.

Student organizations offer all students the opportunity to participate in leadership experiences and to explore areas of specific interest to them. 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 at 602/965-6547 or the REACH desk at 602/965 2255.

The Office of Student Life staff works closely with the academic and student support service areas of the university to make sure that students are aware of and use available resources. The staff acts as intermediaries for students with other campus 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 offers 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 12 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 an APA approved clinical internship program 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 SSV B317.

The Minority Assistance Program (MAP).

This program is a separate component within Counseling and Consultation. It is built upon a student development model providing cultural, emotional, and academic support services to the university's underrepresented 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 SSV 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, counselors and nutrition/health educators, has special interest and training in college health care. Consultant physicians in dermatology, gynecology, orthopedics, and ear, nose, and throat are also available in house upon referral by a member of the Student Health Services professional staff

Additional services include 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. Student Health provides educational programs on alcohol and substance use and abuse, sexuality and sexually transmitted diseases, including the Human Immunodeficiency Virus (HIV). First Aid and CPR classes are offered regularly. At the Student Recreation Complex, the Health Education Section staff focuses

on wellness promotion and illness prevention. Services include individual and group health education consultations, fitness assessments, nutritional counseling and weight and stress management groups. Services and educational brochures are available at Student Health in the Wellness Center and at various locations throughout the campus.

Hours. Student Health is open Monday through Friday year round. Students are strongly encouraged to schedule appointments to minimize waiting time and to allow students the opportunity to establish a relationship with one clinician. Appointments are available by calling 602/965-3349. Patients with immediate and urgent health care problems may be seen in the Urgent Care Clinic.

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

Insurance. Although medical insurance is not required for most students to be seen at Student Health, coverage is strongly recommended for all students and is required for international students. Eligible students without other medical insurance coverage may enroll in the ASU Blue Cross and Blue Shield insurance policy for the students 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 the campus and about local and 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, photographers, 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 \$30 per copy at the fall discount.

Student Publications publishes a literary magazine twice a year 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 (MU) is a major center of campus activity. It serves thousands of students, faculty, staff, and many daily campus visitors.

The MU has diversified dining for individual and group needs and provides catering and conference services. It houses a branch of the Arizona State Savings and Credit Union, a card and gift shop, a photo shop, a travel agency, a U.S. Post Office, and automatic teller machines. MU facilities include student lounges (both TV and study), a Fine Arts Lounge, reserved meeting rooms, and a ballroom. Recreational activities include billiards, bowling, and amusement games. The MU has the university information desk, the MU Activities Board, and a Lost and Found Department. The Child Care Resource Center is located on the lower level.

Eight student committees serve advisory and program development functions for the MU, which, in turn, provides opportunities for students to contribute to their community and to 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, interviewing skills, résumé writing, and a myriad of additional career-related topics are offered. Advisors are available to assist students on an individual basis in career planning.

Hundreds of employers from business, industry, government, social service agencies, health organizations and school districts come to ASU to interview students seeking permanent and career-related summer, intern, and co-op 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 that students register at least two semesters before graduating to participate fully in employment placement activities. The offices are located in SSV C359 and C363. (For additional information, call 602/965 2350.)

Veterans Services

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 in obtaining suitable paid tutors, when needed, using their federal benefits. Veterans must achieve adequate GPAs and semester-hour progress toward their academic programs for continued educational benefits. The university must report this progress each semester. The Veterans Services Section is located in SSV B117. For additional information, call 602/965-7725.

Military Officer Training

U.S. Air Force and U.S. Army ROTC units are active on the ASU campus. See "Aerospace

Studies" and "Military Science," pages 111 112 and 175 177, for additional information.

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 that provides educational support for the voluntary education programs of all services. The primary missions of DANTES are (1) to provide nationally recognized examination and certification programs as part of the voluntary education programs of military services and (2) to facilitate the availability of high-quality independent institutions for service men and women.

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 ASU. Personal contact through high school and community college visits, ASU on campus visits, mail and phone follow-up, and the award 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.

Student Recreation Complex and Recreational Sports and Student Activities Program

The Student Affairs Recreational Sports Program is one of the largest programs in the country, serving more than 20,000 students annually through more than 60 sport, dance, and exercise activities. Programs offered include intramural sports, informal recreation, fitness and sports skills classes, outdoor recreation, children and family programs, sport clubs, the physically challenged program for persons with handicapping conditions, a wellness center, and student activities

Located on the northwest corner of McAllister Avenue and Apache Boulevard, the Student Recreation Complex is one of the finest student recreation facilities in the United States. Features include expansive resistance and cardiorespiratory training facilities and equipment, three large gymnasiums, 15 indoor racquetball courts, martial arts, aerobics, and sport club rooms, and a physically challenged training gym. Outdoor facilities include playing fields, 14 tennis courts, and an Olympic-size swimming pool with two movable bulkheads that allow the pool to be divided into three parts for simultaneous multi-use programming. For information, call 602/965-5638.

Other Opportunities for Student Involvement

Associated Students of Arizona State University (ASASU). 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, Bike Repair Co-op, campus clubs and organizations, college councils, concerts, Counseling and Health Advisory Committee, Course Information Program, Executive Committee, Graduate Student Association, Homecoming, Insuring Tomorrow Leadership, Leadership Institute, lecture series, Minority Cultural Awareness Board, Political Union, public relations, Regional Sidesharing, Safety Escort Service, special events, state relations, Student Legal Assistance, Student Orientation Service, Student Senate, and the Tenants and Commuter Students Association.

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 is required. For more information, contact Dr. Clarke D. Olson, Director of Forensics, at 602/965-5095.

Fraternities and Sororities. Thirteen sororities and 25 fraternities offer a range of opportunities for interested students. Programs are coordinated by the Interfraternity Council and the Panhellenic Council to foster communication between chapters, to reward scholastic achievement, and to promote university and community service projects. For more information, call 602/965-3806.

Intercollegiate Athletics. The university is a member of the National Collegiate Athletic Association, Division One, and the Pacific Athletic Conference (PAC 10). The university has 25 varsity intercollegiate sports and more than 600 participants. Intercollegiate athletics at ASU are governed by a board of faculty, students, and staff under the regulations of the Arizona Board of Regents, the NCAA, the PAC 10 conference, and the university. Policies are administered by the Department of Intercollegiate Athletics. All athletic grants-in-aid and scholarships are administered in coordination with the Intercollegiate Athletics Department.

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

Music. Performing organizations with the School of Music provide opportunities for involvement and credit, including bands, Lyric Opera Theatre, symphony orchestra, and university choral organizations.

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.

Theatre. The University Theatre presents six to 10 faculty-directed productions and six student-directed productions each year. Audition information is available from the Department of Theatre office (GHALL 232).



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. The 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 teaching and research faculty who nurture 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 classrooms, a computer laboratory, honors lounges, meeting rooms, and study areas. These facilities are available to all members of the University Honors College. With its interior courtyard, McClintock Hall is an inviting environment where students, faculty, and visiting scholars interact informally.

McClintock Hall is a coeducational residence 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 disciplinary colleges and academic majors enroll in the University Honors College. The Colleges of Architecture and Environmental Design, Business, Liberal Arts and Sciences, and Public Programs offer particularly strong programs. The College of Engineering and Applied Sciences has the most complete engineering honors curriculum in the United States.

Students with majors in the Colleges of Education, Fine Arts, and Nursing can also choose from a wide range of exciting courses, especially at the lower division.

Students seeking to graduate from the University Honors College must also graduate from disciplinary college. The ASU honors curriculum normally allows students to finish all requirements within the 126 semester hours of credit usually required for graduation.

The first two years of the honors curriculum typically focus on general studies. The second two years concentrate on the student's academic major and lead to graduation from both a disciplinary college and the University Honors College. Participating in this part of the curriculum allows students to write an honors thesis or complete some other extended creative project appropriate to their academic interests. In conceiving and completing this project, each student works closely with a faculty mentor and brings together the various strands of the student's education.

Participants in the University 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 presented their work at the national and regional meetings of scientific and honors societies. Some have earned distinction as Mellon and Fulbright fellows, and others have been recognized by a range of post-graduate scholarships and assistantships.

Benefits

Honors students have special advisors to help them plan individualized programs of study, and they receive priority at early registration. Honors courses are normally limited to 22 students.

They receive priority at early registration. Honors courses are normally limited to 22 students.

Honors students are eligible to live in McClintock Hall, the Scholars' Residence and home of the University Honors College. They have access to all the college's facilities, lounges, computer rooms, and study areas and enjoy extended loan periods at the library.

Students can receive transcript recognition for lower-division honors studies. Students who meet all upper division requirements of the college receive degrees awarded jointly by the college of their disciplinary major and by the University Honors College. Honors graduates often receive special consideration from graduate or professional schools and from prospective employers.

Admission

An entering *freshman* is admitted if he or she:

1. graduated in the top 5% of his or her high school class;
2. has a composite ACT score of 29;
3. has a combined SAT score of 1250; or
4. submits similar indications of academic achievement and aptitude.

Recipients of Regents' tuition waivers, National Merit Scholarships, Flinn Scholarships, and Gammage Scholarships are admitted automatically upon application.

Continuing and transfer students who have completed at least 12 semester hours of study with a cumulative GPA of at least 3.25 (on a 4.00 A scale) are admitted at their request to the college.

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

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 majors and the Honors College. Students normally register for at least one honors course each semester. A student with a cumulative GPA below 3.25 (on a 4.00 A scale) is placed on probation and is withdrawn from the college if he or she does not make reasonable progress in raising the cumulative GPA during the following semester.

Courses

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

Transfer students and students entering the college after completing 45 semester hours must take HON 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 18 in the *Schedule of Classes* allow honors students to contract with the instructor for honors credit by pursuing enrichment activities. When several students in the same section arrange such contracts, the instructor may require them to meet for supplemental sessions. Footnote 18 contracts and completion forms must be filed in a timely manner during the semester in which the course is offered.

Departmental courses carrying footnote number 19 in the *Schedule of Classes* are limited to honors students and others who receive special permission to enroll from the instructor. Enrollment in these courses is limited to 22 students.

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

Courses listed in the *Schedule of Classes* as 298, 492 Honors Individual Study, 493 Honors Thesis, 497 Honors Colloquium, and all classes with the HON prefix are reserved for honors students.

Departmental courses with the number 493 are reserved for honors students completing their honors projects or theses. A student may enroll for these courses only with the approval of the

ber who serves as the student's thesis director, with whom the student meets regularly. 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 to understand them more fully. In these course blocks, or *honors learning communities*, students work together closely with a master learner and two or three other faculty. Past honors learning communities have focused on symbolism, language, and culture, and on the social, economic, scientific, and personal impact of AIDS.

All courses a student takes for honors credit count toward graduation, even if the student does not graduate from the University 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 by the end of the semester in which the 60th credit hour is earned. These must include HON 171 and 172 The Human Event and may include ENG 105 and any combination of lower 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 HON 171 and 172; those entering the college as transfer students or after completing 45 semester hours of course work may substitute HON 394. All students must, in addition, complete 18 semester hours of upper division honors courses. These must comprise three to six semester hours of honors thesis work (including any research preparation courses) and at least six semester hours of honors courses *outside the academic major*, preferably Honors Colloquia. Students must also meet all requirements of the disciplinary college and academic major. Students seeking disciplinary college or departmental honors may have to meet more specific versions of these general requirements. Finally, students must have a cumulative ASU GPA of at least 3.40 (on a 4.00 A scale). Except for HON 171 and 172, students may not use the same course to satisfy requirements for both lower division transcript recognition and graduation from the college.

University Honors College

PROFESSOR:

HUMPHREY

SENIOR LECTURER:

WEIDEMER

LECTURERS:

COUDERT, VAN EGMOND

PARTICIPATING FACULTY:

BAHR, BRANDT, CARR, HUDAK, KINTIGH, MARTIN, MARZKE NASH, WINKELMAN (Anthropology), GULLY (Art) MATT (Biology) CAPCO, PATTEN RACOWSKY (Botany Zooology), GLAUNGER (Chemistry), BANZ, CORMAN CRAWFORD, GOYER MOTOYAMA (Communication); BURGESS, DESERPA, HAPPEL (Economics); BATAILLE, BJORK, BRNK DOEBLER, EVANS FISHER GELLER, GUTERREZ, HABERMAN, HELMS, JOHNSON, KEHL, LIGHTFOOT, MILLER, MORGAN, MURRAY, NILSEN, SENSBAR WILKINS (English); TU, WIXTED WOLLAM (Foreign Languages) LEONARD (General Business), TRENNERT (History) DOEBLER, MORGAN, SANDS (Humanities); CAVENDER, FERRARO, KELLY, LUJAN, MUSHENO (Justice Studies); ANDERSON, BAER McCARTER, McDONALD, SAVAGE TROTTER (Mathematics); BUCKFORD CHEN EVANS HENDERSON McNEILL, RANKIN (Mechanics and Aerospace Engineering); BERGMAN (Microbiology); CREATH, MAIENSCHEN (Philosophy) STROJNKA (Physics); DAGGER, GEER, McGAW, MCGOWAN, MILLER, READER (Political Science), BRAVER KENRICK KILLEEN, NEMEROFF NEUBERG VAN ORDEN (Psychology); CLARK, HUDSON, JENSEN, THOMAS, WETZ (Sociology); DORMAN (Speech and Hearing Science)

HONORS

HON 171 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 University Honors College. Consult the Honors Office for applicability to General Studies requirements. [Satisfies General Studies Requirements. L1 HU H]

172 The Human Event. 3 F, S
Continuation of HON 171 with emphasis on the Renaissance through the modern period. [Satisfies General Studies Requirements. L1, HU H]

493 Honors Thesis. 3 F, S, SS
[Satisfies General Studies Requirement: L2]

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

College of Liberal Arts and Sciences

Gary S. Krahenbuhl, Ed.D.

Dean

Purpose

Like all major research universities, Arizona State University provides the means for its undergraduates to acquire a liberal education, an education that broadens the student's knowledge and awareness in the major areas of human knowledge. While the professional schools and colleges can and do provide for important dimensions of a liberal education, the central academic setting for accomplishing this basic university purpose is the College of Liberal Arts and Sciences.

It is in the College of Liberal Arts and Sciences where most of the university faculty engagement in the discovery and creation of knowledge and its dissemination occurs. As such, the college provides a particularly rich and varied set of opportunities to gain a liberal education that can significantly prepare a student for a lifetime of continual learning in the diverse and changing application of knowledge to his or her career and personal life.

Because of the wide diversity of the subjects it offers in the humanities, the social and behavioral sciences, and the natural sciences and mathematics, the college provides instruction in a number of core areas for undergraduate students from other colleges in addition to preparing students in the major disciplines available in the college. The college initiated and continues to participate actively with the University Honors College. It offers advisement not only to students with their undergraduate programs, but to those preparing for graduate studies or preparing to enter professional careers, such as law and medicine.

Organization

The College of Liberal Arts and Sciences consists of 22 academic departments, several interdisciplinary programs, six centers, and several research institutes and laboratories. The college offers 33

programs leading to either a Bachelor of Arts or a Bachelor of Science degree, 25 programs leading to a Master of Arts or Master of Science degree, 17 programs leading to a Doctor of Philosophy degree, and interdisciplinary graduate programs in cooperation with other colleges.

Admission

Any student who has met the minimum requirements for admission to the university (see pages 33-39) and who wishes to major in a subject offered by the College of Liberal Arts and Sciences or who is undecided about a major and has fewer than 60 semester hours is admitted to the College of Liberal Arts and Sciences.

Any student with a cumulative GPA of at least 2.00 who is currently registered (in good standing) in another college at ASU and who wishes to major in a subject offered by the College of Liberal Arts and Sciences and to follow a program of study in the major may transfer into the college by making application and being initially advised in the Office for Academic Programs, SS 111. Mandatory advising applies to students admitted on probation. Failure to follow mandated advice on course selection can result in enrollment and registration problems, including cancellation and holds.

Transfer Students. The university standards for evaluation of transfer credit are listed on page 33. Transfer students are urged to contact the relevant academic department or the Office for Academic Programs, SS 111, to ensure a smooth transition to the College of Liberal Arts and Sciences.

Courses transferred from two-year (community) colleges are accepted as lower division credit only. Students are urged to choose their community college courses carefully, in view of the fact that a minimum of 50 semester hours of

work taken at the university must be upper division credit (see page 89).

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 SS 111.

Advisement

Regular Advisement. A prospective student who has already selected a major field of specialization is ordinarily assigned to an advisor in the department offering that field. Questions relating to the assignment of an advisor should be taken to the departmental office. An *Academic Advising Guide for Students* is available for students in the Office for Academic Programs. Students must follow the calendar published in the *Schedule of Classes* for each semester for information regard-

ing enrollment, adding dropping classes, and withdrawals.

Clearances of admission deficiencies and mandatory advising needs 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. All students placed on probation are expected to clear their registration requests through the Office for Academic Programs.

The Office for Academic Programs, located in SS 111, is the central resource center for academic information in the college. Requests for clarification of advising needs and college rules and procedures should be directed to that office. All students are urged to seek advising in the appropriate college unit before registration.

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 should consult with an advisor from the faculty of the department of his or her major field of study. Special advisement is available for students planning to enter the following fields:

Professional Field

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

Office Where Advisor Is Located

Pre Health Professions, SS 111
Department of chosen major
Pre Health Professions, SS 111
Office for Academic Programs, SS 111
Pre Health Professions, SS 111
Department of Philosophy
Pre Health Professions, SS 111
Pre Health Professions, SS 111
Pre-Health Professions, SS 111
Pre Health Professions, SS 111
Pre Health Professions, SS 111
Pre Health Professions, SS 111

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 for Academic Programs. 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.

"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 are advised through the University Academic

Advising Center, in Matthews Center. It is important to consult an academic advisor before 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 that has a rigidly structured curriculum should be aware that delay in choosing a major initially could result in added time and cost in the 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. Check department program descriptions for details.

MAJOR FIELD	DEGREE	DEPARTMENT
Anthropology	B.A.	Anthropology
Asian Languages	B.A.	Foreign Languages
Biology	B.S.	Botany; Zoology
Botany	B.S.	Botany
Chemistry	B.A., B S	Chemistry
Clinical Laboratory Sciences	B.S.	Microbiology
Computer Science ¹	B.S.	Computer Science
Economics ²	B.A., B.S.	Economics
English	B.A.	English
Exercise Science/ Physical Education	B.S.	Exercise Science and Physical Education
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.	Interdisciplinary Humanities Program
Interdisciplinary Studies	B A., B.S.	Interdisciplinary
Italian	B.A.	Foreign Languages
Mathematics	B.A., B S.	Mathematics
Microbiology	B.S.	Microbiology
Philosophy	B.A.	Philosophy
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

¹ The Department of Computer Science and Engineering is located administratively in the College of Engineering and Applied Sciences. The B S degree in Computer Science and Engineering 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 126 and pages 349-352).

² The Department of Economics is located administratively in the College of Business. The baccalaureate degree in Economics is offered by both the College of Liberal Arts and Sciences and the College of Business. Requirements differ according to college (see pages 126-127 and pages 247-249).

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 the initial semester. Other students who wish to register for more than 18 hours must have a GPA of at least 3.00 and must file a petition in the Office for Academic Programs, SS 111, before registration. Any petition for an overload in excess of 21 hours must be presented to the Standards Committee of the college. Unauthorized excess hours are 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 minimum cumulative GPA 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 is presumed to have demonstrated the necessary degree of writing proficiency. Transfer students who believe they have met university and college English proficiency requirements need to go to SS 111 to have an advisor evaluate their transfer work. For 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 on pages 42-45. Students who transfer from other colleges with less than two years of credit in a foreign language are placed in a course at the next level above the work completed.

The foreign language requirement can be met in languages not taught at ASU either by transferring credit from another institution or by passing a proficiency examination. When possible, the Department of Foreign Languages recommends to the college an appropriate source for such examinations and proctors them. Grading is done by the institution that provides the examination,

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

Students who have received their secondary education from a school where the language of instruction was not English are considered to have satisfied the foreign language requirement. Certification of this status is made at the time of admission to ASU. Questions should be addressed to the foreign credentials evaluator in the Admissions Office.

General Studies Requirements

A well planned program of study enables 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 pages 58-88. College graduation requirements exist in addition to the University General Studies requirements. Additional course work in the natural sciences, social sciences, and humanities may be involved in order to meet college graduation requirements. The college classification of the natural sciences, social sciences, and humanities holds for meeting college graduation requirements.

Graduation Requirements

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

Advisement and academic counseling are available both in academic departments and in the Office for Academic Programs 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 VI of the college graduation requirements (page 107).

To graduate from the College of Liberal Arts and Sciences, a student must satisfy separate requirements of three kinds:

1. proficiency requirements, which indicate a minimal level of competence in written communication, quantitative reasoning, and foreign language;

2. major requirements, which involve concentrated course work in one field; and
3. distribution requirements, which ensure that the student is exposed to disciplines outside the major field.

I. Proficiency Requirements. Each student is required to demonstrate proficiency in English, a 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 course 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 semester hours (MAT 117), if required for natural sciences or

mathematics majors, are not included in the 63 hours 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. A minimum of 12 upper division hours in the major must be taken in residence.

- B.** No credit is granted toward fulfilling major or minor requirements in any upper division course in the subject 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
- Exercise Science
- 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

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

Major fields 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 II.C.

Unless the major field is starred in II.C, students are considered to have fulfilled the distribution requirements in the division of the major.

Starred major fields: Students majoring in family resources and human development, exercise science and 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 (Department of English: any course except ENG 101, 102, 105, 107, 108)

CHI, FLA, FRE, GER, GRK, HEB, IDN, ITA, JPN, LAT, POR, RUS, SPA, THA (Department of Foreign Languages: FLA 150 or any literature or "civilization" course at the 300 level or above)

PHI (Department of Philosophy)

REL (Department of Religious Studies)

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 no fewer than two but 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 (Department of Anthropology)

ECN (Department of Economics, College of Business)

GCU (Department of Geography)

HIS (Department of History)

POS (Department of Political Science)

PGS (Department of Psychology)

SOC (Department of Sociology)

WST (Women's Studies Program, WST 100 or 300 but not both)

C. Natural Sciences and Mathematics (14 semester hours)

Part A (eight semester hours). Two courses (either lecture courses with included laboratories or lecture courses with appropriate accompanying laboratories) to be taken in the Departments of Botany, Chemistry, Geography (GPH 111, and 212 with 214 only), Geology, Microbiology, Physics, or Zoology. Laboratories need to meet for at least 30 hours per semester. 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. **Minors.** In addition to a major, a student also can choose a minor approved by the college. Most departments in the college offer a college approved course of study leading to fulfillment of requirements for a minor. Minors offered by departments must have at least 18 hours of designated courses, including 12 hours of upper division work. A minimum of six upper division hours in the minor must be taken in residence.

V. **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 the other colleges.

VI. **Program of Study.** The program of study, which is required by university regulations during the semester in which a student earns the 87th hour, must be filed and approved at least two weeks before the preregistration period for the subsequent semester. Students are expected to follow the approved program of study or to receive early college approval for proposed changes to the program of study. Students should contact the college graduation office, SS 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 before registering for the next semester.

Special Credit Options

All special credit 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. The pass/fail grade option is intended to broaden the education of Liberal Arts and Sciences undergraduates by encouraging them to take advanced courses outside their specialization. A mark of "P" contributes to the student's earned hours but does not affect the GPA. A failing grade is computed into the GPA.

Only College of Liberal Arts and Sciences students with at least 60 semester hours may take courses under the pass/fail option. The option may be used under the following conditions: (1) enrollment for pass/fail must be indicated during registration and may not be changed after the late registration period, and (2) a maximum of 12 hours taken for pass/fail may be counted toward graduation. Students may not enroll under the pass/fail option in the following courses:

1. those taken to satisfy the foreign language or English proficiency requirements;
2. those in the student's major;
3. those counted toward or required to supplement the major;
4. those counted as 499 Independent Study;
5. those taken for honors credits; or

6. those counted toward satisfying the proficiency and distribution requirements of the college or the University General Studies requirements.

The above option is not available to College of 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 GPA and the terms of probation, disqualification, reinstatement, and appeal are identical to those of the university as set forth on pages 55–57 of this catalog, except that the disqualified student in the College of Liberal Arts and Sciences is suspended 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 student with a cumulative GPA of less than 2.00 is not automatic. Disqualified students should contact the Office for Academic Programs, SS 111, regarding procedures and guidance for returning to good standing by following recommendations and meeting standards for summer school work or course work at other institutions.

Academic discipline is one of the functions of the Office for Academic Programs, SS 111. All students having academic difficulties of any kind should contact this office. Also available in this office is information on policies and procedures of the college on academic honesty, student grievances with respect to grades, and various petitions

regarding college standards and graduation requirements.

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

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 departmental academic advisors before registration. Students with additional questions or problems are also urged to meet with advisors in the college office, SS 111, regarding the academic rules of the college and the university.

Special Programs

University Honors College. The College of Liberal Arts and Sciences works closely with the University Honors College, which affords superior undergraduates opportunities for enhanced educational experiences in the major field. For a complete description of the University Honors College requirements and opportunities, see the description on pages 98–100.



Interdisciplinary Studies. An Interdisciplinary Studies major leading to the B.A. or B.S. degree provides students of outstanding ability in the humanities, social sciences, and natural sciences opportunities to pursue courses of studies that cut across departmental boundaries and focus on specific topics or problem areas. Admission requirements: Completion of 32 semester hours with a GPA of at least 3.25 and three letters of recommendation from ASU faculty members. Degree requirements include 18-30 semester hours in one discipline and 15-27 in a second discipline or a minimum of 15 semester hours in each of three disciplines. For more information about degree requirements, contact the Office for Academic Programs in the college of Liberal Arts and Sciences, SS 111.

Five-Year M.B.A. Program. The college, in cooperation with the College of Business, coordinates advising for a fast track M.B.A. program for qualified students selected for the program. For details, contact the Office for Academic Programs, SS 111.

Washington Semester Program. Students have a variety of opportunities for practicum and internship experiences that enable students to meld classroom learning with practical application. Among the several individual departmental programs that provide internships for majors, the Department of Political Science is the ASU sponsor of the Washington Semester Program. The program provides students a one-semester opportunity to study in Washington, D.C., through any one of several programs sponsored by the American University. The program is available to outstanding juniors or seniors and requires careful planning with an academic advisor early in the student's career. Call the Department of Political Science, 602/965-6551, for more information.

Military Officer Training. The Departments of Aerospace Studies and Military Science offer programs leading to commissions in the armed forces, but they do not offer majors. For further information, see the appropriate department descriptions in this catalog.

Certificate Programs and Areas of Emphasis

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 that, while ensuring a rigorous training for students in their chosen fields of study, enable them to relate their disciplines 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 is recognized on the transcript by a bachelor's degree 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 the College of Engineering and Applied Sciences. The purpose of the concentration is to serve undergraduate students who wish to prepare themselves for careers in health physics. To qualify for professional status, a health physicist needs a B.S. degree in one of the physical or life sciences and a group of specialized courses in physics, mathematics, chemistry, engineering, and biology 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 that follows a prescribed program. Inquiries about the program should be addressed to the Pre Health Professions Office, SS 107, where academic advisement is available.

Jewish Studies. The Jewish studies program is designed with the following goals in mind:

1. to examine the history and culture of the Jews;
2. to provide a model for interdisciplinary teaching and research;
3. to generate and facilitate research on Judaica;
4. to provide the community with programs, courses, and research furthering the understanding of Judaica; and
5. to stand as an example of the university's commitment to a program of meaningful ethnic studies on a firm academic base.

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

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, Foreign Languages, Geography, History, and Political Science, and 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. Fulfillment of requirements is recognized on the transcript by a bachelor's degree in "(Discipline) Latin American studies."

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

Museum Studies. The Department of Anthropology's program in museum studies is designed to prepare students for curatorial and associated positions in museums of anthropology, art, history, natural history, science, and related fields. Course offerings include the history and philosophy of museums, administration, collection management and conservation, exhibition design and preparation, public programming and interpretation, and computers in museums. The certificate is awarded to undergraduate, graduate, and unclassified students who successfully complete 12 hours of required course work plus a six semester hour internship at an approved museum. The certificate may be taken independently or in conjunction with the M.A. degree in Anthropology with a concentration in museum studies.

Further information may be obtained from the director of Museum Studies, Department of Anthropology.

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 requires 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 and or East European course work. *Option two* requires two years of Russian and 36 upper division hours in Russian and/or East European course work. Fulfillment of these requirements is recognized on the transcript by a

bachelor's degree in "(Discipline)—Russian/East European studies."

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

Southeast Asian Studies. A Certificate in Southeast Asian Studies is awarded to any undergraduate student who elects an interdisciplinary focus in 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 with the following goals in mind:

1. to examine the central issues of the quality and shape of women's lives;
2. to provide a model for interdisciplinary teaching and research;
3. to generate and facilitate research on women's experience;
4. to provide the university and the community with programs, courses, and research that acknowledge and expand the potential of women; and
5. to 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 is awarded for the successful completion of either WST 100 or 300, 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 Program, SS 104, where the current list of approved courses is available.

General Information

Research Centers. To expand educational horizons and to enrich the 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* for a description of these research centers.

LIBERAL ARTS

Interdisciplinary (LIA) courses offered by the College of Liberal Arts and Sciences.

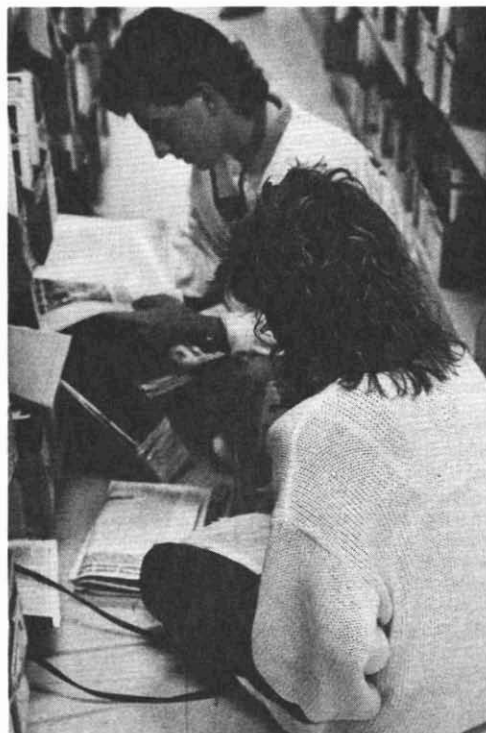
LIA 100 University Adjustment and Survival. (3) F, S, SS

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 Libraries, with an emphasis on research. Open to freshmen and sophomores.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.



Aerospace Studies

Air Force ROTC

PROFESSOR:

SHUGARS (MAIN 340)

ASSISTANT PROFESSORS:

FELDSHER, SHADDEN, TOWERS

Purpose. The Department of Aerospace Studies curriculum consists of the general military course for freshmen and sophomores (AES 101, 102, 201, 202) and the professional officer course for juniors and seniors (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 receives a commission as a Second Lieutenant in the Air Force Reserve.

General Qualifications. A man or woman entering AFROTC must be the following:

1. a citizen of the United States (noncitizens may enroll but must obtain citizenship before commissioning);
2. of sound physical condition; and
3. 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 before age 26 and a half; other categories must be able to complete all commissioning requirements before 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 for a total of eight semester hours. GMC students not on AFROTC scholarship incur no military obligation. Each candidate for commissioning must pass an Air Force aptitude test and a physical examination and be selected by a board of Air Force officers. If selected, the student then enrolls in the 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 sophomore and junior years. Upon successful completion of the POC and the college requirements for a degree, the student is commissioned in the U.S. Air Force as a Second Lieutenant. The new officer then enters active duty or may be granted an educational delay to pursue graduate work.

Two-Year Program (POC). The basic requirement for entry into the two year program is that the student have two academic years of college work remaining, either at the undergraduate or graduate level. Applicants seeking enrollment in the two-year program must pass an Air Force aptitude 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. The following requirements must be met for admittance to the Professional Officer Course (POC):

1. The four year student must successfully complete the general military course and the four week field training course
2. The two year applicant must complete a six week field training course
3. All students must pass the Air Force Officer Qualifying Test (AFOQT)
4. All students must pass the Air Force physical examination
5. All students must maintain the minimum GPA required by the college.

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 and provide an allowance for books, fees, supplies and equipment, and a monthly tax free allowance of \$100. Scholar-

ships are available on four, three and a half, three, two and a half, and two-year bases. To qualify for the four year scholarship, a student must be a U.S. citizen and submit an application before December 1 of the senior year in high school. Interested students should consult their high school counselors or call AFROTC at ASU for application forms to be submitted to: HQ, AFROTC, Maxwell AFB, Alabama 36112-6663. Male and female students enrolled in AFROTC at ASU 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, the 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). A cadet designated to enter U.S. Air Force Undergraduate Pilot Training after graduation participates in LATR after the junior year in college unless the cadet already has 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 hour lecture 1 hour leadership practice application

102 Nature of U.S. Air Power. (2 S) Background on strategic missile defense forces, general purpose, and aerospace support forces in national defense. 1 hour lecture 1 hour leadership practice application

201 Aerospace History to WWII. (2 F) Historical survey of events, trends, and processes leading to the emergence of air power through WW I. 1 hour lecture 1 hour leadership practice application

202 Aerospace History: WWII to Present. (2 S) Development of aerospace power from WW I to the present, emphasizing the impact of limited war and technology on roles and missions. 1 hour lecture 1 hour leadership practice application

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, individual motivation and behavior processes, leadership communication, and group dynamics are covered. 2 hours lecture, 1 hour leadership practice application

302 U.S. Air Force Management and Leadership. (3 S) Organization and personal values management of forces in change, organizational power politics, managerial strategy and tactics. 2 hours lecture 1 hour leadership practice application.

401 National Security Institutional Policy and Strategy. (3) F

Armed Forces as a technical element of society with emphasis on the broad range of American civil-military relations, principles and techniques of communication in the political, economic and social constraints on the national defense structure. 2 hours lecture, 1 hour leadership practice application

402 Topical and Regional Security Issues. 3 S
 Formulation and implementation of U.S. defense policies, impact of technological and international developments on strategic preparedness in the overall defense policy-making processes. 2 hours lecture, 1 hour leadership practice application

Anthropology

PROFESSORS:

REDMAN ANTH A124, BAHR, CLARK,
 COWGILL, EDER, FOSTER, MARTIN, MERBS,
 MORRIS, NASH, SCHOENWETTER,
 STARK, TURNER

ASSOCIATE PROFESSORS:

AGULAR, ALVAREZ, BRANDT, CARR,
 CHANCE, FIRESTONE, HUDAK, KANTIGH,
 ROYCE, WILLIAMS

ASSISTANT PROFESSORS:

CROWN, FALCONER, HEDLUND, MARZKE,
 SPIELMANN, STEADMAN

LECTURER:

WINKELMAN

PROFESSORS EMERITI:

DITERT, GARNES, RUPPÉ, STEWART

Bachelor of Arts Degree in Anthropology

The program 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 the following subfields: social/cultural anthropology, physical anthropology, and archaeology; and
3. three hours each in linguistics, an ethnographic area course, and an 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 the departmental brochure. See "Foreign Language Requirement," page 104.

Latin American Studies Combined Degree Program. See "Latin American Studies," page 110.

The program 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 either 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 B.A. degree in Anthropology-Latin American studies.

Minor in Anthropology

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 at least two of the three subfields of anthropology.

Bachelor of Arts in Education Degree in Secondary Education

Social Studies: Anthropology. The major teaching field consists of 63 semester hours, of which 30 hours must be in the anthropology courses required for the B.A. degree. 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>
SED 480 Special Methods of Teaching	
Social Studies	3
Anthropology	30
Social sciences	15
Social sciences, natural sciences, or psychology	15
Total	63

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

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, fossils, hominids and their 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 and osteometry. Description and analysis of archaeological and contemporary human populations. 3 hours lecture, 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 their relation to genetics and behavior. 3 hours lecture, 3 hours lab. Prerequisites: ASM 101 and MAT 106 (or equivalent) or instructor approval. [*Satisfies General Studies Requirement S2*]

343 Primatology. 3 F

Evolution and adaptations of nonhuman primates, emphasizing social behavior. Includes material from fossil evidence and field and laboratory studies in behavior and biology. Prerequisite: ASM 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 biological 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, fossils, historic and recent concepts of human races. Influence of culture on human evolution.

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 re-

peated 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 hours lecture, 3 hours lab. Prerequisite: instructor approval.

450 Bioarchaeology. 3 S

Surveys archaeological and physical anthropological methods and theories for evaluating skeletal and burial 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-cultural dietary factors. 3 hours lecture, 3 hours lab. Prerequisite: instructor approval. [*Satisfies General Studies Requirement S2*]

454 Comparative Primate Anatomy. (4) S

Functional anatomy of the cranial, dental, and locomotor apparatus of primates including humans, emphasizing the relation of morphology to behavior and environment. Lectures, lab dissections, demonstrations. 3 hours lecture, 3 hours lab. Prerequisite: instructor approval.

455 Primate Behavior Laboratory. 3 N

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

465 Quantification and Analysis for Anthropologists. 3 S

Statistical, quantitative, and geometric strategies for environmental and exploring archaeological, physical anthropology, bioarchaeology and socio-cultural data. Univariate and multivariate methods. Prerequisites: introductory statistical course; instructor approval.

472 Archaeological Ceramics. (3) N

Analysis and identification of pottery wares, types and varieties. Systems for ceramic classification and cultural interpretation. 2 hours lecture, 3 hours lab. Prerequisite: instructor approval.

494 Special Topics: Roles in Computer Anthropology. 3 S

[*Satisfies General Studies Requirement N3*]

555 Advanced Human Osteology. 3 N

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

565 Computer Archaeology. 3) F

Methods of structuring and coding archaeological data sets, both management and manipulation on technical systems stressed. Review of computer applications of archaeological databases. Design of individual research projects utilizing a mainframe computer.

566 Advanced Computer Applications. (3) S

Advanced applications utilize a variety of software packages for managing and manipulating large data sets. Graphical 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 r-

Application to real collections 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
- (e) Cross-listed as ASB 591
- (f) Interdepartmental Seminar
- (g) Cross-listed as ASB 591

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

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. Social, political and economic systems; regional 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 an anthropological point of view.

211 Women in Other Cultures. (3) N

Cross-cultural analysis of the economic, social, 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, Pompeii, 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 local field experience. 2-hour lecture, 8 hours lab. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement: S2]

240 Introduction to Southeast Asia. (3) F

An interdisciplinary introduction to the cultures, religions, political systems, geography and history of Southeast Asia. Cross-listed as GCU HIS/POS REL 240 [Satisfies General Studies Requirement: G]

250 Anthropology Topics. (3) S

Covers five areas of anthropological inquiry. Emphasizes primary research, critical analysis, and communication skills relevant to upper divisions in anthropology course work. Prerequisites: ASB 102, ASM 101 or equivalent. Competency of the First-Year Composition requirement. [Satisfies General Studies Requirement: L1]

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 linguistic 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, focusing 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 inventories. Geographic, climatic, and geological relationships. [Satisfies General Studies Requirement: SB]

331 Old World Prehistory I. (3) F

Development of people as biosocial organisms 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 domestication of economies; establishment of settled villages, emphasizing the Near East, Egypt, Southwest Europe. Prerequisite: ASM 101 or instructor approval. [Satisfies General Studies Requirement: H]

333 New World Prehistory. (3) F

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. Prerequisite: competency of the First Year Composition requirement. Pre- or corequisite: one upper division ASU course. [Satisfies General Studies Requirements: L2, SB, H]

334 Arctic Anthropology. (3) S

Past and present Aleut-Eskimo prehistory: origins, physical features, adaptations, variation, and culture, with comparisons of Asian Arctic populations. Prerequisite: instructor approval. [Satisfies General Studies Requirement: G]

335 Southwestern Anthropology. (3) N

Past cultures in the Southwest and their relation 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]

116 ANTHROPOLOGY

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 socio-cultural 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, and grief and the philosophy and ecology of non-Western and Western cultures. [Satisfies General Studies Requirements: HU, SB, G]

363 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. 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 preindustrial societies: description and classification of exchange systems; relations between production, exchange systems, and other societal subsystems. Prerequisite: ASB 102 or instructor approval. [Satisfies General Studies Requirements: L2, SB]

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 ethnographic laboratory techniques and artifact analysis. Discussion of 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 and 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]

483 Sociolinguistics and the Ethnography of Communication. (3) N

Relationships between linguistic and social categories; functional analysis of language use, maintenance, and diversity. Interaction between verbal and nonverbal communication. Prerequisites: ASB 480 and ENG 213 or FL 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 agriculturists.

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 legislation and policy. Legal and administrative requirements, conservation, development and management of cultural resources. CRM research design formulation. Seminar, 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, activity sites, 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 their 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 domesticated 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.

555 Complex Societies. (3) S

Structural variations in hierarchically organized societies, along with origins, dynamics, and collapse, are examined. Seminar.

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 and 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, and 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; fund raising 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, designing, staging, installing, evaluating, and disassembling temporary and long-term exhibits. Prerequisites: ASB 571 and 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.

576 Museum Interpretation. (3) F

Processes of planning, implementing, documenting, and evaluating educational programs in museums for varied audiences—children, adults, and special interest groups. Lecture, discussion. Prerequisite: ASB 571.

577 Principles of Conservation. (3) S

Preservation of museum objects: nature of materials, environmental controls, and causes of degradation; recognizing problems, damage, and solutions; proper care of objects. Prerequisites: ASB 571 and 572 or instructor approval.

582 Linguistic Theory: Syntax. (3) N

Contemporary theories of the grammatical structure of languages. Prerequisite: ASB 480 or 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 or 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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.



Biological Sciences

The following curricula are offered jointly by the Departments of Botany and Zoology. Students who elect one of these programs are advised by a member of one of the two departments.

Bachelor of Science Degree in Biology

This program 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 in the major area, 20 hours in supplementary areas, and a mathematics proficiency. Required major courses (31 hours) are as follows: 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 as follows: CHM 113 and 115 and 231 or CHM 331 and 332 and 335 and 336; CSE 181 or 183; MAT 210 or any calculus; PHY 101 (or 111 or 112 or 113 or 114).

Bachelor of Arts in Education Degree in Secondary Education

Biological Sciences. Offered jointly by the Department of Zoology and the Department of Botany, the major teaching field consists of a minimum of 40 semester hours and at least 22 hours in supporting courses. Required major courses are as follows: BIO 101, 182, 320, 340, 445; BOT 300 (or 370 or ZOL 350 or 370), 360; MIC 206, 220; ZOL 360. The remaining courses in the major (six hours minimum) should be selected to reflect a balance between ZOL and BOT courses. Required supporting courses are as follows: CHM 113, 115, GLG 102 (or 300), PHY 101 (or 111 and 112 and 113 and 114), HPS 330 (or ZOL 316), MAT 118. BIO 480 is required in the professional education program.

Biological Sciences. The minor teaching field consists of 24 semester hours as follows: BIO 181, 182; 16 additional hours in BIO, BOT, MIC, and ZOL courses selected to reflect a balance across the disciplines and subdisciplines in biology. BIO 480 is required in addition to the 24 semester hours in biological sciences.

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, organ, 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. Secondary school chemistry strongly recommended. Prerequisite: BIO 181. [Satisfies General Studies Requirement S2]

217 Conservation Biology. (3) F

The scientific and technical means for management, protection, maintenance and restoration of biological resources on this planet. Prerequisite: 8 hours of biology.

218 Medical History. (1) F

Brief survey of humankind's important inventions and discoveries in the art and science of medicine illustrating interrelationships of medical ideas.

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 the natural environment. 2 weekend field trips, field project. Cannot be used for major credit in the biological sciences. Pre- or corequisite: 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. Prerequisites: formal conference with the instructor approval of the problem by the instructor and department chair.

320 Fundamentals of Ecology. (3) F, S

Organization, functioning, and development of ecological systems; energy flow, biogeochemical cycling, environmental relations; population dynamics. Prerequisite: BIO 182 or instructor approval.

330 Ecology and Conservation. (3) F

Ecological and biological concepts of conservation used to understand ecological problems caused by humans. 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 structural 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.

415 Biometry. (4) F

Statistical methods applied to biological problems. Design of experiments, estimation, significance analysis of variance, regression, correlation, chi square, and bioassay; the use of computers. Does not satisfy laboratory requirements for the 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. Emphasizes mainframe and microcomputers. Prerequisites: BIO 182 and MAT 117 and 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 hours lecture, 3 hours laboratory. Prerequisite: BIO 320 or instructor approval.

428 Biogeography. (3) F
Environmental and historical processes determining distributional patterns of animals and plants, emphasizing terrestrial life. Prerequisites: BIO 182 or equivalent, junior standing. [Satisfies General Studies Requirement. L2]

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 affected by intracellular compartmentation. Emphasis on the application of electron microscopic analyses, cell fractionation, 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 '92
Chromosomal basis of inheritance. Prerequisite: BIO 340.

442 Cytogenetics Laboratory. (2) F '92
Microscopic analysis of meiosis, mitosis, and aberrant cell divisions. 6 hours laboratory. Pre- or corequisite: BIO 441.

443 Molecular Genetics. (3) F
Nature and function of the gene, emphasizing the molecular basis of inheritance and gene expression in prokaryotes and eukaryotes. 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: CHM 231 or 331, 12 hours of courses in life sciences.

480 Methods of Teaching Biology. (3) S
Methods of instruction on experimentation, organization, and presentation of appropriate content in biology. Prerequisite: 20 hours in the biological sciences.

512 Transmission Electron Microscopy. (4) F
Theory, use, and methods of preparing biological materials for transmission electron microscopy. Materials fee: 2 hours lecture, 6 hours laboratory. Prerequisite: instructor approval.

515 Scanning Electron Microscopy. (3) N
Theory, use, and methods of preparing biological materials for scanning electron microscopy. Materials fee: 2 hours lecture, 3 hours laboratory. 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 '91
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 hours lecture, 3 hours laboratory. Prerequisites: BIO 415 or equivalent, one course in ecology.

529 Advanced Limnology. (3) N
Recent literature developments, methods, and molecular theory; field and laboratory application to some particular topic in limnology. Prerequisite: BIO 426.

535 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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

Botany

PROFESSORS:

(LS C210), ARONSON,
BACKHAUS, NASH, PATTEN, PINKAVA,
SOMMERFELD, TRELEASE

ASSOCIATE PROFESSORS:

CLARK, KLOPATEK, STUTZ, SZAREK,
TOWELL, VERMAAS

ASSISTANT PROFESSORS:

FRASCH, MARTIN, PGG,
ROBERSON, WEBBER

PROFESSORS EMERITI:

CANRIGHT, SWAFFORD

Bachelor of Science Degree in Botany

Students majoring in Botany may pursue one of two options.

Option One. The general botany program provides majors with a strong foundation in plant biology, which includes course work and laboratory experiences relating to the structure, function, and ecology of plants. The program prepares students for advanced or graduate study in the life sciences, for admission to highly specialized advanced degree programs in the plant sciences, or

to assume positions in education, industry, and technical fields. It consists of a minimum of 40 semester hours in botany and approved related fields and a minimum of 22 semester hours in supplemental courses. Required courses are as follows: BIO 181, 182, 320, 340, 420; BOT 350, 360, 370; MIC 205 (or 220), 206; at least one of the following: BOT 410, 434, 450; laboratory or field experience in the form of BIO 310 or BOT 499 (three semester hours). Required supplementary courses are as follows: CHM 113 and 115 and either 231 or 361 or the sequence 331 and 332 and 335 and 336; MAT 210; STP 420 or BIO 415.

Option Two. The concentration in urban horticulture is designed to provide a solid foundation in horticultural practice while providing sufficient flexibility for students to emphasize areas of particular interest. For example, a student may choose to emphasize horticultural science by directing the program of study to include courses in botany, genetics, and chemistry. A student may choose to concentrate on the horticultural management of pests, soils, and water by including course work in plant diseases, pests, nutrition, and water management. A student may emphasize the commercial aspects of horticulture by including agribusiness courses in the curriculum to ensure financial as well as horticultural knowledge. Students may also choose to emphasize landscape horticulture by concentrating on courses in design and landscape horticulture. Graduates find employment in the nursery industry, landscape management (e.g., park or golf course management), commercial or government laboratories, the agricultural chemistry industry, or may begin their own businesses. The urban horticulture concentration consists of a minimum of 42 semester hours of botany and approved related fields and a minimum of 14 semester hours in supplemental courses. Required courses are as follows: BIO 181, 182, 320, 420; BOT 231, 350, 360, 380, 381, 382, 485; ERA 325, 326. Required supplemental courses are as follows: CHM 101 and 231 or CHM 113 and 115 and 331 and 332 and 335 and 336; MAT 117 and 118 or MAT 210; BIO 415 or ERA 350 or STP 420.

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 hours lecture, 3 hours lab. [Satisfies General Studies Requirements S1, S2]

231 Horticultural Science. (4) S

Principles and practices of horticulture, emphasizing growth, development, and propagation of horticultural plants and environmental factors which affect these processes. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or BOT 108.

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 lab. Prerequisite: BO 100 or 182 or BOT 108 or equivalent. [Satisfies General Studies Requirement S2]

301 Economic Botany. (3) F

Plants and plant products used by people throughout the world including their cultivation, processing and uses in modern life: fibers, medicinal beverages, perfumes, and foods. Prerequisite: BO 100 or equivalent.

350 Plant Anatomy. (4) F

Development and mature structure of tissues of vascular plants; patterns and modifications of the leaf, stem, root, and the flower. 3 hours lecture, 3 hours lab. Prerequisite: BO 182 or equivalent.

360 Plant Physiology. (4) F S

Plant growth and development, nutrition, water relations, reproduction, metabolism, and photosynthesis. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or equivalent; CHM 101 or 115 or 231.

370 The Flora of Arizona. (4) S

Principles of taxonomy, identification of Arizona plants. 2 hours lecture, 6 hours lab. Prerequisite: BO 182 or equivalent or instructor approval.

380 Landscape Plants. (3) S

Identification, culture, and use of plants in urban landscapes. Prerequisite: BOT 231 or equivalent.

381 Plant Propagation. (3) S

Principles and skills in propagating landscape plants by seed and vegetative means, including fruit plants. 2 hours lecture, 3 hours lab. Prerequisites: BIO 182 and BOT 231 or equivalent.

382 Arboriculture. (3) S

The establishment, care, and maintenance of ornamental trees, shrubs, and vines. Prerequisite: BOT 231 or equivalent.

386 Indoor Plants. (3) S

Identification, culture, and use of container-grown plants for interior environments. Prerequisite: BOT 231 or instructor approval.

388 Turf Management. (3) N

Selection, establishment, and maintenance of turf grasses for lawn and sports areas. 2 hours lecture, 3 hours lab. Prerequisite: BOT 231 or equivalent.

410 Lichenology. (3) F '92

Chemistry, ecology, physiology and taxonomy of lichens. 2 hours lecture, 3 hours lab. Prerequisite: BIO 182 or equivalent.

420 Plant Ecology. (4) S

Plants in relation to environments. 3 hours lecture 3 hours lab or field trip, 1 weekend field trip Prerequisite: BIO 320 or equivalent

425 Plant Geography. (3) F 92

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 92

Various groups of fungi their morphology, identification procedures, and economic significance 2 hours lecture 3 hours lab Prerequisite: BIO 182 or equivalent

445 Morphology of the Vascular Plants. (4) N

Comparative form and evolutionary trends in the major groups of vascular plants. 3 hours lecture 3 hours lab Prerequisite: BOT 300 or equivalent

448 Palynology. (3) N

Significance of Fossil and Extant pollen, spores and other palynomorphs to systematics Evolution, Ecology and Stratigraphy 1 hour lab 2 hours lecture Prerequisite: instructor approval

450 Phycology. (4) S

The algae (both fresh water and marine forms) emphasizing field collection and identification of local representatives Morphology, ecology and economic aspects of the algae. 3 hours lecture, 3 hours lab. Prerequisite: BIO 182 or instructor approval

461 Physiology of Lower Plants. (3) N

Cellular physiology and biochemistry of algae and fungi responses of these organisms to chemical and physical stimuli and their process of morphogenesis Prerequisites: BIO 182 or equivalent, CHM 231

465 Plant Growth and Development. (3) F

Environmental factors affecting the adaptation distribution, growth, and development of plants, with emphasis on cultivated species Prerequisites: BIO 182 BOT 381; 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 hours lecture 6 hours lab, 2 field trips. Not open to students who have had BOT 370.

475 Angiosperm Taxonomy. (3) S'92

Principles underlying angiosperm phylogeny. 2 hours lecture 3 hours lab Prerequisite: BOT 370 or instructor approval

480 Plants: Pleasures and Poisons. (3) SS

Poisonous, medicinal, and other drug plants Plant products and their effects on humans historical and modern perspectives. Prerequisites: BIO 100 182 BOT 108 or equivalent CHM 231 or equivalent

485 Plant Pathology. (3) F

Identification and control of biotic and abiotic factors which cause common disease problems to plants Prerequisite: BOT 360.

488 Greenhouse/Nursery Management. (3) F

Greenhouse structures environment, and nursery operation includes irrigation nutrition, and other principles relative to container grown species. Prerequisites: BOT 381 ERA 325

489 Plant Pest Management. (3) S

Principles of management of plant pests, including insects plant pathogens, and weeds covering the use of chemical and nonchemical methods Prerequisite: BOT 485.

490 Paleobotany. (4) S'92

A broad survey of plant life of the past, including the structure of plant fossils their geographic ranges geographic distribution and paleoenvironment 3 hours lecture, 3 hours lab or field trip Prerequisite: BIO 182 or equivalent

510 Experimental Design. (3) S '92

ANOVAS one way classification of factorial and partially hierarchical designs introductory multivariate statistics. One 3 hour lecture at night Prerequisite: BIO 415 or equivalent

520 Biophysical Ecology. (2) F '91

Physical processes in a plant's microenvironment; radiation heat, and water transfer pollutant and ion uptake Prerequisite: BIO 320 or equivalent

525 Ecophysiology. (3) F '92

Physiological adaptation to environmental stresses and its ecological significance for plant survival. Environmental and biological control of photosynthesis and transpiration. Prerequisite: BOT 360 or instructor approval

560 Plant Molecular Biology. (2) S 92

Biochemistry and molecular biology of plant organelles, including protein targeting, plant viruses, and molecular designs for plant improvements Prerequisite: instructor approval

564 Plant Metabolism. (3) N

General plant metabolism and typical plant products emphasizing biosynthesis and functions of storage products, cell wall constituents plant acids pigments, hormones, and numerous secondary products. Prerequisite: BOT 360 or CHM 231 or instructor approval

570 Plant Secondary Chemistry. (3) N

Biosynthesis and distribution of plant natural products with various plant taxa. 3 hours lecture Prerequisites: CHM 331 332 (or equivalent)

581 Plant Tissue and Cell Culture. (3) N

Aseptic, clonal propagation of plants via isolated cells tissues, and organs 2 hours lecture, 3 hours lab Prerequisites: BOT 360, 381 (or 465).

585 Diagnosis of Plant Problems. (4) N

Principles and techniques for diagnosis of biotic and abiotic agents that cause problems in economic plants. 2 hours lecture, 2 three hour abs Prerequisite: BOT 485

591 Seminar. (1) F, S

Topics may be selected from the following.

- (a) Biosystematics
- (b) Nonvascular Plants Protists
- (c) Ecology
- (d) Plant Physiology

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

Chemistry

REGENTS' PROFESSORS:

BUSECK, LIN, C MOORE PETT T, WAGNER

PROFESSORS:

MUNK (PS D102) ANGELL

BALASUBRAMAN AN, B EBER, B RK
BLANKENSHIP, T. BROWN CRON N, FUCHS,
GLAUNSINGER, GUST, HOLLOWAY, JUVET
LIU, LOHR, T. MOORE, O'KEEFFE,
WH TEHURST WILLIAMS, YUEN**ASSOCIATE PROFESSORS:**MCMILLAN A. MOORE, PETUSKEY,
ROSE SKIBO**ASSISTANT PROFESSORS:**ALLEN, GROTJAHN PENA STE MLE, WOLF,
WOODBURY, ZIURYS**REGENTS' PROFESSOR EMERITUS:**

EYRING

PROFESSORS EMERITI:D. BROWN, BURGOYNE, BURKE, HARRIS,
LUCHSINGER, MOELLER, STUTSMAN,
THOMSON ZASLOW**Bachelor of Arts Degree in Chemistry**

The program consists of 46 semester hours, of which 30 must be in chemistry and 16 in closely related fields. Required courses are as follows: CHM 113 and 115 *or* CHM 117 and 118 (strongly recommended for qualified students); CHM 225, 226; CHM 331 and 332 and 335 and 336 *or* CHM 317 and 318 and 319 and 320 (strongly recommended for qualified students); CHM 341, 343, 453. Related courses must include the following: MAT 270 and 271 *or* equivalents; PHY 111 and 112 and 113 and 114 *or* more advanced courses. The remaining courses to complete the major are determined by students in consultation with their advisors.

Bachelor of Science Degree in Chemistry

The program consists of 42 semester hours in chemistry. Required courses are as follows: CHM 113 and 115 *or* CHM 117 and 118 (strongly recommended for qualified students); CHM 331 and 332 and 335 and 336 *or* CHM 317 and 318 and 319 and 320 (strongly recommended for qualified students), CHM 425 and 426 and 427 and 428 *or* CHM 225 and 226 and 421 and 422; CHM 441, 442, 444, 453, MAT 290 and 291

or MAT 270 and 271 and 272; PHY 121, 122, 131, 132, 241. MAT 274 and an appropriate course in computer language (CSE 181 or 183) are strongly recommended. The remaining chemistry courses to complete the major are determined by the student in consultation with an advisor. With the consent of the department chair, selected advanced courses from other related scientific disciplines may be accepted in lieu of elective chemistry courses to complete the major.

Transfer students are interviewed and advised of possible preparatory work. They must contact the department to arrange for the interview in advance of registration. See "Degree Requirements," page 104.

American Chemical Society Certification.

A student who satisfactorily completes the Bachelor of Science degree program is 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.

Emphasis in Biochemistry.

The major in Chemistry with an emphasis in biochemistry consists of 63 semester hours in chemistry and related fields. Required courses are as follows: BIO 181, 182, 340; CHM 113 and 116 *or* CHM 113 and 115 *or* CHM 117 and 118 *or* equivalents; CHM 225 and 331 and 332 and 335 and 336 *or* CHM 317 and 318 and 319 and 320; CHM 441 and 442 and 444 *or* CHM 341 and 494 Biophysical Chemistry and 494 Biophysical Chemistry Laboratory, CHM 453, 461, 462, 467; MAT 290 and 291 *or* MAT 270 and 271 and 272; PHY 121, 122, 131, 132. The remaining courses to complete the major are determined by students in consultation with their advisors.

Chemistry Exchange Program.

Selected juniors 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, a 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.

Minor in Chemistry

A minor in Chemistry is awarded to students who complete a minimum of 23 hours of chemistry courses. Required courses are CHM 113 and 115 (or 116 or equivalent). The remainder of the courses are selected from the following after con-

sultation with an advisor: CHM 225 and 226 or CHM 421 and 422; CHM 331 and 332 and 335 and 336 or CHM 231 and 361; CHM 341 and 343 or CHM 441 and 442 and 444; CHM 447, 453.

Bachelor of Arts in Education Degree in Secondary Education

Chemistry. Students may pursue one of two options for the chemistry major teaching field.

Option One. The academic specialization consists of 48 semester hours in chemistry and related fields. Required courses are as follows: CHM 113, 115, 225, 226, 331, 332, 335, 336, 341 (or 441 or 442), 361, 480 (or PHY 480); MAT 270, 271; PHY 111, 112, 113, 114. The remaining courses to complete the specialization are determined by students in consultation with their advisors.

Option Two. The academic specialization 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.

Chemistry. The minor teaching field consists of 24 semester hours in chemistry. Required courses are as follows: CHM 113, 115; CHM 225 and 226 and 231 and 361 or CHM 331 and 332 and 335 and 336; CHM 341. The remaining courses to complete the specialization are determined by students in consultation with their advisors.

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. Normally followed by CHM 231. 3 hours lecture, 1 quiz, 2 hours lab. [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 hours lectures, 1 quiz, 2 hours lab. 1 year of high school chemistry recommended. Prerequisite: MAT 106 or 3 semesters of high school algebra. [Satisfies General Studies Requirements: S1, S2]



124 CHEMISTRY

114 General Chemistry for Engineers.* (4) F S

One semester college chemistry with emphasis toward engineering. 3 hours lecture 1 quiz, 2 hours lab. Students without high school chemistry or chemical engineering majors must enroll in the CHM 113-116 sequence instead of CHM 114. Prerequisite: MAT 106 or 3 semesters of high school algebra; 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 and the introduction to organic chemistry. Laboratory includes qualitative analysis. 3 hours lecture, 2 quizzes, 4 hours lab. 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 and the introduction to organic chemistry. 3 hours lecture 1 quiz 2 hours lab. 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 hours lecture 1 conference 2 hours lab. Prerequisites: minimum of 1 year each of high school chemistry (with a grade of "B" or better) and physics 3 years of high school mathematics. [Satisfies General Studies Requirements: S1, S2]

118 Advanced General Chemistry.* (5) F, S

Continuation of CHM 117. 3 hours lecture 1 conference 5 hours lab. 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, premedicine, dentistry, and medical technology. Prerequisite: CHM 115 or 116

226 Analytical Chemistry Laboratory.* (2) F, S

Experiments in chemical analysis. 1 conference, 5 hours lab. Corequisite: CHM 225

231 Elementary Organic Chemistry.* (4) F, S

Survey of organic chemistry, with emphasis on the reactivity of basic functional groups. 3 hours lecture, 1 quiz, 2 hours lab. 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 at a level suited 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. Prerequisites: 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, reaction 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 lab. 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 or 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 techniques, synthesis, analysis, and identification, and relative reactivity. 4 hours lab. Corequisite: CHM 331.

336 General Organic Chemistry Laboratory.* (1) F, S, SS

Continuation of CHM 335. 4 hours lab. Prerequisite: CHM 335. Corequisite: CHM 332

341 Elementary Physical Chemistry. (3) F

Thermodynamics, equilibrium states of matter, solutions, and chemical kinetics. For students in premed, biology, and education curricula. Not open to students who have taken CHM 441. Prerequisites: CHM 114 (or 118 or 225-231 (or 331); MAT 271

343 Physical Chemistry Laboratory.* (1) F

Physical chemistry experiments. 3 hours lab. 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 or 318 or 332

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 lab. Pre- or corequisite: CHM 361 or instructor approval

392 Introduction to Research Techniques. (1-3) F, S, SS

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 lab. Corequisite: CHM 421

424 Separation Methods and Quantitative Organic Analysis. (3) F

Theory and practice of gas-liquid exchange, and gel permeation chromatography, countercurrent distribution, electrophoresis, and distillation, qualitative and quantitative

tive interpretation of IR mass and NMR spectroscopy quantitative methods of organic analysis via functional groups 2 hours lecture 4 hours lab Prerequisites: CHM 318 or 332 or 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 lab. 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 hour lecture 6 hours lab Prerequisites CHM 118 or 226 and 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, and 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 lab. Prerequisite CHM 441

447 Radiochemistry. 2 F

Radioactivity, natural and artificial radioisotopes, nuclear reactions so that of isotopes nuclear energetics measurement of radioactivity, tracer techniques and other applications Prerequisite CHM 115 or 116 or 118 or instructor approval

448 Radiochemistry Laboratory. 2 N

Radation measurements tracer methods quantitative identification of isotopes and other procedures applicable to chemical, physical, engineering and biological problems 1 conference 5 hours lab Corequisite CHM 447

452 Inorganic Chemistry Laboratory. 2 S

Preparation and characterization of typical inorganic substances emphasizing methods and techniques 1 conference 5 hours lab. 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

Structure chemistry and metabolism of biomolecules and their role in the biochemical processes of living organisms Prerequisites CHM 318 or 332 and 341 or 441 or instructor approval

462 General Biochemistry. 3 F

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 lab 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 and demonstrations organization of stock rooms and 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 or 441 or GLG 321

485 Meteorites and Cosmochemistry. 3 N

Chemistry of meteorites and their relationship to the origin of the earth solar system and universe Cross listed as GLG 485

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 on-line, 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 hours lecture 4 hours lab.

523 Advanced Analytical Chemistry. (3) A

Theoretical principles of analytical chemistry Prerequisites: CHM 225 and 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 hours lecture 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 hours lecture, 3 hours lab Prerequisite: CHM 442

527 Electrical Methods of Chemical Analysis. 4 N

Theoretical and practical considerations of potentiometry amperometry and conductometric titrations 2 hours lecture 6 hours lab Prerequisite: CHM 442

531 Advanced Organic Chemistry I. 3 F

Reaction mechanisms, reaction kinetics linear free energy relationships transition state theory, molecular orbital theory and Woodward Hoffmann rules Prerequisites: CHM 318 (or 332 442).

532 Advanced Organic Chemistry II. (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 Thermodynamics. (3) F
Equilibrium thermodynamics, chemical reactions and phase equilibria. Introduction to statistical thermodynamics: critical phenomena and kinetics. Prerequisite: CHM 442

545 Quantum Chemistry I. (3) F
Basic quantum theory, chemical bonding and molecular structure. Prerequisite: CHM 442.

546 Quantum Chemistry II. (3) S
Quantum theory of rate processes. Principles of spectroscopy and non-radiative processes. Prerequisite: CHM 545.

548 Chemical Kinetics. (2) N
Kinetic theory and rate processes. Prerequisite: CHM 545.

553 Advanced Inorganic Chemistry. (3) F
Principles of modern inorganic chemistry and their applications over the entire periodic system. Prerequisites: CHM 442 and 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. Prerequisite: instructor approval.

583 Phase Equilibria and Geochemical Systems. (3) N
Natural reactions at high temperatures and pressures, silicate, sulfide and oxide equilibria. Cross-listed as GLG 583.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

* 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 available in both the College of Liberal Arts and Sciences and the College of Engineering and Applied Sciences. Faculty and course descriptions appear on pages 349-356.

Bachelor of Science Degree in Computer Science

The program 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. The university requirement for literacy and critical inquiry is to be met in part by ECE 400 and ENG 301.

A minimum cumulative GPA of 2.50 is required to begin upper division work in the major. A minimum grade of "C" is required in all CSE courses used for degree credit.

For further information on college requirements, contact an advisor in the Office for Academic Programs, SS 111 or the Department of Computer Science and Engineering, ECG 252.

Economics

A major in Economics is offered in both the College of Liberal Arts and Sciences and the College of Business. Faculty, course descriptions, and the major requirements in the College of Business are listed on pages 247-248.

Bachelor of Arts Degree in Economics

The program 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:

		<i>Semester Hours</i>
ECN 111	Macroeconomic Principles	3
ECN 112	Microeconomic Principles	3
MAT 270	Calculus with Analytic Geometry I	4
STP 226	Elements of Statistics	3
Total		13

		<i>Semester Hours</i>
ECN 111	Macroeconomic Principles	3
ECN 112	Microeconomic Principles	3
MAT 270	Calculus with Analytic Geometry I	4
STP 226	Elements of Statistics	3
Total		13

In order to qualify for upper division course work in economics, the Economics major must earn a minimum grade of "C" in each of the above listed courses, have junior class standing, and have a minimum 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 before other upper division courses in economics.

In order to qualify for upper division course work in economics, the Economics major must earn a minimum grade of "C" in each of the above listed courses, have junior class standing, and have a minimum 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 before other upper division courses in economics.

Credit earned by an Economics major in ECN 484 Economics Internship and ECN 493 Honors Thesis, whether as a legislative intern or through the Department of Economics Internship Program, may not be used to satisfy the 24 hours of economics 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 104

Credit earned by an Economics major in ECN 484 Economics Internship and ECN 493 Honors Thesis, whether as a Legislative Intern or through the Department of Economics Internship Program, may not be used to satisfy the 24 hours of economics course work requirement. However, up to six hours of ECN 484 and ECN 493 may be used to meet the related fields requirement. See "Degree Requirements," page 104.

Latin American Studies Emphasis. See "Latin American Studies," page 110. In addition to the Bachelor 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 in Economics Latin American studies emphasis.

**Bachelor of Arts in Education
Degree in Secondary Education**

**Bachelor of Science Degree in
Economics**

Economics. The major teaching field 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 program 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:

		<i>Semester Hours</i>
ECN 111	Macroeconomic Principles	3
ECN 112	Microeconomic Principles	3
MAT 270	Calculus with Analytic Geometry I	4
STP 226	Elements of Statistics	3
Total		13

The following lower division courses are required and must be counted as part of the 45 hour major.

In order to qualify for upper division course work in economics, the student must earn a minimum grade of "C" in each of the above listed courses, have junior class standing, and have a minimum 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 before other upper-division courses in economics.

Credit earned by the student in ECN 484 Economics Internship and ECN 493 Honors Thesis, whether as a legislative intern or through the Department of Economics Internship Program, may not be used to satisfy the 24 hours of economics course work requirement. However, up to six hours of ECN 484 and ECN 493 may be used to meet the related fields requirement. See "Degree Requirements," page 104.

Economics. The major teaching field consists of 21 semester hours. ECN 111 and 112 and MAT 210 are required. The remainder is to be approved by the advisor in consultation with the student.

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 247-248 of this catalog.



English

PROFESSORS:

BATAILLE, BENDER, BJORK, BRACK,
D. BRINK, J. BRINK, BUCKINGHAM,
D'ANGELO, B. DOEBLER, J. DOEBLER,
DONELSON, N. DUBIE, EVANS, FISHER,
HABERMAN, M. HARRIS, HELMS, KEHL,
LIGHTFOOT, NEY, A. NILSEN, D. NILSEN,
RIOS, SALERNO, SANDS, SHINN

ASSOCIATE PROFESSORS:

WILKINS (LL B504), ADAMS, BOYER,
CARLSON, GELLER, J. GREEN, M. GREEN,
GUTIERREZ, JANSSEN, JOHNSON, MURRAY,
OJALA, RAMAGE, SCHWALM, SENSIBAR

ASSISTANT PROFESSORS:

BAROODY, BATES, BRAIDI, BROSE, COLBY,
CORSE, J. DUBIE, GOLDBERG, HORAN,
MAHONEY, MILLER, MINER, MORGAN,
NELSON, PEARSON, VANDEN HEUVEL

INSTRUCTOR:

K. HARRIS

LECTURER:

COOK

PROFESSORS EMERITI:

ERNO, FERRELL, GREENE, HAKAC, HERMAN,
LAMBERTS, NEBEKER, PORTNOFF, POWERS,
RANDALL, SHAFER, TURNER

Bachelor of Arts Degree in English

The program consists of 45 semester hours in English. Required courses are ENG 200, 221, 222, 312 (or 314 or 413 or 416 or 417), 341, 342, 421 (or 422), a course in English literature before 1660, a course in English literature between 1660 and 1900, a course in 20th-century British or American literature, and a course in women's literature or American ethnic literature. A grade of "C" or better is required in all courses taken for the major. *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 104.

Minor in English

The English minor for students in other disciplines in the College of Liberal Arts and Sciences consists of 24 hours in English. Eighteen hours must be selected as follows: ENG 200, 221 (or 222), 312 (or 314 or 413 or 416 or 417), 341 (or 342), 421 (or 422); one upper-division course in

English or American literature. Six additional hours are free electives chosen from the department's offerings at the 200 level or above. A grade of "C" or better is required in all courses taken for the minor.

Bachelor of Arts in Education Degree in Secondary Education

English. The major teaching field consists of 42 semester hours in English. Required courses are ENG 200, 212 (or 215 or 216 or 217 or 218), 221, 222, 312 (or 314), 341, 342, 421 (or 422), 471, 480, one course in women's literature or American ethnic literature, and nine hours of electives (all chosen from English department courses, six of which must be upper division). ENG 471 and 480 must be taken before student teaching.

English. The minor teaching field consists of 24 semester hours. Required courses are ENG 200, 212 (or 215 or 216 or 217 or 218), 221 (or 222), 312 (or 314), 341 (or 342), 471, 480, and an additional upper division elective in English.

These courses are also recommended for Elementary Education majors.

Graduate Programs

The Department of English offers programs leading to the degrees and majors of Master of Arts in English (with emphases in literature, comparative literature, and linguistics), Master of Fine Arts in Creative Writing (fiction, poetry, nonfiction, and screenwriting), Master of Teaching English as a Second Language, and Doctor of Philosophy in English (with numerous emphases).

English faculty currently serve as editors of *Explorations in Ethnic Studies*, and *Modern Scandinavian Literature in Translation*. 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*, *Reviews for American Literary Study*, *Dickinson Studies*, *18th Century*, *A Current Bibliography*, *Rocky Mountain Review of Language and Literature*, *Centennial Review*, and *Manoa: New Chicago Writing*. The Creative Writing faculty includes three Guggenheim fellows. Among recent books published by the faculty are *Continuities: Essays and Ideas in American Literature*, *Emily Dickinson's Critical Reception in the 1890's: A Documentary History*; *Faulkner's Poetry*, G. B. Shaw: *An Annotated Bibliography of Writings about Him*,

Groom Falconer; *The Lime Orchard Woman*; *News of the World*, *The Old English Verse Saints' Lives*, *The Origins of Faulkner's Art*, *Our Town: An American Play*, *Richard Brautigan*; *Sea Brothers*. *The Tradition of American Sea Fiction from Moby Dick to the Present*; *Screenwriting: A Method*, *Thematic Relations*; *Transformational Grammar: Essays for the Left Hand*; *Truants*; *Venus and Adonis: A Facsimile Edition*; and *Worlds within Women: Myth and Mythmaking in Fantastic Literature by Women*.

ENGLISH

ENG 101 First-Year Composition. 3 F S SS

Discovering organizing and developing ideas in relation to the writer's purpose, subject, and audience. Emphasis on modes of written discourse and effective use of rhetorical principles. Foreign students see ENG 107. Prerequisite: see pages 47 and 89.

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, logic, and rhetorical effectiveness. Not open to students with credit in First-Year Composition. Prerequisite: see pages 47 and 48.

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. Not for English or English education majors. [Satisfies General Studies Requirements: HU, H]

Completion of the First Year Composition requirement is a prerequisite for all English courses above the 100 level.

114 English Grammar and Usage. (3 F, S)

The fundamentals of English grammar: word and phrase structure and of English usage: punctuation, grammatical correctness.

200 Critical Reading and Writing About Literature. 3 F, S

Introduction to the terminology, methods, and objectives of the study of literature with practice in interpretation and evaluation. For English or English education majors and minors only. [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]

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202 World Literature. (3) S

The Renaissance and modern periods. Sections 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 or English education majors. [Satisfies General Studies Requirement: HU]

210 Introduction to Creative Writing. (3) F, S

Beginning writing of poetry, fiction, and drama (both stage and screen). Separate sections for each genre. Each genre may be taken once.

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 and 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, 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 18th 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 20th 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 all upper division (300–400 level) ENG courses.

301 Writing for the Professions. (3) F, S

Advanced practice in writing and editing expository prose. Prerequisite for preprofessional 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 myths, 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 Two*, *Walden Utopia*, and *The Republic*. Prerequisite for nonmajors. [Satisfies General Studies Requirement: HU]

310 Intermediate Creative Writing. (3) F, S

Separate sections for fiction and poetry. May be taken once for poetry, once for fiction. Lectures, writing assignments, discussion. Prerequisite: ENG 210 or instructor approval.

312 English in its Social Setting. (3) F, S

Introduction to the sociolinguistic study of the English language. [Satisfies General Studies Requirement: HU]

314 Modern Grammar. (3) F, S

Modern descriptive models of English grammar.

321 Introduction to Shakespeare. (3) F, S

Shakespeare's major comedies, histories, and tragedies. Not for English or English education majors. [Satisfies General Studies Requirement: HU]

332 Major American Novels. (3) A

Novels from the 19th century to the present studied in their historical and cultural contexts. Not for English or English Education majors or minors. [Satisfies General Studies Requirement: L2]

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. Firm 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 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 African 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 hours lecture, 4 hours screening. [Satisfies General Studies Requirements: HU, H]

- 361 Silent Film.** (4) F
Development of motion pictures from 1850 through 1930. 3 hours lecture screenings [Satisfies General Studies Requirements: HU H]
- 362 Sound Film Genres.** (4) S
Exam nation of the Western, the horror film, the comedy and other genres. 3 hours lecture, screenings [Satisfies General Studies Requirement: HU]
- 363 Chicano Literature.** (3) F
Development of Chicano literature, study of genres and themes; attention to literary antecedents.
- 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: HU]
- 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.
- 408 Advanced Screenwriting I.** (3) F
A study of the principles of dramaturgy or dramatic structure with particular emphasis on character as the creator of events.
- 409 Advanced Screenwriting II.** (3) S
Application of the principles taught in a complete feature length screenplay. Prerequisite: ENG 408
- 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 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 cultural and narrative actual backgrounds including contemporary works. [Satisfies General Studies Requirement: HU]
- 416 Chaucer: Canterbury Tales.** (3) F
Chaucer's language, his last work, and its relationship to continental and insular traditions. Prerequisite: ENG 221 or instructor approval [Satisfies General Studies Requirement: HU]
- 417 Chaucer: Troilus and Criseyde and the Minor Works.** (3) S
Chaucer's language, his major poem, and his early works in their medieval context. Prerequisite: ENG 221 or instructor approval. [Satisfies General Studies Requirement: HU]
- 418 Renaissance Literature.** (3) F
Poetry and prose 1485-1603, excluding the drama. Humanism and 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 17th Century.** (3) S
Prose and poetry, exclusive of Milton and the drama. Metaphysical, Cavalier and neoclassical verse, Donne, Jonson, Bacon, and other representative writers. Prerequisite: ENG 221 or instructor approval. [Satisfies General Studies Requirements: L2, HU]
- 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 English Drama to 1600.** (3) S, 92
Drama (exclusive of Shakespeare), including Kyd, Marlowe, Greene and Decker. Prerequisite: ENG 221 or instructor approval [Satisfies General Studies Requirements: HU H]
- 424 Jacobean and Caroline Drama.** (3) S, 93
Drama from 1600 to 1642 (exclusive of Shakespeare), including Jonson, Chapman, Webster and Beaumont. Prerequisite: ENG 221 or instructor approval [Satisfies General Studies Requirements: HU, H]
- 425 Romantic Poetry.** (3) F
Poetry of Wordsworth, Coleridge, Shelley, Keats and Byron [Satisfies General Studies Requirement: HU]
- 426 Victorian Poetry.** (3) F
Poetry of the second half of the 19th century. Special study of Tennyson, Browning, and 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: HU, H]
- 429 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]
- 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, 91
English drama of the Restoration and 18th century especially critical theories and social forces affecting the stage. [Satisfies General Studies Requirement: 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 Requirement: HU]
- 441 20th-Century American Drama.** (3) N
American drama since World War I, especially experimental techniques. [Satisfies General Studies Requirement: HU]

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- 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 Requirement HU]
- 444 American Romanticism, 1830–1860.** 3 F
Art and ideas of major American transcendentalists and romanticists. [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 novels 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 HU H]
- 452 The 19th-Century Novel.** (3) S
From Scott to Conrad [Satisfies General Studies Requirements. HU H]
- 453 The American Novel to 1900.** 3 F
The rise and development of the novel to Dreiser [Satisfies General Studies Requirements 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, criticism and schools of theory of metrical 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 Requirement HU]
- 462 20th-Century Women Authors.** 3 F
Critical examination of literature by women 20th-century women writers. May be repeated for credit when topics vary. 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 emphasizing 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 Requirement HU]
- 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. A passing grade of at least "C" required 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. A passing grade of at least "C" required before students will be permitted to student teach in English. Prerequisite: ENG 312 or 314 or 413
- 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 dialects
- 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. May be repeated for credit when topics vary. Prerequisite: ENG 507
- 509 Middle English.** 3) S
A study of the principal dialects 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
- 516 Pragmatics and Discourse Theory.** (3)
The study of language use in context and of language structures in conversation and written text. Lecture discussion
- 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 classical 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 91

Relationship of major texts in classical rhetoric to developments in composition theory, literary theory, and practice through the 19th century.

531 Rhetorical Theory and Literary Criticism. (3) S 93
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, and 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 Literature.** (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.

574 Teaching of English as a Second Language. (3) F

Nature of language learning, testing, and analysis of differences between two languages as a basis of instruction. Problems of cultural orientation. Prerequisite: teaching experience or instructor approval.

575 Advanced Studies in the Teaching of English as a Second Language. (3) F, S

Theoretical basis of English as a Second Language including an investigation into the application of psycholinguistics and linguistic theories.

576 Sociolinguistic Aspects of Second Language Acquisition. (3) F

A survey of studies in second language acquisition in the context of recent sociolinguistic theory.

591 Seminar. (3) F, S

Selected topics regularly offered in the various areas of English studies.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

HUMANITIES

For courses in humanities, see "Interdisciplinary Humanities Program" pages 166–167.

Exercise Science and Physical Education

REGENTS' PROFESSOR:

D.M. LANDERS

PROFESSORS:

J. THOMAS PEBW M201) BURKETT CORB N,
CORDER, DARST, KRAHENBUHL,
OSTERHOUDT, PANGRAZI, SKINNER,
STELMACH, STOCK, STONE WELLS

ASSOCIATE PROFESSORS:

DEZELSKY, MARTIN

ASSISTANT PROFESSORS:

C. BRYANT, HENRICHS, MATT, O'CONNOR,
K. THOMAS, VAN DER MARS, VOGLER WILLIS

VISITING INSTRUCTOR:

NORRIS

LECTURER:

D.M. LANDERS

PROFESSORS EMERITI:

F. BRYANT, DEACH, GRIDER, KAJI KAWA,
KLANN, MAARS, NGH, McFARLAND,
ODENKIRK, PACKER, PATTMAN,
RICHARDSON, STEVERSON, STEWART,
THOMSON, WEGNER, WULK

Bachelor of Science Degree in Exercise Science/Physical Education

All students in this program are required to complete the following 17 semester hours in EPE prerequisite courses: MAT 117; PGS 100, ZOL 201 and 202; HIS 102 or PHI 101 or 103. The major core consists of 30 to 33 semester hours in EPE courses. For the EPE courses 21 semester hours are required core courses (EPE 335, 340, 345, 352, 450, and six semester hours of 110). The remaining 9 to 12 EPE hours are from upper division courses and are determined depending on which option the student selects. All prerequisite courses and EPE courses must be completed with a minimum grade of "C."

Majors may elect either the exercise and sport studies or the exercise and wellness option.

Exercise and Sport Studies Option. Candidates must complete 24 semester hours beyond the core courses in the major field, at least nine of which must carry EPE prefixes, be upper division experiences, and concern the theoretical subjects of the core. The remaining 15 semester hours

may carry either EPE 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.

Exercise and Wellness Option. Candidates must complete 24 semester hours beyond the core courses in the major field; EPE 420, 425, 494 Fitness and Wellness Management (three semester hours each), EPE 484 (three to six semester hours), and 12 semester hours carrying either EPE 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.

Exercise Science/Physical Education Minor

The minor consists of the core sequence in exercise science and physical education as follows: EPE 110 (six semester hours), 335, 340, 345, 352, 450; plus all prerequisite courses.

Bachelor of Arts in Education Degree in Secondary Education

Candidates for the B.A.E. are required to complete 19 additional semester hours in physical education (EPE 110, 361, 376, 382, 480, and 483) and a four-semester professional sequence in the College of Education (32 semester hours). Entry into this degree program requires filing an application, passing scores on a Pre-Professional Skills Test (PPST), 56 semester hours of completed university study, and a minimum GPA of 2.50. (See the "College of Education" section for additional requirements.)

Graduate Programs

The Department of Exercise Science and Physical Education offers programs leading to Master of Science degrees in Exercise Science and Physical Education, the Doctor of Philosophy in Exercise Science, and, through the College of Education, the Master of Education in Secondary Education (physical education), and Doctor of Philosophy in Curriculum and Instruction (physical education; exercise and wellness 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 is examined, including governmental, voluntary, and community agency activities that promote health among populations

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 satisfactorily complete 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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

EXERCISE SCIENCE/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 (EPE 105, 205, 305, 310) may not be taken for audit.

EPE 105 Physical Education Activity. (1) F, S, SS

Beginning instruction in a wide variety of sports such as aerobics, aquatics, racquet sports, physical conditioning and golf. 3 hours a week. "Y" grade only. May be repeated.

110 Movement Analysis Laboratory. (1-2) F, S, SS

Practical application of biomechanical, physiological, psychological, and learning principles in the analysis of ski acquisition and performance. Prerequisites: ESPE major, PED 105 proficiency

205 Physical Education Activity. 1 F, S, SS

Intermediate level. Continuation of EPE 105. 3 hours a week. May be repeated for credit.

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. Prerequisite: Physical Education major.

292 Sports Officiating. (3) S

Rules and mechanics of officiating used in softball (slow and fast pitch), baseball, and track and field.

305 Physical Education Activity. (1) F, S, SS

Advanced level. Continuation of EPE 205, with instructor's approval. 3 hours a week. May be repeated.

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 only.

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 kinetic 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 and Developmental Learning. (3) F, S, SS

Principles of motor skill acquisition across the lifespan, focusing on the learner and the learning environment. Prerequisites: PGS 100; ZOL 201.

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.

352 Psychosocial Aspects of Physical Activity. (3) F, S

Interrelationships between physical activity and psychosocial variables, including socialization, team-dynamics, cultural values, anxiety-aggression, and motivation. Prerequisite: PGS 100.

361 Physical Education in the Secondary School. (3) F, S, SS

Current trends and theories, such as elective programs, coed classes, legal issues, contract teaching, curriculum, and administration.

370 Advanced First Aid. (3) N

Assessment, management, treatment of wounds, injuries, shock, poisoning, burns, sudden illness, emergency rescue, and cardiopulmonary resuscitation. Lecture, lab.

376 Physical Education for the Elementary School. (3) F, S, SS

Scope and values of physical education in the elementary school. Methods, materials, and practice in 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 adapting activities to meet the needs of the handicapped. Prerequisite: EPE 335 or instructor approval.

383 Advanced Techniques and Evaluation of Athletic Injuries. (3) S

Evaluation of athletic injuries and the recognition of the importance of physical exams. Conditioning programs and disqualifying factors in athletics. Designed for students seeking NATA certification. Prerequisite: EPE 283.

412 Biomechanics of the Skeletal System. (3) F

Biomechanics of tissues, structures, and major joints of the musculoskeletal system. Discussion of injury mechanisms. Lecture, discussion, some labs. Prerequisite: EPE 335 or instructor approval.

420 Exercise Testing. (3) F

Theoretical basis and practical application of screening, exercise testing, estimates of energy expenditure, and interpretation of results. Prerequisite: EPE 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: EPE 420.

441 Physiology of Women in Sport. (3) S

Physiological aspects of women engaging in physical activity. Factors affecting performance and health throughout life will be emphasized.

448 Applied Sport Psychology. (3) F, SS

Psychological theories and techniques applied to a sport to enhance the performance and personal growth of athletes and coaches. Lecture, discussion. Prerequisites: EPE 345 and 352 or equivalent

450 History and Philosophy of Sport. (3) F, S, SS

Nature, purpose, and development of modern sporting and related activity. Prerequisite: HIS 102 or PHI 101 or 103.

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 nonschool-based settings. Prerequisite: MAT 117.

485 Rehabilitation of Athletic Injuries. (3) S

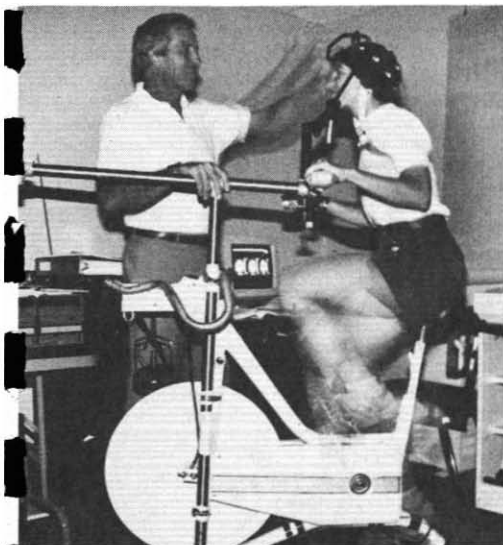
Application of principles and practices regarding the use of modalities and rehabilitation techniques in the athletic training room. Designed for students seeking NATA certification. Prerequisite: EPE 383.

500 Research Methods. (3) F

An introduction to the basic aspects of research, including problem selection, literature review, instrumentation, data handling, methodology, and the writing of research reports and articles.

501 Research Statistics. (3) S

Statistical procedures; sampling techniques; exercise testing, exercise prescription, hypothesis testing, and experimental designs as they relate to studies reported in research publications. Prerequisite: EPE 340.



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505 Research Laboratory. 3 F

Advanced research techniques used in exercise physiology. Emphasis is placed on assessment of body composition and cardiorespiratory fitness. Lecture/lab

510 Introduction to Biomechanics Research Methods. (3) F

Application of mechanics to human movement analysis. Includes consideration of 2-dimensional imaging techniques, force measurement, electromyography and data processing methods. Lecture/discussion, some abs. Prerequisite: EPE 335 or instructor approval

520 Psychology of Exercise and Sport. 4 F

Current research in psychology of sport and exercise includes questionnaire psychophysiology, and behavioral research techniques. Lecture/discussion. Prerequisites: EPE 345, 352, 500

521 Motor Development, Control, and Learning. 4 S '93

Theory and research on motor skill acquisition, including learning control and development, i.e., growth, children and exercise and development learning. Lecture/discussion, some abs. Prerequisites: EPE 345, 500, 501.

530 Exercise Physiology. 3 F

Immediate and long-term adaptations to exercise with special reference to training and the role of exercise in cardiovascular health

534 Sports Conditioning. 3 F

Bases of sports conditioning, including aerobic and anaerobic power, strength, flexibility, and analysis of conditioning components for sports

536 Fitness Program Development. 3 S

Planning, organization and administration of fitness programs. Exercise testing and prescription. Programs for special groups

540 Factors Influencing Exercise Performance. 3 S

Physiological factors that can affect the ability to exercise and the body's response to exercise. Lecture/seminar. Prerequisite: EPE 530.

541 Physiology of Women in Sport. 3 S

Physiological aspects of women engaging in physical activity. Factors affecting performance and health through out life will be emphasized

542 Environmental Aspects of Human Performance. (3) N

Physiological response mechanisms to desert, arctic, mountain and undersea environments with emphasis on exercise performance. Prerequisite: EPE 530

550 Historical Bases of Physical Education. 3 N

Golden Age of Greece, Renaissance and modern Europe. Cultural, economic, and educational forces that influenced the development of physical education, dance and athletics in the United States

555 Sport and the American Society. 3) F

Impact of sports upon the American culture, with focus on competition, economics, myths, minorities, and the Olympic syndrome

560 Theory of Administration. 3 N

Administrative philosophies, development of concepts related to processes of administration, types of administrative behavior, tasks and responsibilities of the administrator and the evaluation of the effectiveness of administration.

561 Administration of Athletics. 3 N

Managing an athletic program including financial budgeting, policies, staging and promotion of athletic contests, schedules, travel insurance, and current athletic trends

562 Facility Development. 3 N

Principles, standards, personnel, designs and equipment utilized in the planning, construction and maintenance of indoor/outdoor facilities

565 Improving Sport Skills. 3 SS

Factors in successful motor performance in skills used in individual, dual, and team sports

570 Adapted Physical Education. 3 F

Contemporary adapted, development, remedial, and corrective physical education programs: understanding of principles, problems, and recent developments in this area

572 Trends and Issues in Physical Education. 3 S

Literature, research and practices in contemporary physical education, including finances, Title X, teaching and coaching philosophies, school organization and non-teaching physical education programs

573 Curriculum Construction in Secondary Physical Education. 3 F

Application of principles, practices, and functional philosophies of curriculum making in physical education. Prerequisite: major in Physical Education or teaching experience

574 Analysis of Teaching Behavior in Sport and Physical Education. 3 N

Use of systematic direct observation techniques in analyzing and evaluating instruction in sport and physical education. Lecture/lab

575 Teaching Lifetime Fitness. 3) S

Organizing and implementing physical fitness programs in the schools with emphasis on individual problem solving

576 Physical Education for Elementary School Children. 3 F

Current practices and research pertaining to elementary school physical education programs

577 Movement Experiences for Preschool Children. 3 N

Movement activities for preschoolers based on the needs and characteristics of young children

610 Advanced Topics in Biomechanics. 3 S

Three-dimensional imaging techniques, data analysis theory and integration of biomechanics research tools. Includes original research project. Lecture/discussion, some abs. Prerequisite: EPE 510 or instructor approval

620 Developmental Motor Skill Acquisition. 3 S '93

Cognitive motor theories of learning performance applied to children's motor skill acquisition. Study of knowledge development and research analysis techniques. Lecture/discussion. Prerequisite: EPE 521

621 Motor Learning Control. 3 F '93

Discussion of contemporary research issues in motor learning and control includes behavioral and neurophysiological issues. Lecture/discussion. Prerequisite: EPE 521

622 Sport Psychology. 3 S

Contemporary research and theory as related to human performance in sport and exercise settings. Lecture/discussion. Prerequisites: EPE 501, 520

630 Current Topics in Exercise Physiology. 3 F

Discussion of contemporary research issues in exercise physiology. Lecture/seminar. Prerequisites: EPE 505, 530, 541 or 542

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered

Family Resources and Human Development

PROFESSORS:

PETERSON (HEC 106), HOOVER, MORGAN

ASSOCIATE PROFESSORS:

BAKER BOULIN JOHNSON, CHRISTOPHER,
FABES, HUGHSTON, MANORE, C. MARTIN,
MONTE, ROOSA VAUGHAN

ASSISTANT PROFESSORS:

BALCAZAR, GRIFF N HUNTER, JOHNSTON,
PETERS, W LSON

LECTURERS:

R. MART N, WE GAND, ZYLLA

PROFESSORS EMERITI:

BARKLEY, BRESINA, CREIGHTON,
ELLSWORTH, KAGY, O'CONNOR
STANGE, WOOLDRIDGE

Bachelor of Arts or Bachelor of Science Degree in Family Resources and Human Development

For either the B.A. or B.S. degree (see "Degree Requirements," page 104), students must select one of the following concentrations:

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.

Family Resources and Human Development in Business

Food service management option. This option consists of 22 hours of the following required departmental courses: FON 100, 142, 341, 343, 344, 442, 445. In addition, credits are required from the following. CHM 101, 231; MGT 301 or equivalent; MIC 205, 206. Additional business courses are selected in consultation with advisor.

Textiles and clothing option. This option consists of 50 hours of required TXC and related courses. TXC 122, 123, 223, 318, 323, 424, and 425 are required courses. Select at least 14 hours from the following: TXC 221, 325, 327, 423, 428,

429, 433, 494, 498; FRD 451, or one COM course. Choose 15 hours from the following: ACC 211; ADV 301; ECN 111 (or FAS 354); MGT 301, 311, 440; MKT 300, 304, 310, 325, 424.

Family Studies/Child Development

This concentration consists of 42 hours of core family studies/child development classes plus nine hours of elective classes. Required core courses include the following: CDE 232, 430; FAS 330, 331, 332, 361, 431, 432, 435, 436, 440; six hours of CDE 498 (or FAS 498); plus one of the following statistics courses: EDP 454 or PSY 230 or SOC 390.

In addition nine, hours of electives must come from the following: CDE 337, 437; FAS 301, 354, 357, 390, 494; CDE/FAS 498, 499; FRD 451.

Human Nutrition—Dietetics

The American Dietetic Association (ADA) has approved of the dietetics concentration as meeting their Plan V requirements. Graduates of a Plan V program may apply for dietetic internships or pre professional practice programs to establish eligibility to write the Dietetic Registration examination. In addition to the required courses specified below, the following 18 hours are required by both the ADA and the Department of Family Resources and Human Development: EDP 310 or equivalent or HEE 480; MGT 301 or equivalent; MIC 205, 206; ZOL 201, 202. Additional courses required by the American Dietetic Association for completion of Plan V requirements are to be selected upon consultation with an advisor. Most of the Plan V requirements also satisfy College of Liberal Arts and Sciences graduation requirements.

There are the following 22 hours of required departmental courses: FON 142, 241, 440, 441, 442, 444; FRD 451 (maximum of three semester hours).

General dietetics option. Additional required departmental courses, totaling 18 hours, are FON 341, 343, 344, 445, 446, and 448.

Human nutrition option. An additional required departmental course, totaling three hours, is FON 446.

Family Resources and Human Development Minor

The minor in Family Resources and Human Development consists of 18 semester hours in which

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students must specialize in one of four emphases. These emphases consist of the following:

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; 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, 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 301, 431, 432.
4. The textiles and clothing emphasis requires that students take TXC 122 and 223. This emphasis also requires that four courses (or 12 credit hours) be selected from the following: TXC 221, 318, 323, 327, 424, 425, 429.

Bachelor of Arts in Education Degree in Secondary Education

Home Economics Education. The major teaching field consists of 48 semester hours in family resources and human development and five to six hours in interior design. Major courses required are as follows: CDE 232, 337; FAS 330, 331, 354, 357, 431; FON 100, 142 (or equivalent); FRD 451, 472 (or another FRD course approved by an advisor); HEE 461, 480, 481; TXC 122 (or 123), 223; two interior design courses.

The College of Education has the following additional requirements for teacher certification: POS 110 (or 310), 311; 27 hours of Professional Teacher Preparation.

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 Preschool Development and Interaction. (3) F S
Examination of development during the preschool years and methods for interacting with preschool children and their families. Participation in child development laboratory. 1 hour lecture. 6 hours lab. Prerequisite: CDE 232 or equivalent.

430 Infant/Toddler Development in the Family. 3) F S
An examination of the development of infants/toddlers, the socialization processes of families and the interactions of these processes. Prerequisite: CDE 232 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 hours lecture. 3 hours lab. Prerequisites: CDE 430; 6 hours of psychology. [Satisfies General Studies Requirement SB]

531 Theoretical Issues in Child Development. 3) S
Major developmental theories, related research and their application to family interaction. Prerequisites: CDE 430 and 437 (or equivalent) 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, family and environmental influences on children's behavior. Prerequisites: CDE 531; FRD 500.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

FAMILY STUDIES

FAS 301 Introduction to Parenting. 3) F S
Integrated approach to understanding parenting and parent-child interactions. Teaches on course. Prerequisites: PGS 100; SOC 101 or equivalent.

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 Marriage and Family Relationships. 3 F S

Issues, changes, and opportunities relating to present day marriage and family living. Factors influencing interactions 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 social 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 N

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) N

Management as a means to realization of individual and family values and goals, creation of a coalition and use of resources. Focus on decisions 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 and applies methods in current topics. Prerequisites: CDE 232, FAS 331

390 Supervised Research Experience. 1-3 F S SS

Practical, first hand experience with current faculty research projects in family studies or child development. "Y" grade only, may be repeated for total of 6 hours. Prerequisites: FAS 361, 3.00 GPA. In major, approval of supervising faculty member prior to registration.

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 and FAS 331 or instructor approval.

435 Advanced Marriage and Family Relationships. 3 F

Recent research issues and trends relating to marriage and family interaction. Influence of family composition, physical environment, family patterns and values on family dynamics. Prerequisites: FAS 331, 361 [Satisfies General Studies Requirement SB]

436 Conceptual Frameworks in Family Studies. 3 S

Approaches to study families focusing on systems, interaction, exchange, conflict and developmental frameworks. Applications to diverse individual and family situations. Prerequisites: CDE 232, FAS 331, 361

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) N

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. Cross listed as NUR/SPF/WST 457. Prerequisite: 6 hours of social

science credit or instructor approval. [Satisfies General Studies Requirements: SB, G]

530 Introduction to Marriage and Family Therapy. 3 F

Introduction of major marriage and family therapy orientations. Review history, theory, application and outcome research for each orientation. Prerequisite: Admission to Family Studies M.S. program or instructor approval.

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 and FAS 331 or instructor approval.

536 Dysfunctional Marriage and Family Relationships. 3 N

Critical review of current theory and empirical evidence connecting marital and family interaction patterns with aberrant behavior. Prerequisite: PGS 466 or PSY 573 or equivalent or instructor approval.

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 Advanced Techniques in Marriage and Family Therapy. 3 N

An in-depth review of assumptions and advanced techniques associated with contemporary marriage and family therapy approaches. Prerequisite: a graduate level course in marriage and family therapy or 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.

540 Assessment in Marriage and Family Therapy. (3) S

Instruction in the assessment and outcome evaluation of couples and families involved in marital and family therapy. Lecture/lab. Prerequisites: FRD 500 or equivalent, PSY 530 or instructor approval.

551 Family Decision-Making. (3) N

Theory and research focusing on centrality of decision to management in family settings. Ecological systems approach to family decision issues. 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. Prerequisites: ECN 112; FAS 354

580 Marriage and Family Therapy Practicum. (3) F S

Supervised clinical experience in marriage and family therapy includes development of assessment and outcome evaluation on skills. Lecture/lab. Prerequisite: instructor approval.

- (a) First semester (3)
- (b) Second semester (3)
- (c) Third semester (3)

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

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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 hours lecture, 3 hours lab.

241 Human Nutrition. (3) F S SS

Principles of human nutrition relative to health. Emphasis on nutrients and the factors affecting the utilization in the human body. Prerequisite: CHM 101 or equivalent.

341 Introduction to Planning Therapeutic Diets. (3) S

Cultural, health, and economic aspects of diet planning. Computer and manual assessment of food composition. Review of common therapeutic diets. 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 hours lecture, 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 hours lecture; 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. CHM 332 recommended. Prerequisites: CHM 361; FON 241 or equivalent. ZOL 202.

441 Advanced Human Nutrition II. (3) S

Metabolic reactions and interrelationships of carbohydrate, lipid, and protein. CHM 331, 332 recommended. Prerequisites: CHM 361, FON 241 or equivalent; ZOL 202. [Satisfies General Studies Requirement: L2]

442 Experimental Foods. (4) F

Food product development techniques: food evaluation and testing, and investigation of current research into food composition. 2 hours lecture, 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 and menu planning for institutions. Experience in quantity food service. 1 hour lecture, 6 hours lab. May require field trips. Prerequisites: FON 241 (or equivalent) and 343 and 344 or instructor approval.

446 Human Nutrition Assessment Lecture Laboratory. (3) S

Clinical and biochemical evaluation of nutritional status. 2 hours lecture, 3 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. Nutritional assessment of population groups. PGS 100 and SOC 101 are recommended. Prerequisite: FON 241 or equivalent.

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: 1 course in advanced nutrition and 1 in biochemistry.

538 Recent Developments in Foods. (3) N

Discussion and critique of current research. Prerequisite: FON 142.

540 Advanced Micronutrient Metabolism. (3) F

The metabolism of vitamins and minerals: primarily as applied to humans with research literature emphasized. Prerequisites: 1 course in basic nutrition and 1 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: 1 course in basic nutrition and 1 in biochemistry.

542 Advanced Food Product Development. (4) F

Principles of food product development and testing, including current government regulations. 2 hours lecture, 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: 1 course in basic nutrition and 1 in physiology.

545 Recent Developments in Institutional Feeding. (3) S

Current practices in institutional feeding, including supervised practicum with on-campus food operation. 1 hour lecture, 6 hours lab. Prerequisites: FON 142 and 343 and 344 or instructor approval.

546 Assessment Techniques in Nutrition Research. (2) S

Current techniques in human nutrition research. Research literature will be reviewed and critiqued. Lecture/lab. Prerequisites: CHM 361, 367; FON 440 or 441.

546L Laboratory Techniques in Nutrition Research. (1) S

Laboratory techniques required in nutrition research, including spectroscopy, chromatography, and RFA. Lab. Prerequisites: CHM 361, 367; FON 440 or 441.

548 Nutrition Program Development. (3) F

The planning, development, implementation, and evaluation of community nutrition programs, including the process of grant applications. Prerequisites: 1 course in basic nutrition and 1 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: 1 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: 1 course in basic nutrition, physiology, and biochemistry or instructor approval.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

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 or standing.

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 for family management (FAS) majors: FAS 357. Prerequisite for textiles and clothing (TXC) majors: ECN 111 or 112; MKT 300; TXC 122, 3.00 GPA; senior 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 and thesis proposal development. Includes practical application research laboratory. 3 hours lecture, 3 hours lab.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

HOME ECONOMICS EDUCATION

HEE 461 Presentations in Home Economics. (3) F
Presentation and demonstration techniques in teaching home economics. Development of audiovisual materials for home economics content areas. Prerequisites: junior or standing 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. Dietetic 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 advisement 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 individuals 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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

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 of a placement test given each semester during or enrollment week. 1 hour lecture, 4 hours studio.

221 Pattern Designing. (3) N
Flat patterns used to develop fundamental principles in designing individualized garments. 1 hour 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.

318 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.

323 Advanced Textiles. (3) F, S
Textile technology, fiber science, dyeing, finishing and other topics. 2 hours lecture, 3 hours lab. May include field trips. CHM 231 recommended. Prerequisites: CHM 101; TXC 223.

325 Clothing and Textiles Industries Study Program. (2–3) N
The study and analysis of domestic and foreign textile and apparel industries. Lecture, field trip. Prerequisites: TXC 318.

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
Specified processes used with a wide variety of apparel fabrics. Interrelationships between fabric properties and apparel design. 2 hours lecture, 2 hours studio. May include field trips. Prerequisite: TXC 221.

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 20th-Century Apparel. (3) F, S
Cultural, decorative, and functional influences on clothing. Prerequisites: ENG 102; TXC 424. [Satisfies General Studies Requirement L2]

428 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 TXC courses.

429 Textile Analysis. (3) S

Introduction to textile testing equipment and evaluation of data. 2 hours lecture, 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

Cultural, 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.

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.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.



Foreign Languages

REGENTS' PROFESSORS:

FOSTER, KELLER

PROFESSORS:

HORWATH (LL B404), ALEXANDER, CARLSON,
COUCH, CURRAN, EKMANIS, FLYS,
VALDIVIESO, VIRGILLO, VOLEK, WIXTED

ASSOCIATE PROFESSORS:

BALDINI, CARVER, COTA-CARDENAS, CROFT,
GUNTERMANN, HENDRICKSON, KNOWLTON,
LAFFORD, LOSSE, RADKE, REIMAN,
RIEGELHAUPT, RODD, SENNER,
SOMOZA, WOLLAM

ASSISTANT PROFESSORS:

BOYER, BURTON, DOUTHWAITE,
FERNANDEZ, GALINDO, GARCIA-FERNANDEZ,
GRUZINSKA, LAETZ, OSSISOV, SANCHEZ,
SIMMONS, TIPTON, WETSEL, WILLIAMS

INSTRUCTORS:

HABERMAN, MORGAN, TU, VITULLO

LECTURERS:

FOARD, V. MARTINEZ, SAEGUSA

PROFESSORS EMERITI:

ACEVEDO, BOWMAN, GROBE, LANDEIRA,
LOWE, LUENOW, Q. MARTINEZ, SCHUBACK,
SHEPPARD, VON DER HEYDT,
WILSON, WIRTZ

Bachelor of Arts Degree

The department offers majors in Asian Languages (Chinese or Japanese), French, German, Italian, Russian, and Spanish. Each major consists of 45 semester hours, of which 30 must be in one language and 15 in a second language or in closely related fields to be approved by the advisor in consultation with the student. Of the 30 hours required for the major, a minimum of 24 hours must be taken 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 104.

Minors

Each minor in Asian Languages (Chinese or Japanese), French, German, Italian, Russian, and 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. This emphasis consists of the B.A. requirements in Asian languages (45 semester hours) plus an additional 15 hours of Asian content courses selected with the approval of the student's advisor. Fulfillment of these requirements is 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 109.

Latin American Studies Emphasis. See "Latin American Studies," page 110. This emphasis 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 in Spanish Latin American studies emphasis.

Mexican American Studies Emphasis. This 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.

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 requires 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 requires two years of Russian and 36 upper-division hours in Russian/East European course work. Course work must be from three core areas of Russian and East European study course offerings. Fulfillment of these requirements is 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.

Bachelor of Arts in Education Degree in Secondary Education

Asian Languages (Chinese or Japanese), French, Italian, German, Russian, and Spanish. Each of the major teaching fields 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 academic specialization, 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 curriculum check sheets of the individual language areas available in the department. The minor teaching field 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 individual language area curriculum check sheets for required courses in each minor area.

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 also satisfies the college's 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 before registration.

Certificate in Southeast Asian Studies. To earn a certificate in Southeast Asian Studies, a student must complete a minimum of 40 semester hours of course work related to Southeast Asia, including two years (20 semester hours) of a Southeast Asian language. In consultation with his or her major advisor and the Program for Southeast Asian Studies, a student may design a course of study in which the certificate requirements are largely integrated into those of departments and of the College of Liberal Arts and Sciences. Further information on coursework requirements may be obtained from the Office of the Program for Southeast Asian Studies.

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, and law, in accordance with guidelines recommended by the American Translators' Association. The certificate is a nondegree program consisting of 15 semester hours of course work and two hours of in-service practicum primarily into the receptor language of English from the source 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, cultural experience, and examination, the two entrance requirements to this certificate program are (1) 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 ASU are FRE 412 and SPA 412 and (2) either an academic year at a university in a French speaking or Spanish-speaking country, an extensive work experience using French or Spanish, or 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, including six hours general theory of lin-

guistics 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 and 102 and 201 and 202 or 107 and 207. For important exceptions in French, Greek, and Portuguese, see the statement at the 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 are considered as having satisfied the foreign language requirement. (See page 104.)

The foreign language requirement can be met in languages not taught at ASU either by transferring credit from another institution or by passing a proficiency examination.

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 is considered, for placement purposes only, to equal one semester of study of the same language at the university level. Thus, students with one year of high school study would enroll in the second semester course (102), those with two years of high school study, in the third semester course (201), and so on and (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 non repeatable college approved 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.

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 478. 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 lexicon for translation of professional texts in subjects such as 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 ex con for translation of professional texts in subjects such as 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 in subjects such as 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 translations. 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 a multilingual 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. See pages 50-51 for omnibus courses that may be offered

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]. 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

Survey major theories of current linguistic study and explores their application to specific issues of English, the 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 on theories and professional practices and ethics; bibliography, computer technology, and sample texts for literature and social sciences and humanities. Prerequisite: fourth year composition or instructor approval in respective language area

415 Bilingualism and Languages in Contact. (3) F

Analysis of linguistic aspects of bilingualism, pidgins and creoles, code switching and other contact phenomena. Simultaneous 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

Topics may be chosen from the following
(a) Brazilian
(b) Chinese
(c) French
(d) German
(e) Greek
(f) Italian
(g) Japanese
(h) Latin
(i) Portuguese
(j) Russian
(k) Soviet
(l) Spanish
(m) Spanish American
(n) Latin American

425 Cultural Heritage. (3) F, SS

Aspects of political, intellectual, social, and artistic development of a foreign culture. Not for language majors except as a related area course. Graduate students by permission. [Satisfies General Studies Requirements HU, G, H]

202 Intermediate Chinese. (5) S

See CHM 201. Prerequisite: CH 102 or equivalent [Satisfies General Studies Requirement G]

201 Intermediate Chinese. (5) F

Systematic review of grammar. Development of vocabulary through reading and writing. Development of reading and writing skills. 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.

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 478. 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 lexicon for translation of professional texts in subjects such as 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 ex con for translation of professional texts in subjects such as 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 in subjects such as 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 translations. May be repeated for a total of 6 semester hours. Prerequisite: FLA 401 or instructor approval in the respective language area

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207 Chinese for International Professions II. (10) S
Continuation of CHI 107 alternative to CH 107 sequence
Expansion of communicative proficiency in specific areas
of international professions. 10 class hours Prerequisite
CHI 107 or instructor approval. [Satisfies General Studies
Requirement: G]

309 Chinese Conversation. (2 F
Aural/orals using contemporary stories, articles and
essays. For students with lower level proficiency. Pre-
requisite: CHI 202 [Satisfies General Studies Require-
ment: G]

310 Chinese Conversation. (2 S
See CHI 309 Prerequisite: CHI 202 [Satisfies General
Studies Requirement: G]

311 Chinese Conversation. (2 F
Intensive aural/oral practice toward fluency in Modern Chi-
nese, dealing with contemporary plays and/or radio and
movie scripts Prerequisite: CHI 202 [Satisfies General
Studies Requirement: G]

312 Chinese Conversation. (2) S
See CHI 309. Prerequisite: CHI 202. [Satisfies General
Studies Requirement: G]

313 Advanced Chinese. (3) F
The modern language in general or specific areas de-
pending on the student's needs or interests. 3 hours lec-
ture arranged lab. Prerequisite: CHI 202 or equivalent.
[Satisfies General Studies Requirement: G]

314 Advanced Chinese. (3) S
Continuation of CHI 313 Prerequisite: CHI 313 [Satis-
fies General Studies Requirement: G]

321 Chinese Literature. (3) F
Selected representative works of the various genres and
periods. Prerequisite: CHI 202 or instructor approval.
[Satisfies General Studies Requirement: HU]

322 Chinese Literature. (3) S
See CHI 321. Prerequisite: CHI 202 or instructor
approval [Satisfies General Studies Requirements: HU
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-
ical writings Prerequisite: CH 202 or equivalent [Satis-
fies General Studies Requirement: HU]

414 Introduction to Classical Chinese. (3) S
Continuation of CH 413 Prerequisite: CH 413 [Satis-
fies General Studies Requirement: HU]

Omnibus Courses: See pages 50-51 for omnibus
courses that may be offered.

FRENCH

Any two of the 200 level courses may be taken in any or-
der or simultaneously to satisfy the Liberal Arts and Sci-
ences language requirements

FRE 101 Elementary French. (4) F, S, SS
Intensive aural/oral drill in class and laboratory; basic
grammar supplemented by simple prose readings. 4
hours lecture, 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. Functional ap-
proach. Emphasis on speaking, understanding, writing

and reading for communicative competence for inter-
national professions

111 Fundamentals of French. (4) F, S
Primarily 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 hours lecture,
1 hour lab

201 Intermediate Grammar Review. (4) F, S, SS
A thorough review of French grammar, including full atten-
tion to literary usage. Prerequisite: FRE 102 or 111 or
equivalent [Satisfies General Studies Requirement: G]

203 French Conversation. (4) F, S, SS
Current usage in expression of ideas. Especially recom-
mended for students who plan to travel in French speak-
ing countries or who desire supplementary practice
speaking and understanding before advancing to 300-
level courses. 1 hour lab required Prerequisite: FRE 102
or 111 or equivalent [Satisfies General Studies Require-
ment: G]

205 Intermediate Reading. (4) F, S
Extensive reading in 19th and 20th century literary and
cultural texts. Designed to increase the student's vocabu-
lary and to teach prompt recognition of stylistic usages
and grammatical structures. Prerequisite: FRE 102 or 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 se-
quence. Expansion of communicative proficiency in spe-
cific areas of international professions. Prerequisite: FRE
107 or instructor approval [Satisfies General Studies Re-
quirement: G]

311 French Conversation. (3) F, S
Further practice in speaking French, emphasizing current
usage and promoting facility in the expression of ideas.
Prerequisites: FRE 201 (or 205) and 203 or equivalents
[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 busi-
ness 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 and 203 (or 311) or
equivalents [Satisfies General Studies Requirements:
L2, HU, H]

322 French Literature. (3) F, S
Literature of the 19th and 20th centuries. Prerequisites:
FRE 205 and 203 (or 311) or equivalents. [Satisfies Gen-
eral Studies Requirements: L2, HU, H]

411 Advanced Spoken French. (3) F, S
Improvement of spoken French. Prerequisites: 9 hours of
300 level French, including FRE 311 or equivalents. [Satis-
fies General Studies Requirement: G]

412 Advanced Written French. (3) F, S
Improvement of composition skills. Prerequisites: 9 hours
of 300 level French, including FRE 312 or equivalent
[Satisfies General Studies Requirement: G]

- 15 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 Requirements: HU, G]
- 41 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 Requirements: HU, H]
- 42 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 Requirements: HU, H]
- 45 French Literature of the 18th Century.** (3) N
Contributions of the philosophers and the development of the novel and drama. Prerequisite: 9 hours of 300-level French, including FRE 321 or instructor approval. [Satisfies General Studies Requirements: L2, HU]
- 51 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, Bazac, 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]
- 53 Theater of the 19th Century.** (3) N
From Romantic drama to the Symbolist Theater. Representative plays of Hugo, Musset, Vigny, Dumas, Becque, Rostand, Feydeau, and Molière. Prerequisite: 9 hours of 300-level French, including FRE 322 or instructor approval.
- 61 Pre-Atomic Literature.** (3) F
Representative authors from Proust and Malraux to Sartre from 1900 to 1945. Prerequisite: 9 hours of 300-level French, including FRE 322 or instructor approval. [Satisfies General Studies Requirement: HU]
- 62 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]
- 71 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 Requirements: L2, HU]
- 500 Bibliography and Research Methods.** (3) F
Required of all graduate students.
- 10 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.
- 21 History of the French Language.** (3) N
Principal phonological, morphological, and semantic developments of French from Latin 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
Readings 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
(i) Advanced Problems in French Literature
(j) Flaubert
(k) Stendhal and Zola
- Omnibus Courses:** See pages 50–51 for omnibus courses that may be offered.

GERMAN

- GER 101 Elementary German.** (4) F, S, SS
Reading, writing, speaking, and understanding of basic German, with emphasis on pronunciation and grammar. 4 hours lecture, 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 hours lecture, 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 hours lecture, 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 limit 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]

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- 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 classicalism. 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 idiom 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) S
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) F
From 1600 through 1945. Prerequisite: any 300-level course in German or instructor approval. [Satisfies General Studies Requirement HU]
- 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 all 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 epics, romances, and other literary genres.
- 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) Schiller | (g) Grass and Böll |
| (d) Kestner | (h) Germanic Studies |
- Omnibus Courses:** See pages 50–51 for omnibus courses that may be offered.

GREEK

- Completion of GRK 101, 201, 301, and 302 satisfies 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]
- Omnibus Courses:** See pages 50–51 for omnibus courses that may be offered.

HEBREW

- HEB 101 Elementary Modern Hebrew.** (4) F
Reading, writing, speaking, and understanding of basic modern Hebrew with emphasis on pronunciation and grammar. 4 hours lecture, 1 hour lab.
- 102 Elementary Modern Hebrew.** (4) S
Reading, writing, speaking, and understanding of basic modern Hebrew with emphasis on pronunciation and grammar. 4 hours lecture, 1 hour lab. Prerequisite: HEB 101 or equivalent.
- 201 Intermediate Modern Hebrew.** (4) F
Intensive review of grammar with emphasis on the development of the skills of speaking, listening, comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Prerequisite: HEB 102 or equivalent.
- 202 Intermediate Modern Hebrew.** (4) S
Intensive review of grammar with emphasis on the development of the skills of speaking, listening, comprehension, reading, and writing. 4 hours lecture, 1 hour lab. Prerequisite: HEB 201 or equivalent.
- 313 Advanced Modern Hebrew.** (4) F
Continued development of ability to communicate orally and in writing. Reading of selected literary works. Prerequisite: HEB 202 or equivalent.
- 314 Advanced Modern Hebrew.** (4) S
Continued development of ability to communicate orally and in writing. Reading of selected literary works. Prerequisite: HEB 313 or equivalent.

INDONESIAN

- INDN 101 Elementary Indonesian I.** 5 F
Basic communication, reading and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab.
- 102 Elementary Indonesian II.** 5 S
Basic communication, reading and writing skills. Intensive oral/aural classroom drill supplemented by prose reading. 4 hours lecture, 1 hour lab. Prerequisite: DN 101 or equivalent.
- 201 Intermediate Indonesian I.** 5 F
Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 lectures, 1 hour lab. Prerequisite: DN 102 or equivalent.
- 202 Intermediate Indonesian II.** 5 S
Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 lectures, 1 hour lab. Prerequisite: DN 201 or equivalent.

ITALIAN

- ITA 101 Elementary Italian.** (4) F, S
Aural/ora drill in class and laboratory and basic grammar. Supplemented by simple prose readings. 4 hours lecture, 1 hour lab.
- 102 Elementary Italian.** 4 F, S
See ITA 101. Prerequisite: TA 101 or equivalent.
- 201 Intermediate Italian.** 4) F, S
Intensive review of the fundamentals of Italian grammar. Structure to increase the student's ability in composition, translation and dramatic expression. 4 hours lecture, 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 TA 311. Prerequisite: TA 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: TA 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 Italy's 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: TA 325 or instructor approval. [Satisfies General Studies Requirements: HU, H]

- 441 Dante: *Divina Commedia*.** (3) N
Critical reading of the three *Cantiche* (*Inferno*, *Purgatorio*, and *Paradiso*). Prerequisite: TA 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, Parini, Alfieri, the poetry of Foscolo and Leopardi, and the socio-historical novels 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]
- Omnibus Courses:** See pages 50-51 for omnibus courses that may be offered.

JAPANESE

- JPN 101 Elementary Japanese.** (5) F
Communication skills: basic grammar, basic reading and basic writing skills including hiragana, katakana, and about 250 kanji. 5 class hours a week.
- 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. 10 class hours a week.
- 201 Intermediate Japanese.** 5 F
Continued development of communication skills. Increased emphasis on reading and writing. Review of fundamentals of structure to increase student's abilities in composition and translation. 5 class hours a week. 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 in Japan, with emphasis on the derivation of Japanese kana syllabaries from Chinese characters. Prerequisite: CHI 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. 10 class hours a week. Prerequisite: JPN 107 or instructor approval. [Satisfies General Studies Requirement: G]
- 309 Intermediate Japanese Conversation.** (2) F
Practice in current usage in expression of ideas. Recommended especially for those who have not had the opportunity to practice Japanese in Japan. Prerequisite: JPN 202. [Satisfies General Studies Requirement: G]
- 310 Intermediate Japanese Conversation.** (2) S
Continuation of JPN 309. Prerequisite: JPN 309. [Satisfies General Studies Requirement: G]

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311 Japanese Conversation and Composition. (3) F
Intensive aural/oral practice leading toward conversational fluency. Practice in writing Japanese, emphasizing current usage. Prerequisite: JPN 202. [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 of 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]

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

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. Virgils *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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

PORTUGUESE

Completion of POR 101, 201, 313, and 314 satisfies the Liberal Arts and Sciences language requirements

POR 101 Elementary Portuguese. (5) F
Basic grammar with intensive drills in class and laboratory directed toward conversational fluency. 5 hours lecture, 1 hour lab. Prerequisite: 1 year of Spanish or 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 hours lecture, 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]

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

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 hours lecture, 1 hour lab.

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 and writing. Drills in aural/oral skills. 4 hours lecture, 1 hour lab. 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 drill to supplement reading and grammar class 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. 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]

12 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 to the 1917 revolution. Prerequisite: RUS 202 or equivalent [Satisfies General Studies Requirements: L2, HU, H]

322 Survey of Russian Literature. (3) A
See RUS 321. Prerequisite: RUS 202 or equivalent [Satisfies General Studies Requirements: 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 from 1917 to present. Prerequisite: RUS 202 or equivalent [Satisfies General Studies Requirements: L2, HU, G]

411 Advanced Composition and Conversation I. (3) F
Designed to improve oral and written skills, emphasizing vocabulary and grammar. 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 émigré poets. Topics in criticism and the study of poetics. Prerequisite: RUS 312 or instructor approval [Satisfies General Studies Requirements: L2, HU, H]

421 Pushkin. (3) N
Pushkin's poetry, plays, and prose fiction, including *Eugene Onegin*, *The Little Tragedies*, *Tales of Belkin*, *Queen of Spades*, and *The Captain's Daughter*. Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree [Satisfies General Studies Requirements: L2, HU]

423 Dostoyevsky. (3) N
Dostoyevsky's major works of fiction, including *Crime and Punishment* and *Brothers Karamazov*. Taught in English. Does not satisfy the Liberal Arts and Sciences language requirement for B.A. degree [Satisfies General Studies Requirements: 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 Requirements: 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 Requirements: L2, HU]

426 Soviet Dissident Literature (1917–Present). (3) N
Including such authors as Khvylovy, Pasternak, Solzhenitsyn, Danilov, Volynich, Zinov'ev, Belevica, Vencova, and others. Prerequisite: RUS 312 or instructor approval. [Satisfies General Studies Requirements: 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 Requirements: 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.

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 Requirements: HU, G, H]

591 Seminar. (3) N
Topics may be selected from the following.

- (a) Pre-19th Century Russian Literature
- (b) 19th Century Russian Literature
- (c) Russian Poetry to 1890
- (d) Russian Poetry 1890 to Present
- (e) Russian Literary Criticism
- (f) Soviet Socialist Realism
- (g) Contemporary Soviet Authors

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

SPANISH

SPA 101 Elementary Spanish. (4) F, S, SS
Fundamentals of the language. Emphasis on listening, speaking, reading, and writing. 4 hours lecture, 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
Accelerated program alternative to SPA 101/102 sequence. Functional approach to needs of international professions.

111 Fundamentals of Spanish. (4) F, S
Prerequisite for students with two years of high school Spanish who need review to enter second year study. 4 hours lecture, 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 hours lecture, 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 or 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 SPA 201 and 202. Emphasis on composition, literature, conversation, and review of

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grammar fundamentals 4 hours lecture 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 or 111 or 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

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 SPA 313 and 314. Prerequisite: SPA 202 or 204 or instructor approval.

316 Spanish Conversation and Composition for Bilinguals. (3 S
See SPA 315 Prerequisite: SPA 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
Analytical approach to a did analysis of literary types, including 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-Columbian writers poets e.g., Macu xóchtli through the novel of 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 their 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 with 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 poetries 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 as well as literary

ary values. Prerequisite: SPA 325 [Satisfies General Studies Requirement: HU]

471 Civilization of the Spanish Southwest. 3 S

The political, cultural, 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, emphasizing 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 regional 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 Aléandre.

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 Huerto, Valera, 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 and 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 works and authors of this genre (Guzmán, Azuela, Urquiza, Muñoz and Romero), including related or peripheral offshoots in 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 these 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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

THAI

THA 101 Elementary Thai I. 5 F

Basic communication reading and writing skills. Intensive oral/aural classroom drill supplemented by prose readings in Thai script. 4 hours lecture, 1 hour ab

102 Elementary Thai II. 5 S

Basic communication, reading, and writing skills. Intensive oral and classroom drill supplemented by prose reading. 4 hours lecture 1 hour lab Prerequisite: THA 101 or equivalent.

201 Intermediate Thai I. 5 F

Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 lectures 1 hour lab Prerequisite: THA 102 or equivalent.

202 Intermediate Thai II. 5 F

Systematic review of grammar. Continued development of communication skills with increased emphasis on reading and writing. 4 lectures 1 hour lab Prerequisite: THA 201 or equivalent.

Geography

PROFESSORS:

GOBER (COB 338), BRAZEL, BURNS
COMEAX, GRAF,
MARCUS, McTAGGART

ASSOCIATE PROFESSORS:

ALDRICH ARREOLA, BALLING, DORN MINGS
OHUALLACHAN PASQUALETT, SARGENT

ASSISTANT PROFESSORS:

CERVENY, FALL, HENKEL KUBY, McHUGH,

PROFESSORS EMERITI:

ACKER, DURRENBERGER, FROST,
LOUNSBURY, PARKER WEIGEND

Bachelor of Arts or Bachelor of Science Degree in Geography

Both programs consist of 45 semester hours. The required courses are as follows: GCU 102, 121, 375, 495; GPH 111 (or 411), 371, 491; an additional three- or four-hour course in GPH; 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. At least 18 hours must be in upper division courses.

Area Studies Emphasis. See "Certificate Programs," pages 109-110. The emphasis 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 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.

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. degree in Geography are not obligated to choose one of these emphases.

Urban Studies Emphasis. The required courses are as follows: GCU 102, 121, 357, 359 (or 360), 361, 375, 444, 495; GPH 111 (or 411), 371, 491. In addition, students must select one from the following list of options: GCU 351, 364, 453, 461, GPH 481. If GPH 481 is not selected, a further three-hour course in GPH is required. Nine hours in fields related to geography must be in urban-oriented course work.

Meteorology—Climatology Emphasis. The required courses are as follows: GCU 102, 121, 375, 495, GPH 111 (or 411), 213, 215, 371, 409, 410, 412 (or 413 or 414), 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 121, 122, 131, 132. 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 undergraduate and graduate students at ASU. The laboratory maintains an extensive archive of climatic and meteorologic information on Arizona and the western United States of America.

Bachelor of Arts in Education Degree in Secondary Education

Geography. The major teaching field 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 selected in consultation with an advisor.

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]

240 Introduction to Southeast Asia. (3) F
An interdisciplinary introduction to the cultures, regions, political systems, geography and history of Southeast Asia. Cross listed as ASBHS POS REL 240. [Satisfies General Studies Requirement: G]

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, G]

294 Special Topics. 4 A
Global Awareness

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 U.S.S.R. [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 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 Australia. [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.

375 Introduction to Geographic Research Methods. 3 F
Scientific techniques used in geographic research. Prerequisite: instructor approval. [Satisfies General Studies Requirement: L2]

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]

156 GEOGRAPHY

- 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, and 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 the development of comprehensive plans. Prerequisite: GCU 361 or 444 or instructor approval.
- 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 or 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.
- Omnibus Courses:** See pages 50-51 for omnibus courses that may be offered.

PHYSICAL GEOGRAPHY

- GPH 111 Introduction to Physical Geography.** (4) F, S
Spatial and functional relationships among climate, landforms, soils, water, and plants. 3 hours lecture, 3 hours lab. 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 use, and resource exploitation.
- 211 Landform Processes.** (3) S
Geographic characteristics of landforms and earth surface processes emphasizing 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 curricula require a laboratory course must also register for GPH 214. Prerequisite: GPH 111 or instructor approval. [Satisfies General Studies Requirement: S2 if taken with GPH 214.]
- 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 if taken with GPH 212.]
- 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 hours lecture, 3 hours lab.
- 371 Cartography.** (3) F, S
Basic map drafting, grid compilation, symbol design, and use of cartographic instruments. 6 hours lab, field trips. Prerequisites: GPH 111 and 271 or instructor approval.
- 372 Air Photo Interpretation.** (3) S
Aerial photographs as a means of determining topography, vegetation, and culture; selective 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 or 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 physical or life sciences or instructor approval.

409 Synoptic Meteorology I. (4) F '91

Diagnostic techniques and synoptic forecasting. Includes techniques of weather analysis, map interpretation, and satellite and radar analysis. Prerequisites: MAT 270; PHY 131, 132.

410 Synoptic Meteorology II. (4) S '92

Diagnostic techniques and synoptic forecasting. Includes techniques of weather analysis, map interpretation, and satellite and radar analysis. Prerequisite: GPH 409.

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.

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 and 213 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 and 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 '91

Large-scale atmospheric motion, kinematics, Newton's laws, wind equation, baroclinics, vorticity, and the mid-latitude depression. Prerequisites: GPH 213, 215; MAT 271; PHY 131, 132.

475 Dynamic Meteorology II. (3) S '91

Topics in climate dynamics. General circulation, numerical modeling, teleconnection phenomena, and 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, and 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. Prerequisites: GPH 371; instructor approval.

575 Geographic Applications of Remote Sensing. (3) S

Use of imaging and nonimaging 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.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.



Geology

REGENTS' PROFESSORS:

BUSECK, MOORE

PROFESSORS:

STUMP (PS F686) BURT, GREELEY,
HOLLOWAY, KIEFFER, KNAUTH, LARIMER,
LUNDIN, RAGAN

ASSOCIATE PROFESSORS:

CHRISTENSEN, FINK, PEACOCK, REYNOLDS

ASSISTANT PROFESSORS:

ROVETTA, SANDERS, TYBURCZY

PROFESSORS EMERITI:

DETZ KRNSLEY PÉWE

Bachelor of Science Degree in Geology

The program requires 37 semester hours including the following "core courses" or their equivalents: GLG 100 (or 101 and 103), 102, 104, 310, 321, 322, 400 (two semesters), 450. In addition, three of the following four "branch courses" must be taken: GLG 335, 418, 424, 435. It is strongly recommended that the fourth branch course is also taken. Supporting courses required in related fields are the following: CHM 113, 116; MAT 290 and 291 or MAT 270 and 271 and 272 or MAT 270 and 271 and 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 the foreign language requirement. See "Degree Requirements," page 104.

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 it, sequence of events in 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, SS
Basic principles of geology, geochemistry and geophysics. Rocks, minerals, weathering, earthquakes, mountain building, volcanoes, water, and glaciers. 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. 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, SS

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, and 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 and their geological evolution, surfaces, interior, atmospheres, and exobiology. Terraforming and space colonies.

300 Geology of Arizona. (3) F, S

Basic and historical geology, fossils, mining, energy resources, environmental problems, landscape development, and meteorites, cast in examples from Arizona. Majors who have taken GLG 101 for credit may not enroll.

302 Man and Geologic Environment. (3) N

Geologic hazards, problems of waste disposal and use planning, and environmental problems related to soil earth.

304 Geology of the Grand Canyon. (2) N

Review of the discovery, history, origin, and geology 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 and 101 and 105 and 300 or equivalents.

310 Structural Geology. (3) S

Geologic structures and the mechanical processes involved in their formation. 2 hours lecture, 3 hours lab. Possible field trips. Prerequisites: GLG 101; MAT 270 or 290.

321 Mineralogy. (3) F

Crystallography, crystal chemistry and crystal physics as applied to minerals. Determinative methods, origin and occurrence. 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, and 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. Prerequisites: GLG 102 and MAT 270 (or 290) or instructor approval.

336 Invertebrate Paleontology. (3) F

Biology, skeletal morphology and systematics of fossil invertebrates. One or two projects emphasizing population analysis and techniques in paleontology. Lecture, 6 hours lab, possible field trips. Prerequisite: GLG 102 or instructor approval. Pre- or corequisite for Geology majors: GLG 335.

462 Geomorphology. 3 N

Land forms and processes which create and modify them. Laboratory and field study of physiographic features. 2 hours lecture 3 hours lab. Some field trips during lab. Possible weekend field trips. Prerequisite: GLG 101, 310 424

400 Geology Colloquium. 1 F S

Presentation of recent research by faculty and guests. Written assignments required. 1 semester hour for 2 semesters' attendance. 1 semester hour required for Geology majors. May be repeated for a total of 2 semester hours 4 semesters. Prerequisite: 2 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 photogeographic 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

Geographic 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. Uplift and erosion processes. Emphasis on current work. Prerequisite: GLG 310.

418 Geophysics. 3 F

Soil earth geophysics, geomagnetism, gravity seismology, heat flow. Emphasis on crust and upper mantle. 2 hours lecture 3 hours lab. Field trips during lab. Possible weekend field trips. Prerequisites: GLG 101 and MAT 272 (or 291 and PHY 121 and 131 or 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, and viscoelastic processes in the Earth. Prerequisites: PHY 121 131.

420 Volcanology. 3 A

Distribution of past and present volcanism. Types of volcanic activity. Mechanism of eruption. Form and structure of volcanoes and geochemistry of volcanic activity. Possible weekend field trips. 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 hours lecture 3 hours lab. Possible weekend field trips. Prerequisites: GLG 321 322.

435 Sedimentology. 3 S

Origin, transport, deposition, and diagenesis of sedimentary and sedimentary rocks. Physical analysis, hand specimen examination and interpretation of rocks and sediments. 2 hours lecture 3 hours lab, possible weekend field trips. Prerequisites: GLG 102 321, 322.

436 Principles of Stratigraphy. 3 S

Principles of interpreting lithostratigraphic, magnetostratigraphic, biostratigraphic, seismic stratigraphic, and chronostratigraphic units. Correlation and facies relationships in stratified rocks. Applied stratigraphy projects. Lecture possible field trips. Prerequisites: GLG 102 or instructor approval.

441 Ore Deposits. 3 N

Origin, occurrence, structure, and mineralogy of ore deposits. Possible weekend field trips. Prerequisite: GLG 424 or instructor approval.

450 Geology Field Camp. 6 SS

Geographic mapping techniques on aerial photos and topographic maps. Field based with excursions. Prerequisites: GLG 310 321.

455 Advanced Field Geology. 4 F S

Geographic 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 geographic development of Western North America. Emphasis on the Western United States. Prerequisite: senior or major or graduate student in Geology or instructor approval.

462 Environmental Geology of Cold Regions. 3 N

Geographic and engineering importance of seasonal and perennially frozen ground, permafrost. Properties, distribution, and the origin of ice in the ground and its application to engineering and land utilization problems. Possible weekend field trips. Prerequisites: GLG 101 and 435 and 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, solar system, and universe. Cross listed as CHM 485.

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. 1 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. 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. 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 relationship between field observation, theory, and experiment. Stress-strain relationships, constitutive relationships, failure criteria, and the basis of continuum methods. Possible field trips. Prerequisites: GLG 310 and 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. Prerequisite: CHM 441 or GLG 321 or equivalent.

524 Advanced Igneous Petrology. (3) N
Theoretical and practical aspects of the genesis of igneous rocks. Study of selected suites. Modern laboratory techniques. 2 hours lecture, 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 instrumentations. 2 hours lecture, 3 hours lab, possible weekend field trips. Prerequisite: GLG 424.

581 Glacial Geology. (3) N
Properties, distribution, and origin of glacial deposits, including principles of their stratigraphy and correlation. Environmental geology problems in glaciated regions. 2 hours lecture, 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 hours lecture, 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. Prerequisite: CHM 341 or 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.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.



History

PROFESSORS:

TRENNERT (SS 204), BURG, GIFFIN, IVERSON,
KLEINFELD, LUCKINGHAM, MacKINNON,
TAMBS, TILLMAN, WARNICKE

ASSOCIATE PROFESSORS:

ADELSON, BATALDEN, DELLHEIM,
FRANKLIN, FUCHS, FULLINWIDER, GRATTON,
HURTADO, KAHN, KEARNEY, ROSALES,
ROTHSCHILD, L. SMITH, R. SMITH, STOWE,
VANDERMEER, WOOTTEN

ASSISTANT PROFESSORS:

CARROLL, GRAY, HALL, RUSH,
SIMPSON, SOERGEL, STONER, SUTTON,
TINKER-SALAS, WEINER

SENIOR LECTURER:

LUEY

PROFESSORS EMERITI:

BARLOW, DANNENFELDT, HUBBARD,
KARNES, PAULSEN, PHILLIPS, SACKS,
TILDEN, YOUNG

Bachelor of Arts Degree in History

The program 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 GPA of 2.25 in the 30 hours of history courses is required. See "Degree Requirements," page 104.

Latin American Studies Emphasis. See "Latin American Studies," page 110. This emphasis 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 in History—Latin American studies emphasis.

Asian Studies Emphasis. See "Asian Studies," page 109. This emphasis consists of the B.A. requirements for the major 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 in History Asian studies emphasis.

Bachelor of Science Degree in History

The program 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. Courses in related fields may also be used to satisfy general college 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 GPA of 2.25 in the 42 hours of history courses is required. See "Degree Requirements," page 104.

Minor in History

The History minor consists of 18 semester hours of course work, at least 12 hours of which is upper division. Six hours of the course work must be in 100 level courses, all in the same area.

Bachelor of Arts in Education Degree in Secondary Education

History. The major teaching field 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 U.S. history. The remaining history and related area courses must be selected in consultation with an advisor from the Department of History. A minimum GPA 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 requirement for the academic specialization.

History. The minor teaching field 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 U.S. history.

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 from the 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 from the 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 from the 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]

240 Introduction to Southeast Asia. 3 F

An interdisciplinary introduction to the cultures, regions, political systems, geography and history of Southeast Asia. Cross listed as ASB GCU POS REL 240. [Satisfies General Studies Requirement G]

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 available in the History Department office. May be repeated for credit.

303 American Cultural History. 3 F, S

Culture in a broad connotation including ideas, ideas, the arts, and social and economic standards from the national 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 from the age of

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- 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 from the mid 17th century to present. May also include Southeast Asia [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 during the Early Middle Ages. [Satisfies General Studies Requirements: SB, H]
- 323 The Middle Ages.** 3 A
Political, socioeconomic and cultural developments of Western Europe during the 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: L2, SB, H]
- 326 Early Modern Europe.** 3 A
Socioeconomic, cultural, and political changes in 17th century Europe [Satisfies General Studies Requirements: SB, H]
- 327 Early Modern Europe.** (3) A
Socioeconomic, cultural, and political changes in 18th century Europe [Satisfies General Studies Requirements: SB, H]
- 329 19th-Century Europe.** 3 A
Political, socioeconomic and intellectual currents in Europe from Napoleon to 1866 [Satisfies General Studies Requirements: SB, H]
- 330 19th-Century Europe.** 3 A
Political, socioeconomic, and intellectual currents in Europe from 1866–1918. [Satisfies General Studies Requirements: SB, H]
- 331 20th-Century Europe.** 3 N
Europe in its world setting 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
Europe in its world setting since World War I, emphasizing major political and social issues from 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]
- 335 Family, Class, and Society in Europe, 1700–1900.** (3) N
Family, sex roles, work, crime, population changes, and the relationship to political, economic, and social changes. [Satisfies General Studies Requirements: SB, H]
- 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]
- 357 19th-Century West.** (3) F
Socio-political, and economic development of trans-Mississippi West beginning with Louisiana Purchase and ending in 1900 [Satisfies General Studies Requirements: SB, H]
- 358 The West in the 20th Century.** 3 S
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]
- 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 Requirements: L2, SB, H]
- 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 A
An interdisciplinary survey of the art, history, and religion of Islamic civilization. Cross listed as REL 365. [Satisfies General Studies Requirements: HU, 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]
- 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 from Colonial foundations to the Civil War. Prerequisites: HIS 103, 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
Prerequisite: HIS 103, 104. [Satisfies General Studies Requirements SB, G]

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 including political analysis, new economic theory, demography and social history. Research methods in social science, including design, data collection and computer skills. Prerequisite: MAT 117

382 Historical Statistics. (3) S

Historical data analysis, including sampling distributions, tests of hypotheses, t tests, multiple regression, and 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

Nationalistic 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 is 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, constitutional, and social issues of Reconstruction and their 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, race, and ethnicity. [Satisfies General Studies Requirements SB, H]

409 Recent American History. 3 A

The United States from 1913-1932, including Wilsonian diplomacy and the First World War, the 1920s, the origins of the Great Depression, Hoover administration. Prerequisite: HIS 104 or equivalent [Satisfies General Studies Requirements SB, H]

410 Recent American History. (3) A

The United States from 1932-1945 including the New Deal society during the Depression, Second World War

Prerequisite: HIS 104 or equivalent [Satisfies General Studies Requirements SB, H]

411 Contemporary America. (3) A

The United States from 1945 to the present [Satisfies General Studies Requirements SB, H]

413 Origins of the American Economy. (3) F

Colonial period to 1870: pre-industrial society, farm and factory in early industrialization, rise and collapse of the slave economy. Prerequisite: upper-division standing or instructor approval. [Satisfies General Studies Requirements SB, H]

414 The Modern American Economy. (3) S

1870 to the present: 19th century industrial base; 20th century crises and regulation; political economy of an advanced capitalist democracy. Prerequisite: upper-division standing or instructor approval [Satisfies General Studies Requirements SB, H]

415 American Diplomatic History. (3) A

American relations with foreign powers, 1776-1898. Prerequisite: HIS 103 or instructor approval [Satisfies General Studies Requirements SB, H]

416 American Diplomatic History. (3) A

American relations with foreign powers from 1898 to the present. Prerequisite: HIS 104 or instructor approval [Satisfies General Studies Requirements SB, G, H]

417 Constitutional History of the United States. (3) N

Origin and development of the American constitutional system from Colonial origins through Reconstruction. Prerequisite: HIS 103 or instructor approval. [Satisfies General Studies Requirements SB, H]

418 Constitutional History of the United States. (3) N

Origin and development of the American constitutional system, from Reconstruction to the present. Prerequisite: HIS 104 or instructor approval. [Satisfies General Studies Requirements SB, H]

419 American Urban History. (3) A

The history of the city in American life from colonial times to the late 19th century [Satisfies General Studies Requirements SB, H]

420 American Urban History. (3) A

The history of the city in American life from the 19th century to the present [Satisfies General Studies Requirements SB, H]

421 History of American Labor. (3) A

American workers, from the colonial period to the present including farmers' slaves, housewives, the skilled and unskilled unionized and nonunionized. Prerequisite: upper-division standing or instructor approval [Satisfies General Studies Requirements SB, H]

422 Social History of American Women. (3) A

Examination of women's social position in America. In-depth analysis of specific women's issues in terms of change over time [Satisfies General Studies Requirements SB, H]

423 Recent American Intellectual History. 3) A

Major movements in 20th century science, religion, and philosophy. [Satisfies General Studies Requirements: SB, H]

424 The Hispanic Southwest. 3) N

Development of the Southwest in the Spanish and Mexican periods to 1848 [Satisfies General Studies Requirements SB, H]

425 The American Southwest. (3) N

Development of the Southwest from 1848 to the present. [Satisfies General Studies Requirements: L2, SB, H]

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- 426 Indian History of the Southwest.** (3) S
Comprehensive review of historical events from prehistoric peoples the Spanish and Mexican periods and the American period after 1846 to the present. Prerequisite: upper-division standing or instructor approval. [Satisfies General Studies Requirements. SB, H]
- 428 Arizona.** (3) A
Emergence of the state from early times to the present. Prerequisite: upper division standing or instructor approval [Satisfies General Studies Requirements. SB, H]
- 430 20th-Century Chicano History.** (3) A
Historical development of the Chicano community in the 20th century. [Satisfies General Studies Requirements. SB H]
- 431 The French Revolution and the Napoleonic Era.** (3) N
Conditions in France before 1789 the Revolutionary decade from 1789 to 1799, the organization of France under Napoleon, and the impact of changes in France on European society. Prerequisite: upper division standing or instructor approval [Satisfies General Studies Requirements. SB H]
- 433 Modern France.** (3) A
Social, political, economic, and cultural transformations of French society, 1815–present. Impact of industrialization on war and revolution on people's lives. Prerequisite: upper-division standing or instructor approval [Satisfies General Studies Requirements. SB, G, H]
- 434 Hitler: Man and Legend.** (3) N
A biographical approach to the German Third Reich emphasizing nature of Nazi regime, World War II, and historiography [Satisfies General Studies Requirements. SB, H]
- 435 Modern Germany.** (3) A
Germany since 1840 [Satisfies General Studies Requirements. SB, G, H]
- 437 Eastern Europe and the Balkans.** (3) A
Peoples and countries of eastern and southeastern Europe in the 19th and 20th centuries from 1800 to 1914, emphasizing the Hapsburg and Ottoman Empires [Satisfies General Studies Requirements. SB, H]
- 438 Eastern Europe and the Balkans.** (3) A
Peoples and countries of eastern and southeastern Europe in the 19th and 20th centuries, emphasizing the successor states from 1914 to the present. [Satisfies General Studies Requirements. SB, G, H]
- 441 Imperial Russia.** (3) A
Development of Russian political, economic, social, religious, and intellectual institutions and traditions from the end of the 17th century to the collapse of the tsarist autocracy in 1917 [Satisfies General Studies Requirements. SB, H]
- 442 The Soviet Union.** (3) A
An examination of Soviet politics, economic development, and foreign relations from the 1917 Revolution to the present [Satisfies General Studies Requirements. SB, G, H]
- 443 Russia and the United States.** (3) A
Official and unofficial relations between Russia and the United States from the late 18th century to the present, emphasizing period following the Bolshevik Revolution. [Satisfies General Studies Requirements. SB, G, H]
- 445 Tudor England.** (3) A
Political, social, economic and cultural developments in 16th century England [Satisfies General Studies Requirements. SB, H]
- 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 imperialism and colonialism 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 from the 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 in the 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 from earliest days to 1700 [Satisfies General Studies Requirement. SB]
- 457 History of Spain.** (3) N
Cultural, economic, political and social development of Spain from 1700 to the present [Satisfies General Studies Requirement. SB]
- 460 Spanish South America.** (3) N
Political, economic, and social development of the Spanish-speaking nations of South America since independence. 19th century developments [Satisfies General Studies Requirements. SB, H]
- 461 Spanish South America.** (3) N
Political, economic, and social development of the Spanish-speaking nations of South America 20th century developments [Satisfies General Studies Requirements. SB, H]
- 463 Intellectual and Cultural History of Latin America.** (3) N
Major currents of thought, the outstanding thinkers, and their impact on 19th and 20th-century Latin America. Cultural and institutional basis of Latin American life [Satisfies General Studies Requirements. SB, H]

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; rise and fall of the empire; problems and growth of the republic to the present. [Satisfies General Studies Requirements: SB, H]

469 Chinese Thought and Way. (3) N

China's classical tradition studied both for the 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) as 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 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 historic resources in Europe and the 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, and 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 18th century.

513 Historians of Modern Europe. (3) N

A study of 19th and 20th 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 20th 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 authored 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, 584 (Editing Internship).

525 Historical Resource Management. (3) F

Identification, documentation, and interpretation of historic 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 historic 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 minority 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.

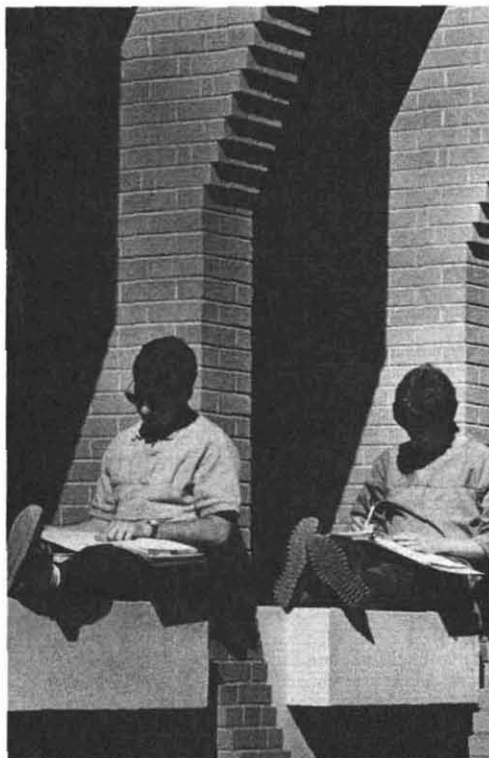
591 Seminar. (3) N

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

May be repeated for credit.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.



Interdisciplinary Humanities Program

Bettie Anne Doebler, Ph.D., Director

Bachelor of Arts Degree in Humanities

The major in Humanities is interdisciplinary and may be intercollegiate; it consists of 45 hours. It is recommended that students take 12 hours of supporting courses that may be credited toward General Studies requirements where appropriate. In consultation with an advisor, the student takes 29 hours of interdisciplinary humanities courses, including:

1. a core of 14 hours: HUM 110, 301, 302, 498;
2. 15 hours of courses selected to develop an interdisciplinary cultural or area concentration (examples: medieval or Renaissance studies); and
3. 16 hours from those courses required for one of the humanities disciplinary majors.

The humanities are those learned bodies of knowledge that are used to express ideas, to understand the meaning of words, and to explore the values and beliefs that underlie our culture and the cultures of others. As defined by congress, the humanities include history, literature, linguistics, philosophy, jurisprudence, ethics, comparative religion, archaeology, the history and criticism of the arts and those aspects of the social sciences that employ a philosophical or historical rather than quantitative approach.

See this catalog for course descriptions for architecture, art, anthropology (cultural), dance, English, foreign languages, history, music, philosophy, religious studies, and theatre. Twelve additional hours of supporting courses in consultation with the advisor are recommended especially to broaden the student's historical 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, philosophy, religion, and other disciplines to common problems affecting modern American life. [Satisfies General Studies Requirements. HU H]

301 Humanities in the Western World. 4 F
Interrelation of arts and ideas in Western Civilization. Heavily dependent on media. 3 hours lecture, 1 discussion meeting per week. [Satisfies General Studies Requirements. L1 HU H]

302 Humanities in the Western World. 4 S
Interrelation of arts and ideas in Western Civilization. Renaissance to the present. 3 hours lecture, 1 discussion meeting per week. [Satisfies General Studies Requirements. L1 HU H]

413 Comedy: Meaning and Form. 3 S
Nature and characteristics of comedy in the literary, film, and performing arts. Prerequisites: HUM 301 and 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 and 302 or equivalents. [Satisfies General Studies Requirement. HU]

494 Special Topics in the Humanities. 3 N
Open to all students. Topics include:
(a) Western History and 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 6 hours credit when topics vary.

511 Structures of Knowledge. (3 F)
Theories and examples of structures of knowledge including such topics as metaphor, semantics, and knowledge of the "other."

512 Writing Cultures. 3 S
Theories and methods of representing western and non-western cultures in literature, history, ethnography, and pictorial media.

513 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 6 hours when topics vary.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

Mathematics

PROFESSORS:

TROTTER, PS A216), ANDERSON, BREMNER, BUSTOZ, FELDSTEIN, GOLDSTEIN, GRACE, HELTON, HERRERO, IHRIG, JACK EWICZ, JACOBOWITZ, KELLY, KERSTED, LEONARD, McDONALD, MITTELMANN, NICOLAENKO, RINGHOFER, SAVAGE, SHERMAN, H.A. SMITH, H.L. SMITH, L. SMITH, A. WANG, C. WANG, WEISS, YOUNG

ASSOCIATE PROFESSORS:

ARMBRUSTER, DR. SCOLL, FARMER, HASSETT, KADELL, KUPER, KURTZ, MOORE, QUIGG, STEWART, SWIMMER, TAYLOR, THIEME

ASSISTANT PROFESSORS:

BAER, BARCELO, BLOUNT, EDEN, FAN, HURLBERT, JONES, KAWSKI, KOSTELICH, KUANG, LOHR, McCARTER, PETRE, RENAUT, SPIELBERG, TANG, WELFERT

PROFESSORS EMERITI:

BEDENT, FREUND, LAKE, LSKOVEC, NERNG, NEMEIR, PECK, SANSONE, SNIKOV

Bachelor of Arts Degree in Mathematics

Mathematics. The program consists of a minimum of 30 semester hours in mathematics and additional course work in closely related fields, as approved by the advisor, for a total of at least 45 semester hours. The required courses must include the following: CSE 100 or 183; MAT 270, 271, 272, 274, 300, 342, 371 (or 460); two 400-level MAT courses 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 in Mathematics

The program consists of a minimum of 42 semester hours in mathematics and additional course work in closely related fields, as approved by the advisor, for a total of at least 55 semester hours.

The required hours must include the following: CSE 100 or 183; MAT 270, 271, 272, 342. To satisfy the remaining required hours the student selects either the general mathematics, computational mathematics, applied mathematics, or statistics and probability option.

General mathematics option. For this option, the student must take the following: MAT 274, 300, 371, 372, 410 (or MAT 415 or MAT 443 or MAT 445 and 464), 461 (or 462 or 475); STP 421; three more hours in a MAT course to be approved by the advisor. The department recommends a one year sequence in some closely related field.

Computational mathematics option. For this option, the student must take the following: CSE 100, 101 (or 200), 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. For this option, the student must take MAT 274, 371, 372, 419, 451, 461, 462, and 464. PHY 121 and 131 also are required and the corresponding laboratory courses (PHY 122 and 132) are strongly recommended. Students should choose additional courses from CSE 101; IEE 476; MAT 415, 416, 419, 443, 463, 465, 472, 475; STP 421, 425, 427.

Statistics and probability option. For this option, the student must take the following: MAT 300, 371, 372; STP 421; STP 425 and 427 (or IEE 476 or MAT 419) or STP 427 and IEE 476 (or MAT 419). The remaining courses in mathematics, as approved by the advisor, may be selected from the three groups above or from among the following: CSE 101; IEE 476, MAT 419, 464, 465, 466; STP 420, 425, 427, 429. A coherent set of courses in a related field is also required.

Minor in Mathematics

The minor in mathematics consists of a minimum of 24 semester hours. Required courses are MAT 270, 271, 272, and 342. Electives are chosen in consultation with a mathematics advisor and must include three upper division courses in mathematics and statistics. In addition, CSE 100 and 101 are recommended. An approved Minor Verification Form must be submitted to the Graduation Office of the College of Liberal Arts and Sciences.

Bachelor of Arts in Education Degree in Secondary Education

Mathematics. Students pursuing the major teaching field may choose from two options.

Option One With this option, the academic specialization consists of at least 36 semester hours in mathematics. Required courses are as follows: CSE 100 or 181; MAT 270, 271, 272, 300 (or 243), 310, 342, 371, 443 (or 445); MTE 483; 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.

Option Two. This option may be exercised only in combination with option two in chemistry (page 123) or physics (page 180). 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 (CSE 100 or 183) is recommended.

Mathematics. The minor teaching field consists of at least 24 semester hours. Required courses are as follows: MAT 270, 271, 272, 300, 310, 342, 274 (or 371 or 460).

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, polynomials, factoring, exponents, roots, and radicals. Prerequisite: 1 year of high school algebra.

117 College Algebra. (3) F, S, SS

Linear and quadratic functions, systems of linear equations, logarithmic and exponential functions, sequences, series and combinations. Prerequisite: MAT 106 or 2 years of high school algebra. [Satisfies General Studies Requirement: N1]

118 Precalculus Algebra and Trigonometry. (3) F, S, SS

Matrices and determinants, trigonometric and inverse trigonometric functions, vectors, complex numbers, polynomials, and second degree equations. Prerequisite: MAT 117 or equivalent. [Satisfies General Studies Requirement: N1]

119 Finite Mathematics. (3) F, S, SS

Topics from linear algebra, linear programming, combinatorics, probability and mathematics of finance. Prerequisite: MAT 117 or equivalent. [Satisfies General Studies Requirement: N1]

210 Brief Calculus. (3) F, S, SS

Differential and integral calculus 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: 1 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: 1 semester of calculus.

260 Technical Calculus I. (3) F, S, SS
Analytic geometry, differential and integral calculus of elementary functions, emphasizing physical interpretation and problem solving. Not open to students with credit in MAT 210, 270, or 290. 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, and differential and integral calculus of functions of one variable. Not open to students with credit in MAT 290. 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 and 271 and 272 may be substituted to satisfy requirements for MAT 290 and 291. Prerequisite: MAT 270 or equivalent.

272 Calculus with Analytic Geometry III. (4) F, S, SS
Vector valued functions of several variables, multiple integration, and introduction to vector analysis. The sequence MAT 270 and 271 and 272 may be substituted to satisfy requirements for MAT 290 and 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. MAT 272 or equivalent is recommended. Prerequisite: MAT 271 or equivalent.

290 Calculus I. (5) F, S
Differential and integral calculus of elementary functions, topics from analytic geometry essential to the study of calculus. Prerequisite: 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: L2]

310 Introduction to Geometry. (3) S
Congruence, area, parallelism, similarity and volume, Euclidean and non-Euclidean geometry. Prerequisite: MAT 272 or equivalent.

342 Linear Algebra. (3) F, S, SS
Linear equations, matrices, determinants, vector spaces, bases, linear transformations and similarity, inner product spaces, eigenvectors, orthonormal bases, diagonalization, and principal axes. Prerequisite: MAT 272 or equivalent.

362 Advanced Mathematics for Engineers and Scientists I. (3) F, S, SS
Vector analysis, Fourier analysis and partial differential equations. Prerequisites: MAT 272 and 274 or equivalent.

371 Advanced Calculus I. (3) F, S
Continuity, Taylor's theorem, partial differentiation, implicit function theorem, vectors, linear transformations and norms in \mathbb{R}^n , multiple integrals, and power series. MAT 300 is recommended. Prerequisite: MAT 272 or equivalent. Prerequisite: MAT 342.

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, and improper integrals. Not open to students with credit in MAT 460. Prerequisite: MAT 371.

400 Computability and Unsolvability. (3) N
Turing machines and computability, computable and partial computable functions, recursive sets and predicates, recursively enumerable sets, and unsolvable decision problems and 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 CSE 457. Prerequisite: CSE 355.

410 Introduction to General Topology. (3) A
Topological spaces, metric spaces, compactness, connectedness and product spaces. Prerequisite: MAT 300 or 371 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 and 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, Polya's counting theory, and applications to the physical and life sciences. MAT 443 is recommended. Prerequisite: MAT 415 or instructor approval.

419 Linear Programming. (3) S
Linear programming and the simplex algorithm, network problems, quadratic, and nonlinear programming. Prerequisites: MAT 242 or 342; 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 and 342 or instructor approval.

442 Advanced Linear Algebra. (3) F
Fundamentals of linear algebra, dual spaces, invariant subspaces, canonical forms, bilinear and quadratic forms, and multilinear algebra. Prerequisites: MAT 300 and 342 or instructor approval.

170 MATHEMATICS

443 Abstract Algebra. (3) S

Introduction to the most important algebraic structures, including groups, rings, integral domains, and fields. Prerequisites: MAT 300 and 342 or instructor approval.

445 Theory of Numbers. (3) F

Prime numbers, unique factorization theorem, congruences, Diophantine equations, primitive roots, and quadratic reciprocity theorem. Prerequisites: MAT 300 and 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 and 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), 272, 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. Prerequisites: MAT 242 (or 342), 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: MAT 342 and 371 and fluency in computer programming (preferably FORTRAN) 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 quadrature, differential equations, roots of nonlinear equations, interpolation, approximation, nonlinear equations, floating point arithmetic and roundoff error. Prerequisites: MAT 271 (or equivalent) and fluency in computer programming (preferably FORTRAN) or instructor approval. [Satisfies General Studies Requirement N3]

467 Computer Arithmetic. (3) S

Number systems, hardware/software arithmetic, overflow, significance, rounding, multiple precision, and automatic error control: impact on languages, architectures, robust programming, and software development. Prerequisite: CSE 101 or 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 nonlinear ordinary differential equations, stability, Sturm-Liouville problems, boundary value problems, and singular point behavior of autonomous systems. Prerequisite: MAT 242 (or 342), 274.

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 and 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, algebra and the representation theory. Prerequisite: MAT 443 or instructor approval.

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 and 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, and approximate methods, Dirichlet problems. Prerequisites: MAT 242 and 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, and stability. Prerequisites: MAT 342 and 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, and penalty methods. Prerequisite: MAT 342 and or 371 or 460 or 560 or equivalents or instructor approval.

564 Advanced Numerical Analysis. (3) N

Finite difference equations, orthogonal polynomials, quadrature, approximation and integration theory, numerical solution of differential equations and numerical linear 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, one-leg, 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 and applications. Prerequisites: MAT 371 or 460 or 462) and 464 or 466) or instructor approval.

568 Numerical Solution of Boundary Value Problems. (3) N
Difference methods, finite element methods, defect correction, irregular meshes, nonlinear problems, bifurcation boundary layers, and sparse systems. May be repeated for credit with instructor approval. Prerequisites: MAT 371 (or 460 or 462) and 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 and elements of functional analysis. Prerequisite: MAT 372 or instructor approval.

571 Real Analysis. (3) F
Continuation of MAT 570. 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, and 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 singularities, asymptotic behavior of solutions, boundedness of solutions eigenvalues and eigenfunctions, and 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 operators, 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:
(a) Analysis
(b) Applied Mathematics
(c) Topology
(d) Algebra
(e) Mathematical Logic

(f) Numerical Analysis
(g) Combinatorial Mathematics

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

MATHEMATICS EDUCATION

MTE 180 Theory of Elementary Mathematics. (3) F SS
Number systems, intuitive geometry elementary algebra and measurement intended for prospective elementary school teachers. Prerequisite: MAT 117 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 systems overview of elementary number theory, including primes, factorization, divisibility bases modular systems linear congruence and continued fractions. 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 and 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 decision 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 and analysis of instructional devices. Teaching strategies evaluation 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 and elementary mathematical systems including groups and fields. Prerequisite: instructor approval.

585 Modern Geometry for Teachers. (3) A
Euclidean, projective and non-Euclidean 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: MTE 587 or instructor approval.

172 MATHEMATICS / MICROBIOLOGY

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

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: MAT 106 or 3 semesters of high school algebra. [Satisfies General Studies Requirement N2]

326 Intermediate Probability. 3 F S

Probability models and computations, joint and conditional distributions, moments and 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, and 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 and central limit theorem. Prerequisites: MAT 300 or STP 326) and MAT 371 or equivalents

425 Stochastic Processes. (3) S

Markov chains, stationary distributions, pure jump processes, second order processes and other topics in stochastic processes. Prerequisites: MAT 342 STP 421.

427 Mathematical Statistics. 3 S

Limiting distributions, interval estimation, point estimation, sufficient statistics and tests of hypotheses. Prerequisite: STP 421

429 Experimental Statistics. 3 S

Statistical inference for controlled experimentation. Multiple regression, correlation, analysis of variance, multiple comparisons, and nonparametric procedures. Prerequisite: STP 420 or equivalent. [Satisfies General Studies Requirement N3]

525 Advanced Probability. (3 N

Measure-theoretic foundations of probability distribution functions and characteristic functions, laws of large numbers and central limit theorems, conditional probabilities, martingales and topics in stochastic processes. Prerequisites: MAT 571 and STP 421 or instructor approval

526 Theory of Statistical Linear Models. (3 F

Multivariate distribution, distribution of quadratic forms, full and nonfull rank models, generalized inverses, unbalanced data, variance components and the 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, and 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 and 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, and tests of trend and dependence. Prerequisite: STP 420 or equivalent.

533 Applied Multivariate Analysis. 3) S

Discriminant analysis, principal components factor analysis, cluster analysis and canonical correlation. Prerequisite: STP 420 or equivalent

534 Applied Discrete Data Analysis. 3) N

Models for discrete and count data, measures of association and log-linear and 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

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

Microbiology

PROFESSORS:

SCHNAITMAN (LS 378), BURKE MOSSMAN,
REEVES SCHMIDT

ASSOCIATE PROFESSORS:

BIRGE HOFFMAN, JACOBS

ASSISTANT PROFESSOR:

TAI

FACULTY ASSOCIATES:

DOWNS LEFEVRE, MASS, ROBERTS

PROFESSORS EMERITI:

JOHNSON, LEATHERS, NORTHEY

Bachelor of Science Degree in Microbiology

This program 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 and 361 and 367 or CHM 331 and 332 and 335 and 336; MIC 206, 220, 302, 360, 401, 470; a minimum of eight semester hours of upper-division electives in microbiology or approved related fields. The eight hours must include one laboratory course. In addition, the students are required to fulfill the university numeracy requirement with MAT 210 or 270 or 290 or STP 420 and with BIO 420 or CSE 180 or 181 or 183 or any other computer science class that

meets the N3 requirement. The required supplemental courses are as follows: CHM 113, 115; PHY 111, 112, 113, 114.

Bachelor of Science Degree in 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 and in government, sales, management, and education. After obtaining a B.S. degree in Clinical Laboratory Sciences, the graduate is eligible for national certification by examination.

A student majoring in Clinical Laboratory Sciences is required to take 40 hours of clinical laboratory sciences courses. Also required are the following: CHM 113, 231, 361; MIC 205, 206, 420; ZOL 360. Equivalent courses may be substituted upon approval 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 all students to 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.

Minor in Microbiology

The minor in Microbiology consists of a minimum of 24 semester hours. Required courses are as follows: BIO 181, 182, 340; MIC 206, 220, 302, 360. The remaining upper division microbiology hours are chosen in consultation with an advisor.

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: BIO 100 (or BOT 108) and CHM 101 or instructor approval. May not be used for Microbiology major credit unless a diagnostic test is passed. [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. Pre- or corequisite: MIC 205 or 220. [Satisfies General Studies Requirement. S2 (if taken with MIC 205)]

220 Biology of Microorganisms. 3) F

Detailed study of microorganisms: their structure, genetics, physiology, and taxonomy. For biological sciences students. Pre- or corequisites: BO 182, CHM 115

302 Advanced Bacteriology Laboratory. 2) S

Advanced laboratory techniques in bacterial growth physiology, genetics, microscopy and basic virology. Required of microbiology majors. 4 hours lab. Prerequisites: Completion of L1 requirement and either A or B. (A) MIC 206, 220 or B. MIC 205 and 206 or instructor approval. [Satisfies General Studies Requirement. L2 (if taken with MIC 401)]

360 Bacterial Physiology. (3) F

Mechanisms and control of cellular metabolism, structures and functions. Prerequisite: MIC 220. Pre- or corequisite: CHM 361 or instructor approval.

401 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. Required of a microbiology majors. Prerequisites: MIC 302, completion of L1 requirement. [Satisfies General Studies Requirement. L2 (if taken with MIC 302)]

420 Introductory Immunology. 3 F

Fundamental concepts in research and medicine: Cellular immunity, antibody and antigen immunogenetics, immunoregulation, hypersensitivity, clinical immunology, and nervous immune system interactions. Prerequisites: CHM 231 or 331 and MIC 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 and 331 and MIC 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 and immunologic diseases. Prerequisite: MIC 420 or instructor approval.

434 Medical Mycology. 3 N

Fungal causative agents of diseases of man, including pathology and epidemiology. Emphasizing techniques of diagnosis. 2 hours lecture, 3 hours lab. Prerequisite: MIC 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: BO 340 and MIC 205 or 220 or instructor approval.

442 Bacterial Genetics Laboratory. 1) F

Techniques of mutagenesis, mapping and strain construction. 4 hours lab. Prerequisites: MIC 206, 302. Pre- or corequisite: MIC 441

174 MICROBIOLOGY

470 Bacterial Diversity and Systematics. 3 S
Enrichment culture, biology, and classification of the non-pathogenic bacteria 1 hour lecture 6 hours lab Prerequisite: MIC 302.

481 Pathogenic Microbes. (3) F 92
Host-microbe interactions in infectious disease with emphasis on pathogenesis, host defenses, and molecular mechanisms of microbial virulence. Prerequisites: CHM 231 or 331, 6 hours of microbiology

485 General Virology. (3) F 92
Fundamental nature of viruses, their replication, pathogenesis, and ecology. Prerequisites: BIO 340 and CHM 331 or instructor approval

486 General Virology Laboratory. (2) F 92
An introduction to the growth, assay, and detection of viruses 6 hours lab Prerequisite: MIC 302 Prerequisite/corequisite: MIC 485.

527 Neuroimmunology. 3 S
Studying mind's influence on immunity and the immune system's influence on the mind, neuroimmunologic diseases and the neuroimmunological curriculum involved Seminar Prerequisite: MIC 420 or instructor approval

530 Bacterial Differentiation. 3 N
Molecular biology of sporulation and germination in bacteria Emphasis on the control of cellular differentiation Prerequisite: BIO 443 or MIC 441 or instructor approval.

545 Recombinant DNA Methodology. (3) N
Principles of genetic engineering using in vitro DNA recombination, characteristics of plasmid and phage vectors, recombinant selection and physical characterization Prerequisites: BIO 443 MIC 441 Instructor approval

546 Recombinant DNA Laboratory. (2) N
Basic techniques in isolation of chromosomal plasmid and bacteriophage DNA, transformation, gene splicing methods Corequisite: MIC 545

581 Selected Topics in Host-Bacterial Relationships. (3) N
Pathogenic mechanisms and host responses in bacterial diseases Prerequisites: MIC 420 and 481 or instructor approval

585 Molecular Virology. (3) S 92
Selected topics concerning molecular aspects of eukaryotic virus replication and pathogenesis. Prerequisite: 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) Bacteria Ecology
- (i) Pathogenic Bacteriology

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered

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

Enrollment for the following CLS courses 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, and assessment of procedure 3 hours lecture 9 hours lab.

320 Principles of Clinical Microbiology I. (6) S
Emphasizes disease mechanisms, soatoin, and identification of medically significant fungi and bacteria Includes principles of laboratory safety and quality control. 3 hours lecture 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 hours lecture 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 hour 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 and identification of medically significant parasites: Mycobacteria, Actinomycetes, Chlamydia, Rickettsia, Mycoplasma, and viruses. 1 hour 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, pathophysiology, clinical manifestations, and treatment of blood dyscrasias, hemostatic defects 2 hours lecture 3 hours lab.

431 Advanced Applications of Clinical Hematology. (4) S

Practical laboratory application of methods, techniques used to evaluate and diagnose blood dyscrasias, hemostatic defects. Applied techniques in Body Fluid Analysis. Minimum 180 hours practicum.

440 Principles of Clinical Immunology/Immunohematology. (4) F

Theoretical and practical application of clinical immunology and immunohematology. Emphasizes serological techniques that aid disease diagnosis and blood donor selection 3 hours lecture 3 hours lab.

441 Advanced Applications of Clinical Immunology/Immunohematology. (3) S

Practical laboratory application of the principles of serological methods used in diagnosing disease and selecting 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.

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.

Military Science

Army ROTC

PROFESSORS:

GAVIN (MAIN 240) DALGLE SH

ASSISTANT PROFESSORS:

BRYANT CROSSON FA RALL GIBBONS,

KRONHOLM SCOTT

INSTRUCTORS:

HUGHES, JAIME

Purpose

The Department of Military Science curriculum consists of the basic course (MIS 101, 102, 201, and 202) and the advanced course (MIS 301, 302, 401, and 402). The goal of this professional education is to prepare selected students with the leadership potential to be commissioned Army officers within the national defense structure of the United States. Specific objectives include developing the leadership and managerial potential of the students, developing the student's abilities to think creatively and to speak and write effectively, providing the student with an appreciation of the requirements for national security, and developing the student's understanding of the nature and functions of the U.S. Army. Upon successful completion of the advanced course, qualified students receive commissions in the U.S. Army Reserve or Army National Guard. Active duty positions are available upon graduation from the university on a competitive basis.

Commissions 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 ASU (or approved by a professor of military science) can enter into the military science basic course. It is strongly recommended that he or she

be in sound physical shape because some of the curriculum requires physical exertion.

Advanced Course. Any student who is enrolled in ASU (or approved by a professor of military science) may enroll in the military science advanced course. However, to be competitive and to obtain a commission in the U.S. Army, students must meet the following requirements:

1. be a citizen of the United States (noncitizens may enroll but must obtain citizenship before commissioning),
2. be of sound physical condition and pass the U.S. Army physical fitness standards; and
3. be at least 17 years of age for entrance into the advanced course and be able to complete all commissioning requirements before age 30.

Only those students in the basic and advanced courses who meet required military regulations are eligible to receive financial assistance through the U.S. 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 U.S. Army. (Contact a professor of military science for more information.)

Four-Year Program. Students may enroll in Army ROTC during their freshman year. They take the basic course during the first two years, receiving a total of eight semester hours credit for the four semesters of study. Upon satisfying the requirements stated above, they enter the advanced course, where they earn 10 semester hours for the four semesters of study. In addition, students are required to 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 U.S. Army Reserve or Army National Guard.

Two-Year Program. Students must have at least two academic years of college work remaining, either at the undergraduate or graduate level. The student must also have 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 seek-

ing enrollment in the two-year program should make application during the spring semester of the year in which they wish 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 who have previous military experience or who are currently members of the National Guard or Reserves may be admitted directly into the two year program. They then follow the same program and meet the same requirements as stated for advanced course students in the four year program.

Qualifications for Admittance to the Advanced Course. The following qualifications are required for admittance to the advanced course:

1. successful completion of the basic course for the student in the four year ROTC program or selection for and successful completion of the six week basic summer camp for the student in the two year program;
2. passing the ROTC Qualifying Examination;
3. passing the Army physical examination, and
4. attainment of the minimum cumulative GPA 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. The advanced course student receives \$100 per month for the 20 months of enrollment. The student also receives one-half the pay of a second lieutenant while attending the six week advanced camp. Uniforms, housing, and meals are provided at camp without cost to the student, who is 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 members of the Army Reserve and the National Guard. The combination of advanced course allowance and pay for Reserve and 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 the military construction degree option. It is composed 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 graduate with a Bachelor of Science degree 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 and 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 enter the four year program. Applications must be submitted in accordance with a schedule furnished to 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 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

MILITARY SCIENCE

MIS 101 Studies in Military Leadership I. 3 F

Selective pre 1920 cases of U.S. Military activity used to study the interaction of military leadership with operations and national policy. 2-hour lecture-conference, 2-hour lab.

102 Studies in Military Leadership II. 3 S

Selective post 1920 cases of U.S. Military activity used to study the interaction of military leadership with operations and national policy. 2-hour lecture-conference, 2-hour lab.

201 Basic Military Science. (2) F

Organization and missions of the Army within American society; current issues in the military, military justice system, leadership; first aid. 2-hour lecture-conference, 1.5 hours lab.

202 Land Navigation and Survival. (2) S

Components of maps, use of maps and compass, orienteering and land navigation exercises, military mapping system, basic outdoor survival skills. 2-hour lecture-conference, 1.5-hour lab.

205 ROTC Basic Camp. 4 SS

Six-week training program emphasizing practical hands-on skills and leadership development. Taken in lieu of MIS 101, 102, 201, 202. Conducted at Fort Knox, Kentucky.

301 Advanced Military Science. 3 F

Theory and dynamics of the individual and military units in offensive combat operations. 2-hour lecture-conferences, 1.5 hours of Leadership Practica Application, one 2-day field exercise, three 1-day field exercises. Prerequisites: MIS 101 and 102 and 201 and 202 or equivalent.

302 Advanced Military Science. 3 S

Theory and dynamics of military units in defensive combat operations. 2-hour lecture-conferences, 1.2 hours Leadership Practica Application, one 3-day field exercise, two 1-day field exercises. Prerequisites: MIS 101 and 102 and 201 and 202 or equivalent.

303 ROTC Advanced Camp. 4 SS

Six-week training program emphasizing leadership development and advanced military skills, including tactics and navigation, and physical training. Conducted at Fort Lewis, Washington. Prerequisites: MIS 301, 302.

401 Advanced Military Science. (2) F

The military legal system: preparation and conduct of military training, leadership development, ethics and professionalism of the military officer. 2-hour lecture-conferences, 1.5 hours Leadership Practica Application, one 2-day field exercise, three 1-day field exercises. Prerequisites: MIS 301, 302.

402 Advanced Military Science. (2) S

Military correspondence, career planning and personal affairs in service, conduct of training, leadership development; ethics and professionalism of the military officer. 2-hour lecture, 1.5 hours Leadership Practica Application, one 3-day field exercise, two 1-day field exercises. Prerequisites: MIS 301, 302.

Philosophy

PROFESSORS:

FITCH (PS A521), CARNEY, HUMPHREY, MAENSCHEN, MURPHY, WHITE

ASSOCIATE PROFESSORS:

CREATH, GULESERIAN

ASSISTANT PROFESSORS:

ARMENDT COHEN, COWLES, DE MARNEFFE, DRESSER, HOWELLS, KOBES, MCGREGOR, REYNOLDS

PROFESSORS EMERITI:

ARNER, GIESCHEN, LIU, VOTCHENKO

Bachelor of Arts Degree in Philosophy

The major in Philosophy consists of 45 semester hours. Thirty-six hours must be in philosophy, including 30 upper division hours. The nine hours in related fields are determined by the student in consultation with an advisor, and normally these are PHI courses. Required courses are as follows: PHI 301, 302, 305, 312 (or 314), 316 (or 317), 333, 350; at least two PHI 400 level courses not to include 492, 493, or 499, except with special permission of the chair.

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 levels. A minimum grade of "C" is necessary for each course used to fulfill the major and minor requirements. See "Degree Requirements," page 104.

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.

Minor in Philosophy

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 department.

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

178 PHILOSOPHY

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, including morality, reality, obligation and knowledge [Satisfies General Studies Requirement HU]

103 Principles of Sound Reasoning. 3 F S, SS

Faithfulness and soundness of arguments. May include symbolic elementary symbols, inductive logic, and scientific method [Satisfies General Studies Requirement: HU]

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 and the 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. S. D. Quine, Ryle, Austin, Strawson, Quine, and Sellars with application to metaphysics and epistemology. Prerequisite one course from among PH 101, 103, 111, 301, 302, 333, 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, Dostoyevski, 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 PH 111 or 306 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 perversions, cardiovascular 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 moral convictions, disobedience, ability and responsibility, punishment, judicial reasoning, justice, property, and 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 aesthetics, aesthetic perception and experience and objectivity and reality 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 and autonomy and order are discussed. Prerequisite PH 111 or 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, and induction, knowledge of the external world. Prerequisite one course from among PH 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 including meaning, reference, truth, definition, analyticity, translativity, synonymy and contributions of contemporary linguistics. Prerequisite PH 103 or 333 or 350 [Satisfies General Studies Requirement HU]

316 Metaphysics. 3 A

Investigation into the reality including appearance vs. reality, perception, realism vs. idealism, materialism vs. mentalism and the concepts of mind and person, substance, universals, space and time, and causation. Prerequisite one course from among PH 111, 103, 111, 301, 333, 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 and knowledge of other minds. Prerequisite one course from among PH 101, 103, 111, 301, 302, 333, 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]

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 philosophy, such as thought emphasizing either the German or the British traditions. Prerequisite PH 302 [Satisfies General Studies Requirement HU]

333 Introduction to Symbolic Logic. 3 A

Symbolic techniques emphasizing deductions and proofs in the propositional, first, and second order predicate calculus. 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 con-

tent may vary with instructor. Prerequisites: major; instructor approval [Satisfies General Studies Requirement: L2]

402 Empiricism. (3) N

Examination of representative(s) of either classical or contemporary philosophy empiricism e.g. Bacon, Hobbes, Locke, Butler, Berkeley, Reid, Hume, Mill, Carnap, and Ayer. Prerequisites: PHI 302, plus one of the following PHI 305, 309, 312, 316, 317 [Satisfies General Studies Requirement. HU]

413 Advanced Symbolic Logic. (3) N

Properties of formal systems axiomatizing propositional and first order predicate logic. May also include modal logic, number theory and methods of logicism. Prerequisite: PHI 333.

420 Topics in Philosophy. (3) N

Course descriptions and prerequisites on file in department. 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

Courses may be repeated for credit

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

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

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

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 [Satisfies General Studies Requirement: H]

322 Science and Technology in History. (3) F, S

Development and application of scientific thinking from ancient times through the 17th century. [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 [Satisfies General Studies Requirements. HU, H]

330 History of Biology: Conflicts and Controversies. (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 human body, changing theories of disease, evolution of practical applications on 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. Prerequisite: junior standing [Satisfies General Studies Requirement. HU]

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

Physics

REGENTS' PROFESSORS:

J. COWLEY, STEARNS

PROFESSORS:

DOW (PS F470), COMFORT, A. COWLEY, HANSON, HESTENES, JACOB, KAUFMANN, LINDSAY, LU, NIGAM PAGE, ROY, SMITH, SPENCE, STARRFIELD, TILLERY, TSONG, VENABLES, VOSS, WYCKOFF

ASSOCIATE PROFESSORS:

AANNSTAD, ACHARYA, BENIN, BENNETT, BURSTEIN, MARZKE, RICHIE SANKEY, TSEN

ASSISTANT PROFESSORS:

ALARCON, CHAMBERLIN, MENENDEZ, REZ, SCHMIDT WINDHORST

PROFESSORS EMERITI:

KEVANE, KYRALA, MEISTER, RAWLS, SNYDER, STROJNIK, YALE

Bachelor of Science Degree in Physics

Students majoring in Physics may pursue one of two options.

Option One. Designed for students who wish to pursue physics at the bachelor or graduate degree levels, 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, and 471. Additional courses in physics and other related fields are 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 and 291 may be substituted for MAT 270, 271, and 272. French, German, or Russian is strongly recommended to fulfill foreign language requirement.

Option Two. An interdisciplinary program designed for students who wish to obtain an under-

graduate physics preparation for entry into other professions or graduate programs. A total of 53 hours are required, including PHY 121, 122, 131, 132, 241, 242, 321, 331, 332, 333, 334, 362, 441, and 471. The remaining courses are 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, geophysics, biological physics, philosophy of science, scientific journalism, and pre-medical and pre-law programs. Related nonmajor courses necessarily include MAT 242 (or 342), 274, 290, and 291. MAT 270, 271, and 272 may be substituted for MAT 290 and 291. French, German, or Russian is strongly recommended to fulfill the foreign language requirement.

Emphasis in Astronomy

The astronomy faculty offer courses in astronomy both for nonscience majors and for science and Physics majors. For an emphasis in astronomy, the following courses (or their equivalents) should be taken: AST 321, 322, 421, 422, 499.

Minor in Astronomy

This minor consists of a minimum of 24 semester hours. Required courses are as follows: AST 125, 126, 321, 322; PHY 121, 122, 131, 132, 241, 242. Electives are with the approval of an astronomy advisor from upper division courses in physics and astronomy.

Minor in Physics

This minor consists of a minimum of 24 semester hours. Required courses are as follows: PHY 121, 122, 131, 132, 241, 242, 321, 362. Electives are chosen with the approval of the physics advisor from upper-division courses in physics and astronomy.

Bachelor of Arts in Education Degree in Secondary Education

Physics. Two options are available for physics as the major teaching field.

Option One. The major teaching field consists of 42 semester hours. Required courses are as follows: PHY 121, 122, 131, 132, 241, 242, 321, 331, 333, 362; two or more hours in 480 or 484. (PHY 111, 112, 113, and 114 may be substituted for PHY 121, 122, 131, 132, 241, and 242 on approval of the advisor.) Electives are chosen in physics and/or other closely related fields, subject to the approval of the advisor.

Option Two. An interdisciplinary 60 hour program that consists of 30 semester hours in physics and an additional 30 semester hours in either chemistry (see page 123) or mathematics (see page 168). The physics portion of this program requires the following courses: PHY 121, 122, 131, 132, 241, 242. (PHY 111, 112, 113, and 114 may be substituted for PHY 121, 122, 131, 132, 241, and 242 on approval of the advisor.) Also required are the following: PHY 321, 331, 333, 361 (or 362); two or more hours in 480 or 484. Electives to complete the 30-hour physics portion are chosen from physics and or closely related fields, subject to the approval of the physics advisor.

Physics. This minor teaching field consists of 24 semester hours. Required courses are as follows: PHY 121, 122, 131, 132, 241, 242. (PHY 111, 112, 113, and 114 may be substituted for PHY 121, 122, 131, 132, 241, and 242 on approval of advisor.) Also required are the following: PHY 361 (or 362), 363; two hours in 480 or 484. The remaining hours are selected from upper-division courses in physics and/or astronomy (including AST 125 and 126), subject to approval of the advisor.

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 the modern world. Understanding of elementary algebra is presumed. 3 hours lecture, 1 recitation, 2 hours lab. [Satisfies General Studies Requirements: S1, S2]

105 Basic Physics. 4 F
One-semester survey of the principles of physics. Primarily for students who intend to take PHY 121, 131 but have not taken high school physics. 3 hours lecture, 1 recitation, 2 hours lab. Prerequisites: algebra and trigonometry.

111 General Physics. (3 F, S, SS
Noncalculus treatment of the principles of physics for nonphysics majors. Students whose curriculum require a laboratory course must also register for PHY 113. 3 hours lecture, 1 recitation, 1 Prerequisite: trigonometry. [Satisfies General Studies Requirements: S1, S2 (when taken with PHY 113)]

112 General Physics. (3) F S SS
Continuation of PHY 111. Students whose curriculum require a laboratory course must also register for PHY 114. Prerequisite: PHY 111. [Satisfies General Studies Requirements: S1, S2 (when taken with PHY 114)]

113 General Physics Laboratory. (1) F S, SS

Elementary experiments in physics. 2 hours lab. Outline 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 hours lecture 1 recitation. Corequisite: MAT 270 or 290. Concurrent enrollment in lab (PHY 122) is recommended. [Satisfies General Studies Requirements: S1, S2 (if taken with PHY 122)]

122 University Physics Laboratory I. (1) F S, SS

Lab accompanying PHY 121. Pre- or corequisite: 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, and induction. AC circuits, displacement current, and electromagnetic waves. 3 hours lecture 1 recitation. Prerequisite: PHY 121. Corequisite: MAT 271 or 291. Concurrent enrollment in lab (PHY 132) is recommended. [Satisfies General Studies Requirements: S1, S2 (if taken with PHY 132)]

132 University Physics Laboratory II. (1) S, SS

Lab accompanying PHY 131. Pre- or corequisite: 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 hours lecture 1 recitation. Prerequisite: PHY 131. Concurrent enrollment in lab (PHY 242) is recommended. [Satisfies General Studies Requirements: S1 S2 (if taken with PHY 242)]

242 University Physics Laboratory III. (1) N

Lab accompanying PHY 241. Pre- or corequisite: 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 non-inertial reference frames. Prerequisite: MAT 274 and 291 and PHY 131 or equivalent. Corequisite: MAT 242 or equivalent.

322 Analytical Mechanics. (3) S

Lagrangian 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, and 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 physical measurements techniques with emphasis on modern electrical and electronic instrumentation. 1 hour lecture, 3 hours lab. Equivalent effort outside of the lab is required. Prerequisites: MAT 274 or equivalent and PHY 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 lab is required. Prerequisites: PHY 331-333

351 Optics. (3) F

Matrix methods in geometric optics, interferometry, partial coherence and 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. 3 hours lecture 1 recitation. 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

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 362

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, irreversible processes and fluctuation. Prerequisite: PHY 441.

452 Advanced Optics. (3) S

Linear systems theory, coherent and incoherent imaging, 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. PHY 401-402 recommended. Prerequisites: PHY 331, 351

462 Nuclear Physics. (3) F

Static properties of nuclei, natural and induced radioactivity, nuclear reactions, nuclear models and energy levels, mesons and hyperons, and interaction of photons and electrons with matter. Prerequisite: PHY 362

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

182 PHYSICS

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 lab is required. Upon approval, student may substitute research lab project. Lab. 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, and one electron atoms. Prerequisites: MAT 242 and 274 and PHY 362 or instructor approval.

472 Quantum Mechanics. (3) S

Matrix mechanics, angular momentum, perturbation theory and the 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 experiments. 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 362.

484 Internship: Physics Teaching. (1-4) F, S, SS

Preparation for high school physics teaching. Student works closely with a faculty member in the elementary physics program. May be repeated for a total of 6 semester hours. Prerequisite: instructor approval.

495 Project Research. (1-3) F, S

Supervised project in experimental physics. May be repeated for credit. Prerequisite: 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 and 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-Jacob theory. Prerequisite: PHY 321.

522 Advanced Topics in Classical Mechanics. (3) S

Continuum mechanics, elements of hydrodynamics, elasticity theory and special relativity. Prerequisites: PHY 322, 521.

523 Relativity. (3) N

Special and general theories of relativity. Prerequisites: PHY 522 and 532 or instructor approval.

531 Advanced Electricity and Magnetism. (3) F

Electrostatics and magnetostatics: potential theory and theory of constitutive relations; Maxwell's equations; the wave equation plane electromagnetic waves, cavities and wave guides. Prerequisite: PHY 331 or instructor approval.

532 Electrodynamics. (3) S

Special theory of relativity, covariant formulation of electromagnetic interactions; inhomogeneous wave equations, Liénard-Wiechert potentials and radiation fields, interactions of charged particles and electromagnetic waves, scattering, dispersion. Prerequisites: PHY 332 and 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. PHY 442 recommended. Prerequisites: PHY 441, 471.

542 Advanced Topics in Statistical and Thermal Physics. (3) S

Theory of irreversible processes, Onsager reciprocity laws and the fluctuation-dissipation theorem, relaxation and transport processes in fluids and plasmas; Luttinger equation; the BBGKY hierarchy of distribution functions, kinetic theory, hydrodynamics from many-body theory, phase changes and equilibrium ferromagnetism. Prerequisite: PHY 541.

551 X-Ray and Electron Diffraction. (3) S

Fresnel and Fraunhofer diffraction, integral formulation of diffraction of X-rays and neutrons by crystal lattices, structures of solids, including crystal structure analysis; theory and techniques of electron microscopy, diffraction of crystals in noncrystalline specimens. Prerequisite: PHY 481 or instructor approval.

561 Nuclear Physics. (3) F, S

Two nucleon interaction, Cabot-Gordon coefficients, internucleon forces, meson theory and high energy scattering, nuclear binding energy, nuclear models, transition probability estimates, nuclear reactions and beta decay. Prerequisites: PHY 462 and 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, and decay rates, isotospin 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 in Hilbert space; observables and their corresponding operators, eigenstates and eigenvalues, quantum dynamics, approximation methods; systems of identical particles, angular momentum and group representation on the theory, collisions on processes in 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, and 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 polarons, 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 photon states, lasers density operators, and 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

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

ASTRONOMY**AST 111 Introduction to Astronomy I.** (3) F, SS

History properties of light instruments study of solar system and nearby stars For non Science majors Optional lab (AST 125). [*Satisfies General Studies Requirements. S1 S2 (if taken with AST 125)*]

112 Introduction to Astronomy II. (3) S SS

Structure and evolution of stars star clusters galactic cosmology For non science majors Optional lab 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. 2.5 hours lab Prerequisite: 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 2.5 hours lab Prerequisite: 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 will include lectures, 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

Physical laws, evolution of the sun and planets extraterrestrial astronomical instrumentation For Science majors Optional lab 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

Star formation, structure evolution; interstellar medium star clusters, galaxies distance scale; cosmology. For Science majors. Optional lab (AST 126 Prerequisite: AST 321 or instructor approval Pre- 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 (or 322 or equivalent) and PHY 321, 331 and 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 and 322 or equivalent; PHY 321 and 332 and 363 or instructor approval

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

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 presumed 3 hours lecture, 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

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 lecture and discussion

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

Historical mathematics, physics, chemistry, and astronomy, Arabs and the physical sciences and their role in spreading the physical sciences to Europe, the development of the physical sciences in Europe until the time of Newton

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

Political Science

REGENTS' PROFESSOR:

MILLER

PROFESSORS:

JONES (SS 410 BERMAN CHAUDHURI,
JO, McDONOUGH, McGOWAN, S MON,
WALKER, YOUNGBLOOD

ASSOCIATE PROFESSORS:

ASHLEY DAGGER, DANT CO, McGAW
M TCHELL, OLSON, READER,
STOOKEY WATSON

ASSISTANT PROFESSORS:

BOWER, CRITTENDEN, GEER, HERRERA
KAHN, KEATING KENNEY

INSTRUCTOR:

DOTY

PROFESSORS EMERITI:

ALISKY, H NK HOLMES, KAM NSKY, MASON,
PEEK, R CE, SWAGERT, WHITE, WOLF

Bachelor of Arts Degree in Political Science

This program 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, and Sociology and the Women's Studies Program. At least 15 hours in political science must be in upper division courses. The following courses are required: POS 101, 110 (or 310), 150 (or 160), 301

Students who major in Political Science must have a minimum GPA of 2.00 for all courses that count toward the major. Upper division courses that count toward the major must have "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 104.

No more than six hours of POS 484 Internship may be applied to the major.

Latin American Studies Combined Degree Program.

See "Latin American Studies," page 110. This program consists of the B.A. requirements for a major 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 required. A reading knowl-

edge 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 in Political Science. Latin American studies emphasis.

Asian Studies Emphasis. See "Asian Studies," page 109. This program 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 is recognized by a B.A. degree in Political Science. Asian studies emphasis.

Bachelor of Science Degree in Political Science

The program 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, and Sociology, and the Women's Studies Program. At least 21 hours in political science must be in upper division courses. The following courses are required: POS 101, 110 (or 310), 150 (or 160), 301, 401

Students who major in Political Science must have a minimum GPA of 2.00 for all courses that count toward the major. Upper division courses that count toward the major must have "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 104.

No more than six hours of POS 484 Internship may be applied to the major.

Minor in Political Science

The minor 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 POS 484 Internship and three hours of POS 499 Independent Study may be applied to the minor.

Students who minor in Political Science must have a minimum GPA of 2.00 for all courses that count toward the minor. Upper division courses that count toward the minor must have "C" grades or better; no more than one "D" in a lower division course may be counted toward the minor.

Bachelor of Arts in Education Degree in Secondary Education

Political Science. The major teaching field consists of 45 semester hours, 30 of which must be in political science and 15 in closely related fields. The following six courses are required: POS 101, 110 (or 310), 150 (or 160), 301, 417, 480.

Students who pursue this academic specialization in political science must have a minimum GPA of 2.00 for all courses that count toward the major. Upper division courses that count toward the major must have "C" grades or better; no more than one "D" grade in a lower-division course may be counted in the academic specialization.

No more than six hours of POS 484 Internship may be applied to the major.

Political Science. The minor teaching field consists of 24 semester hours in political science courses. The following six courses are required: POS 110 (or 310), 150 (or 160), 301, 417, 480; one from among 440, 441, 442, 443, 445, 446.

Students who pursue this academic specialization in Political Science must have a minimum GPA of 2.00 for all courses that count toward the academic specialization. Upper division courses that count toward the academic specialization must have "C" grades or better; no more than one "D" grade in a lower division course may be counted in the minor.

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., Marx'sm, 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, including origins, strengths and weaknesses of

contemporary political systems and 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, classifications and functions of law. The role of the courts and the impact of judicial decisions on making social change [Satisfies General Studies Requirement SB]

240 Introduction to Southeast Asia. (3) F

An interdisciplinary introduction to the cultures, regions, political systems, geography, and history of Southeast Asia. Cross-listed as ASB GCU HIS REL 240 [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 or 417. Meets the Arizona constitution requirement for teacher certification. May not be counted for the major or a teaching major or minor in Political Science [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 decision making process and 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 United States. [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 as affected by the various roles of legislators, executives 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)

Format of expression, and influence of individual and organized opinion on political institutions. [Satisfies General Studies Requirement SB]

186 POLITICAL SCIENCE

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, legislatures, 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 revolutionary development 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. Technological communication. 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, decisions 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 constitutional frameworks. Meets the Arizona Constitution requirement for teacher certification.

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]

423 Politics of Budgeting. 3 N

The policy process in budgeting, strategies used to influence this process and recent reforms in public budgeting. [Satisfies 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. [Satisfies 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. [Satisfies 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. [Satisfies General Studies Requirement: SB]

439 Minority Group Politics in America. (3) N

Role of minority groups in American politics. [Satisfies General Studies Requirement: SB]

440 History of Political Philosophy I. (3) A

Western political philosophers and their theories to the 17th century. [Satisfies 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. [Satisfies General Studies Requirements: HU, H]

442 American Political Thought. (3) A

Political theories and movements from the colonial period to the present. [Satisfies General Studies Requirements: HU, H]

443 Topics in Contemporary Political Theory. (3) A

Major problems and theories in contemporary political thought. [Satisfies 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. [Satisfies 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. [Satisfies 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. [Satisfies 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. [Satisfies 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. [Satisfies General Studies Requirements: SB, G]

453 South America. 3 A

Governmental institutions, political processes, and developmental problems of the South American states. [Satisfies General Studies Requirements: SB, G]

454 Mexico. (3) A

Mexican federal state and local governmental institutions. [Satisfies 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 [Satisfies General Studies Requirements SB, G]
- 456 Comparative Legislative Processes.** (3) A
Lawmaking process followed in selected representative bodies; composition of membership organization, and powers, impact of internal and external forces on legislation [Satisfies General Studies Requirement. SB]
- 458 Southeast Asia.** (3) A
Political background governmental institutions political dynamics and developmental problems of Southeast Asian nations [Satisfies General Studies Requirements SB, G]
- 459 Sub-Saharan Africa.** (3) N
Governmental institutions and processes of politics south of the Sahara [Satisfies 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 and international systems [Satisfies 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 [Satisfies 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 [Satisfies 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 United States [Satisfies 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 [Satisfies 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. [Satisfies 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. [Satisfies 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 [Satisfies General Studies Requirement SB]
- 471 Constitutional Law I.** (3) A
Development of the U.S. Constitution as reflected in decisions of the Supreme Court jurisdiction and organization of the federal courts, judicial review; separation of powers federalism; the commerce clause national taxation and spending power state police power [Satisfies 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 laws individual rights, civil 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
- 484 Internship.** (1-12) A
[Satisfies General Studies Requirement: SB]
- 485 Political Economy.** (3) A
Problems policies, and possibilities of various political-economic systems and the interrelationship of capitalism socialism 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 equity, ecology, and peace. [Satisfies General Studies Requirements SB, G]
- 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 the 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 statistical 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.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered

Psychology

REGENTS' PROFESSORS:

CIALDIN, MEYERSON

PROFESSORS:

BRAUN (PSY B237C), A KEN, BARRERA
BERNAL, BRAVER, CHASS N, E SENBERG
HAYGOOD, HOMA, JONES, KAROLY
KENR CK, KILLEEN, LANYON, LINDER
OKUN, PARK NSON RE CH RUSSO
SANDLER, SOMERV LLE, UTTAL VESTRE
WEST, ZAUTRA

ASSOCIATE PROFESSORS:

CHART ER FEHR, GLANZMAN, KNIGHT,
LESHOWITZ, LEVINE, PRESSON ROSSI,
SADALLA, WOLCHIK

ASSISTANT PROFESSORS:

CASTENEDA FABR CIUS MacKINNON,
NAGOSHI, NE SEWANDER, NEMEROFF
NEUBERG SAENZ, STONE, VANORDEN

PROFESSORS EMERITI:

BARDR CK GURNEE

The Department of Psychology maintains an Undergraduate Advisement Office staffed by trained personnel. All Psychology majors are encouraged to meet with an undergraduate advisor once each semester to ask questions regarding 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 in Psychology

The program 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 as follows: 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); two additional psychology courses, excluding PGS 270. No more than a total of three hours in PGS 399 and 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 must be approved by an undergraduate advisor and include MAT 117 and MAT 119 (or higher), in addition to one course from among CSE 100, 181, and 183. See "Graduation Requirements," pages 104–107.

Bachelor of Science Degree in Psychology

The program 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 as follows: 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); two additional psychology courses excluding PGS 270. No more than a total of three hours in PGS 399 and 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 must be approved by an undergraduate advisor and include MAT 210; one life science lab course (BIO, MIC, or ZOL), one physical science lab course (AST, CHM, GLG, or PHY); and one course from among CSE 100, 181 and 183. Further, the science courses taken to satisfy the Bachelor of Science requirements cannot be used to meet the College of Liberal Arts and Sciences Natural Science Distribution requirements. See "Graduation Requirements," pages 104–107.

Minor in Psychology

The minor consists of 22 hours in psychology, including the following: 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. Students with an appropriate equivalent course may exclude PSY 230 from the requirements. All courses must be passed with a minimum grade of "C."

Bachelor of Arts in Education Degree in Secondary Education

The minor teaching field consists of 24 semester hours. See a departmental advisor.

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]

222 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]

244 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. Lecture, lab. Prerequisite: PGS 100.

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. Prerequisites: PGS 100, PSY 290. [Satisfies General Studies Requirement: SB]

331 Gender Role Development. (3) N

Theories and research in the development of sexual differentiation, concepts of femininity and masculinity, social roles and attitudes. Prerequisites: PGS 100; PSY 290. [Satisfies General Studies Requirement: SB]

341 Developmental Psychology. (3) F, S

Behavior development analyzed in terms of psychological principles. Current research in human development. Prerequisites: PGS 100, PSY 290. [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 psychological 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's assigned responsibility depending on qualifications. "Y" grade only. May be repeated for a total of 6 hours. Prerequisites: 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. Prerequisites: PGS 100; PSY 290.

427 Psychology of Aging. (3) N

Behavior, experience, and emotional phenomena associated with aging. Analysis of retained abilities and resources as well as losses and stresses. Prerequisites: PGS 100, 341. [Satisfies General Studies Requirement: SB]

430 Industrial Psychology. (3) F, S, SS

Organizations and management systems, motivation and work performance, human factors in systems design and evaluation, 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, and delinquency are covered, including cause, diagnosis, treatment, and prevention. Prerequisites: PGS 100 and one course from among PGS 315, 341, 350 or instructor approval. [Satisfies General Studies Requirement: SB]

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.

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 attitudinal, 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. Prerequisites: PGS 100; PSY 290. [Satisfies General Studies Requirement: SB]

468 Psychology and Law. (3) F, S

Theories, research, and practice in psychology as related to law, including criminal and domestic relations and professional issues. Lecture, discussion. Prerequisite: PGS 100.

190 PSYCHOLOGY

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

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered

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 (PSI) and lecture sections. Prerequisites: MAT 117, PGS 100. [Satisfies General Studies Requirement N2]

290 Research Methods. (4) F, S

Planning, execution, analysis, and reporting of experiments. Literature, procedures, and instruments in representative areas of psychological research. 3 hours lecture, 3 hours lab. Prerequisite: PSY 230. [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 hours lecture, 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 hours lecture, 3 hours lab. Prerequisite: PSY 325 or equivalent.

433 Human Psychophysiology. (3) S

Emphasis on human physiological behavior relationships. Topics include physiological changes associated with imagery, stress, attention, skill learning, young 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 or 324 or instructor approval

437 Human Factors. (3) F

Emphasis on human factors in high technology systems. Specific topics include systems development, systems analysis techniques, displays, and controls. Prerequisites: PSY 290 and upper division standing or instructor approval

470 Psychopharmacology. (3) F, S

Basis of drug action at physiological and behavioral levels. Psychological and medical applications and interactions of drugs used in the treatment of mental illness. Prerequisites: PSY 325; 1 semester each of biology and chemistry.

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 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 man-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 behavior 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 correlation 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/empirical treatment of the human organism as a processor of information including abstract 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 Piagetian 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 a truism. Prerequisite: PSY 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, and impression formation. Prerequisite: PSY 551 or instructor approval.

558 Interpersonal Processes. (3) N

One or more topics chosen from the following: empathy, modeling, vicarious processes, contagion, group phenomena, social communication, and behavior exchange. Prerequisites: PSY 550 and 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 psychological, social, physiological, 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, 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) S

Community systems intervention techniques, consultation models, history and current status of community mental health movement and 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 consultation 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.

624 Clinical Neuroscience. (3) S

An examination of the biological underpinnings of psychological disorders at the molecular, cellular, and systems levels (schizophrenia, depression, anxiety, etc). Lecture, seminar. Prerequisites: graduate standing; instructor approval.

Omnibus Courses: See pages 50–51 for omnibus courses that may be offered.

Religious Studies

PROFESSORS:

FELDHAUS, WENTZ

ASSOCIATE PROFESSORS:

CADY (LL B605), FOARD, GEREBOFF
MARTIN, MORRISON

ASSISTANT PROFESSORS:

MOORE SWANSON, WOODWARD

Bachelor of Arts Degree in Religious Studies

The program consists of 45 semester hours, 30 of which must be in religious studies (including 21 upper division hours) and 15 of which must be 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 the following: REL 305; at least one course in religions from each of three distinct geographic regions or cultural traditions; two research seminars, including REL 405 which may be repeated for credit.

All majors must plan their programs in consultation with a departmental advisor. A minimum GPA of 2.50 is required in the 30 hours of religious studies courses. See "Foreign Language Requirement," page 104.

Minor in Religious Studies

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.

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, for those who wish to teach at the community college level, and for those in nonacademic careers who desire general competence in the academic study of religions. Consult the *Graduate Catalog* for requirements.

RELIGIOUS STUDIES

REL 100 Religions of the World. (3) F S

An introduction to the history of religious traditions of the world, including Buddhism, Christianity, Hinduism, Islam, Judaism and others. Not open to students who have completed REL 200. [Satisfies General Studies Requirements HU, G]

200 The Study of Religious Traditions. (3) A

A writing intensive course introducing analytical skills necessary for understanding religious traditions. Beliefs, practices, and communities of several religious traditions of the world. Not open to students who have completed REL 100. [Satisfies General Studies Requirements: L1, HU, G]

201 Religions and the Modern World. (3) A

An introduction to the nature and role of religious beliefs and practices in shaping the lives of individuals and societies with particular attention to the modern world. [Satisfies General Studies Requirements L1, HU]

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]

225 African-American Religion. (3) A

Introduction to the history and development of the African American religious tradition. Lecture/discussion.

240 Introduction to Southeast Asia. (3) F

An interdisciplinary introduction to the cultures, religions, political systems, geography, and history of Southeast Asia. Cross listed as ASB GCU H S POS 240. [Satisfies General Studies Requirement: G]

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]

305 Ritual, Symbol, and Myth. (3) A

Ritual, symbol, and myth as types of religious expression with examples selected from the nonterate religions of the world. [Satisfies General Studies Requirements: L2, HU, G]

310 Western Religious Traditions. (3) A

Religious traditions of Judaism, Christianity and Islam comparing the doctrines, 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

A 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: L2, HU]

331 History of Native American Religious Traditions. (3) N

The role of religion in Native American history, including missions and 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, folk 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 and societies. [Satisfies General Studies Requirements L2, HU, G, H]

365 Islamic Civilization. (3) A

An interdisciplinary survey of the art, history, and religion of Islamic civilization. Cross-listed as HIS 365. [Satisfies General Studies Requirements HU, 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, bioethical 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/or 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 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. REL 321 recommended. Prerequisite: REL 320. [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. 321 recommended. Prerequisite: REL 320. [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 Eery Channing, Horace Bushnell, and Reinhold Niebuhr. 321 recommended. Prerequisite: REL 320. [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 deities 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. 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 rituals. Prerequisites: REL 365 and 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 society. Prerequisites: REL 365 and Religious Studies major or instructor approval. [Satisfies General Studies Requirements: HU, G]

470 Religion in the Middle Ages. (3) A

Religious aspects of medieval and thought, variety of forms of dissent, heresy, and reform movements from the 4th to 13th centuries. [Satisfies General Studies Requirements HU, H]

471 Reformation and Modern Christianity. (3) A

Protestant Reformation to contemporary Christian movements, includes factors in the dissolution of the Medieval Christian synthesis, variety of reform movements and reformation patterns, Catholic counter-reform measures, formation of biblical theology, ecumenical movement, and the World Council of Churches. [Satisfies General Studies Requirements: HU, H]

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 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

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 Ethics
- i) Problems in Religious Studies

May be repeated for credit.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered

Sociology

PROFESSORS:

FARBER SS 321, GORDON LANER, SEBALD,
SNOW, WEITZ, WHITAM

ASSOCIATE PROFESSORS:

BENNETT COBAS, HARDERT KULS
MILLER MURGUAGA NAGASAWA SMITH
SULLIVAN THOMAS

ASSISTANT PROFESSORS:

CULLEN, ESPINOSA KEITH KIECOLT
MUELLER (ASU WEST), RIDDLE
VAUGHAN ASU WEST

LECTURERS:

MARQUEZ MAYO

PROFESSORS EMERITI:

AXELROD GULLOT HENZE HOULT,
LINDSTROM, MAYER PFUHL

Bachelor of Arts or Bachelor of Science Degree in Sociology

Departmental requirements are the same for the B.A. and 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 four of the following seven

areas: family, intergroup relations and social psychology, political/comparative historical, racial/ethnic relations, social problems and processes, stratification occupations organization, and urban sociology/demography. Details are available in the department office. One sociology course in racial/ethnic relations is required. At least 18 semester hours must be in upper division courses. See "Degree Requirements," page 104

Minor in Sociology

The minor in Sociology consists of 18 hours in sociology, including the following: SOC 101 (or 301, 391 or 483 or 485 or 486); four remaining courses to be chosen by the student in consultation with a sociology advisor.

Bachelor of Arts in Education Degree in Secondary Education

Sociology. The major teaching field 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.

Sociology. The minor teaching field consists of 24 semester hours, at least six of which are 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 four of the following seven areas: family, intergroup relations and social psychology, political/comparative historical, racial/ethnic relations, social problems and processes, stratification occupations organization, and urban sociology/demography. (details are available in the department office) One sociology course in racial/ethnic relations is required.

Emphasis in Public Safety

A public safety emphasis is available for law enforcement and fire fighting personnel in either the B.A. or B.S. degree in Sociology. The 30 hours must consist of the following: SOC 101, 340, 360, 390, 391, 440, 446, 449, 483 (or 485 or 486); 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 receive recognition by statement on the student's transcript.

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]

394 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]

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. 3 F, S, SS

Theories of population change, births, deaths, and migration population policies. Prerequisite: SOC 101 or 301. [Satisfies General Studies Requirements 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]

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 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 Requirements SB G H]

360 Sociological Psychology. 3 F S

Interact on patterns between the social structure 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 transsexualism, and other variations in sexual orientation and gender identity. Prerequisite: SOC 101 or 301 [Satisfies General Studies Requirement 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 investment 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) and 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) and 390 or instructor approval [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

Interaction of culture society, and religion religion and social stratification religion, 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

Marital 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 Requirement: SB]

196 SOCIOLOGY

442 Human Ecology. 3 F, S

Patterns and laws of societies adjustments to the physical environment distribution of communities and institutions. Prerequisites SOC 101 or 301 and 3 additional hours in Sociology and college algebra or instructor approval. [Satisfies General Studies Requirement: SB]

443 Demographic Methods. 3 S

Science of population analysis, problems in measurements of size composition and changes in population. Prerequisites: SOC 101 or 301, 333 college algebra [Satisfies General Studies Requirements: N2 SB]

440 Racial and Ethnic Minorities. 3 F S SS

Problems of minorities in the United States and in other racial and ethnic heterogeneous societies Evaluation of theories of prejudice and of research dealing with discrimination, desegregation, and assimilation Prerequisite: SOC 101 or 301 and 3 additional hours in Sociology and college algebra 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 and 340 or instructor approval [Satisfies General Studies Requirement: SB]

448 Social Aspects of Aging. (3 F S

Social aspects of aging Theoretical and methodological perspectives and problems of aging such as life satisfaction retirement and adjustment to role loss Prerequisite SOC 101 or 301 or instructor approval. [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 Requirements: L2 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 Requirement: SB]

454 Afro-American in Modern Society. 3 F, S SS

Social and cultural heritage of Black Americans achievements and current trends Lecture/discussion Prerequisite SOC 101 or 301 or 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 and the 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 health 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]

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 theoretical and ideological factors in theoretical 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. [A tentative Futures Satisfies General Studies Requirement: G]

501 Practicum in Survey Research. (3) F S

A research practicum in survey fieldwork 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 S

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

507 Social Statistics IIIA: Categorical Data Analysis. (3) F

Logistic and log-linear models through computer applications Social mobility dynamic analysis, and discriminate analysis may also be included Prerequisite: SOC 505 or instructor approval

508 Social Statistics IIIB: Structural Equation Analysis. 3 S

Structural equation models are taught using LISREL and other computer packages. Topics include multiple group analyses and ordinal endogenous variable models 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 and Mead Prerequisite: instructor approval.

586 Contemporary Sociological Theory. 3 S

Analysis of major theories, including structural-functiona, conflict, social exchange, symbolic interaction, and 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.

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 a limited number of major works with contrasting approaches to issues. Prerequisite: SOC 391 or instructor approval.

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.

Speech and Hearing Science

PROFESSORS:

LaPOINTE (LL A129A) CLUFF, DORMAN, MOWRER, WILCOX

ASSOCIATE PROFESSORS:

BACON CASE CHUBRICH

ASSISTANT PROFESSOR:

BROWN

FACULTY ASSOCIATES:

CONRAD HUEFFNER, JEANS MINTZ

CLINIC DIRECTOR:

FEUDO

PROFESSOR EMERITUS:

PRATHER

Bachelor of Science Degree in Speech and Hearing Science

The program 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 (Special Topics), 310, 311, 367, 375, 376, 384, 494 (Introduction to Speech and Language Disorders). Supporting courses from related fields must include the following or their equivalents: COM 100; ENG 213 (or ASB 480), 301; MAT 118; PGS 100; PSY 230. The remaining speech and hearing science courses to complete the major are determined by the student in consultation with an advisor. A list of approved electives is available through the department.

Graduate Programs

The Department of Speech and Hearing Science offers programs leading to the degrees and majors of Master of Natural Science with a concentration in communication disorders, Master of Science in Communication Disorders, and Doctor of Philosophy in Speech and Hearing Science. Consult the *Graduate Catalog* for requirements.

SPEECH AND HEARING SCIENCE

SHS 105 Introduction to Speech and Hearing Science. 3 F S

The normal 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.

310 Anatomical and Physiological Bases of Speech. 3 F

A non-cadaveric study of anatomical systems that underlie human speech and language, including respiration, phonation, articulation, and related nervous system processes. Prerequisite: SHS 105.

311 Physical and Physiological Bases of Hearing. 3 S

Physical characteristics of the sound, 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. Prerequisites: ASB 480 or ENG 213.

375 Speech Science. 3 S

Normal 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, including characteristics, management, and effects on communicators. Prerequisites: SHS 311, 376, 384.

400 Methods of Audiometry. 4 F

Techniques and instrumentation used in measuring auditory threshold and audiogram interpretation. 3 hours lectures, 2 hours lab. 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.

198 SPEECH AND HEARING SCIENCE

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. Prerequisite: SHS 311.

512 Medical Aspects of Speech and Hearing. (3) F, S

Correlation of history and physical findings with pathologic physiology 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 lab. Prerequisite: SHS 502 or 510.

531 Neurophysiology of Hearing. (3) N

The neurophysiological processes of hearing. Prerequisite: SHS 311.

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 in interaction.

574 Fluency Disorders and Treatment. (3) F

Phenomena, etiology, 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 neurolinguistic 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. 1 hour staffing and 2 hours of client 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

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered.



Women's Studies Program

PROFESSORS:

RUSSO SS104 Psychology MAGENTA Art
VALENTINE (Communication) EDELSKY
Curriculum and Instruction; SHAFER
(Educational Leadership and Policy Studies);
BATALLE LIGHTFOOT, NILSEN SHINN
(English), WELLS (Exercise Science and Physical
Education); AHERN Foreign Languages
GIFFIN WARNICKE (History) JOHNSON,
KELLY (Justice Studies); BERNSTEIN
CHASSIN EISENBURG Psychology
HACKETT Psychology in Education
COUDROGLOU Social Work GORDON
LANER WETZ Sociology

ASSOCIATE PROFESSORS:

BRANDT Anthropology; VALENTINE
(Communication), WILSON Curriculum and
Instruction; ADAMS, GUTERREZ SENSBAR
(English); BAKER, MARTIN Family Resources
and Human Development LOSSE, RODD
(Foreign Languages) FUCHS ROTHSCHILD
History FERRARO, JURIK, ZATZ Justice
Studies, COOK Management, WILLAMSON
(Music) KENNEY Nursing DANTCO Political
Science; METHA, MOORE Psychology in
Education), WOODMAN Social Work BENN,
MILLER SMITH (Sociology)

ASSISTANT PROFESSORS:

HULICK (Art); HORAN, MORGAN English;
DOUTHWAITE GRUZNSKA Foreign
Languages; STONER History;
SAENZ Psychology

LECTURERS:

HOPKINS SCHEINER Women's
Studies Program

PROFESSOR EMERITUS:

GREENE (English)

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 above for reference.

Bachelor of Arts or Bachelor of Science Degree in Women's Studies

The program consists of 45 semester hours, 30 of which must be in women's studies and 15 of which in a single discipline other than women's studies which constitutes 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 a women's studies advisor.

Required courses. Five courses are required. Students must complete the following:

1. WST 100 or 300,
2. WST 498;
3. an upper division course that provides a 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 or 370 or 371 or 422. The humanities perspective requirement may be fulfilled by completing ARA 485 or ENG 461 or 462 or 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 15 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.

Minor in Women's Studies

The Women's Studies minor consists of 18 semester hours. Required courses are WST 100 (or 300) and 498 and 12 additional hours of approved women's studies courses taken after consultation

with a women's studies advisor. Students pursuing a minor must register at least one semester before graduation.

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. Students pursuing a certificate must consult with a women's studies advisor. See pages 109-110 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.

Courses in Women's Studies

The following courses available through departments also count toward the 30 hours of courses in women's studies:

- ARA 485 Women's View of Art
- ARS 498 Women and Art in the Middle Ages and the Renaissance
- ARS 591 Women and Art in the Middle Ages and the Renaissance
- ASB 211 Women in Other Cultures
- CED 591 Woman Sense of Identity
- COM 316 Gender and Communication
- ENG 461 Women and Literature
- EPE 441 Physiology of Women in Sport
- 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, Law, and Social Control
- JUS 560 Women and Crime
- PGS 331 Gender Role Development
- REL 390 Women and Religion
- SOC 417 Family Violence
- SOC 464 Women's Roles
- SPF 515 Education of Women

Additional courses appear as Special Topics. These vary by semester. Check with the program office or the department for a current listing.

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 Requirement SB]

300 Women in Contemporary Society. 3) F S SS
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. Cross-listed as FAS 494 NUR 457 SPF 457. Prerequisite: 6 hours of social science credit or instructor approval. [Satisfies General Studies Requirements: SB, G]

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]

Omnibus Courses: See pages 50-51 for omnibus courses that may be offered. Check with the program office for a current listing.

Zoology

REGENTS' PROFESSOR:

ALCOCK

PROFESSORS:

COLLINS (LS C226), ALVARADO, CHANDLER, CHURCH, DOANE, FISHER, HADLEY, HAZEL, KAMMER, LAWSON, MARENSCHEIN, MARKOW, McGAUGHEY, MCKEY, OHMART, RASMUSSEN, RUTOWSKI, WALSBURG

ASSOCIATE PROFESSORS:

FAETH, FOUQUETTE, GOLDSTEIN, JUSTUS, MOORE, ROSSING, SATTERLIE, A. SMITH

ASSISTANT PROFESSORS:

CAPCO, DOWLING, ELSER, HARRISON, HILL, G. SMITH

PROFESSORS EMERITI:

BENDER, CAZIER, CLOTHIER, COLE, GERKING, HANSON, LANDERS, PATTERSON, WOOLF

Bachelor of Science Degree in Biology

The major in Biology is 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. The required major courses totaling 31 hours are as follows: BIO 181, 182, 320, 340;