This catalog is designed primarily to describe the undergraduate programs, courses of instruction, and academic regulations of the University of New Mexico.

The provisions of this catalog are not to be regarded as an irrevocable contract between the student and the University. The University reserves the right to change any provisions or requirements at any time within the student's term of residence.

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If, after reading this catalog, you require any additional information, please write to the Dean of Admissions and Records, The University of New Mexico, Albuquerque, New Mexico 87131, or telephone Admissions Office, Area Code 505, 277-2446.
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The post office address of The University of New Mexico is Albuquerque, New Mexico 87131. Requests for specific information should be directed as follows:

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APPLICATIONS FOR ADMISSION TO FIELD SESSIONS ........ Dean of Admissions

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University office hours are, in general, 8:00 to 12:00 and 1:00 to 5:00 Monday through Friday. The Information desk of the Office of Admissions and Records, Room 102, Scholes Hall (Administration Building) is also open 12:00 to 1:00 Monday through Friday and 8:00 to 12:00 most Saturdays. Office hours of the University Cashier are 8:30 to 11:45 and 1:00 to 4:00 Monday through Friday. Administrative offices are open during most of the days of the official student recess periods.
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1975 SUMMER SESSION

LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS AND CREDENTIALS OR APPOINTMENT REQUEST FOR ASSURANCE OF JUNE 7 REGISTRATION .................................................. May 31, Sat. Noon
New Student Orientation ................................................. June 6, Fri.
Advisement and Registration ........................................... June 7, Sat.
Instruction begins; Late Registration Fee applies .................. June 9, Mon.
Late Registration closes; last day for additions to programs .... June 13, Fri., 5 p.m.
End of Second Week; $5 Change of Program Fee applies; last day for withdrawal from course without grade; last day for change in grading option ........................................... June 20, Fri., 5 p.m.
Independence Day, holiday .................................................. July 4, Fri.
End of Sixth Week; last day for withdrawal from course without college or school approval .................. July 18, Fri., 5 p.m.
Session ends ...................................................................... Aug. 1, Fri., 10 p.m.

1975 ANTHROPOLOGY FIELD SESSION
Registration ........................................................................ June 7, Sat.
Field Session ends ................................................................ July 25, Fri.

1975 SUMMER SESSION—QUITO, ECUADOR
Registration ........................................................................ June 9
Session ends ...................................................................... Aug. 1, Fri.

1975 SUMMER SESSION—MADRID, SPAIN
Registration ........................................................................ June 16, Mon.
Session ends ...................................................................... July 24, Thurs.

1975 SUMMER SESSION—GUADALAJARA, MEXICO
Registration ........................................................................ June 23, Mon.
Session ends ...................................................................... July 31, Thurs.

DEADLINE FOR RECEIPT OF ADMISSION APPLICATIONS AND CREDENTIALS FOR FALL SEMESTER .................. Aug. 1
Note: It may become necessary to close admissions at an earlier date if numbers of students admitted reach the maximum that can be accommodated.

1975 FALL SEMESTER
New Student Orientation Period .......................................... Aug. 20, Wed.-Aug. 21, Thurs.
Walk-through Registration .................................................. Aug. 22, Fri.
Instruction begins; Late Registration Fee applies ................. Aug. 25, Mon.
Late Registration closes ...................................................... Aug. 29, Fri., 5 p.m.
Labor Day, holiday .............................................................. Sept. 1, Mon.
End of Second Week; last day for additions to program of registered students ...................................... Sept. 5, Fri., 5 p.m.
End of Fourth Week; $5 Change of Program Fee applies; last day for withdrawal from course without grade; last day for change in grading option ........................................... Sept. 19, Fri., 5 p.m.
Midsemester ....................................................................... Oct. 17, Fri.
Homecoming, holiday .......................................................... Oct. 18, Sat.
End of Twelfth Week; last day for withdrawal from course without college of school approval ........ Nov. 14, Fri., 5 p.m.
Thanksgiving Recess begins ................................................ Nov. 26, Wed., 10 p.m.
Classes resume ................................................................. Dec. 1, Mon., 7:30 a.m.
**ACADEMIC CALENDAR** 5

*Closed Period: ........................................ Dec. 8, Mon.-Dec. 20, Sat.
*Pre-examination Week .................................. Dec. 8, Mon.-Dec. 14, Sun.
*Semester Final Examinations .......................... Dec. 15, Mon.-Dec. 20, Sat.

Semester ends; last day for removal of Incomplete grade (5 p.m.);
Winter Recess begins .................................. Dec. 20, Sat., 10 p.m.

**DEADLINE FOR RECEIPT OF ADMISSION APPLICATIONS**
**AND CREDENTIALS FOR SPRING SEMESTER** .................. Jan. 1

Note: It may become necessary to close admissions at an earlier date if numbers of students admitted reach the maximum that can be accommodated.

1976 SPRING SEMESTER

Walk-through Registration ............................ Jan. 16, Fri.
Instruction begins; Late Registration Fee applies .......... Jan. 19, Mon.
Late Registration closes ............................... Jan. 23, Fri., 5 p.m.

End of Second Week; last day for additions to programs of registered students .......... Jan. 30, Fri., 5 p.m.
End of Fourth Week; $5 Change of Program Fee applies;
last day for withdrawal from course without grade;
last day for change in grading option .................. Feb. 13, Fri., 5 p.m.
Midsemester ............................................. Mar. 12, Fri.
Spring Recess begins .................................. Mar. 13, Sat., 10 p.m.
Classes resume ......................................... Mar. 22, Mon., 7:30 a.m.
Honors Assembly ........................................ To be arranged

End of Twelfth Week; last day for withdrawal from course without college or school approval .......... Apr. 16, Fri., 5 p.m.
*Closed Period: ....................................... May 3, Mon.-May 15, Sat.
*Pre-examination Week .................................. May 3, Mon.-May 9, Sun.
*Semester Final Examinations ........................ May 10, Mon.-May 15, Sat.

Semester ends; last day for removal of Incomplete grade (5 p.m.);
Commencement .......................................... May 16, Sun., 7:30 p.m.

1976-77 ACADEMIC CALENDAR

1976 SUMMER SESSION

**LAST DAY FOR RECEIPT OF UNDERGRADUATE APPLICATIONS**
**AND CREDENTIALS OR APPOINTMENT REQUESTS**
**FOR ASSURANCE OF JUNE 5 REGISTRATION** .................. May 29, Sat. Noon

New Student Orientation ............................... June 4, Fri.
Advisement and Registration .......................... June 5, Sat.
Instruction begins; Late Registration Fee applies .......... June 7, Mon.
Late Registration closes, last day for additions to programs of registered students .......... June 11, Fri., 5 p.m.

End of Second Week; $5 Change of Program Fee applies;
last day for withdrawal from course without grade;
last day for change in grading option .................. June 18, Fri., 5 p.m.
Independence Day, holiday ............................. July 5, Mon.
End of Sixth Week; last day for withdrawal from course without college or school approval .......... July 16, Fri., 5 p.m.
Session ends .......................................... July 30, Fri., 10 p.m.

*Pre-examination Week and Semester Final Examination Week are closed to extracurricular and social campus activities.*
1976 ANTHROPOLOGY FIELD SESSION
Registration ................................................. June 5
Field Session ends ............................................ July 23

1976 SUMMER SESSION—MADRID, SPAIN
Registration .................................................. June 21
Session ends .................................................. July 30

1976 SUMMER SESSION—GUADALAJARA, MEXICO
Registration .................................................. June 21
Session ends .................................................. July 30

DEADLINE FOR RECEIPT OF ADMISSION APPLICATIONS
AND CREDENTIALS FOR FALL SEMESTER ................. July 18
Note: It may become necessary to close admissions at an earlier date if
numbers of students admitted reach the maximum that can be
accommodated.

1976 FALL SEMESTER
Walk-through Registration ................................. Aug. 20, Fri.
Instruction begins; Late Registration Fee applies .... Aug. 23, Mon.
Late Registration Closes ................................. Aug. 27, Fri., 5 p.m.
Labor Day, holiday ......................................... Sept. 6, Mon.
End of Second Week; last day for additions to programs
of registered students .................................. Sept. 3, Fri., 5 p.m.
End of Fourth Week; $5 Change of Program Fee applies;
last day for withdrawal from course without grade;
last day for change in grading option ................. Sept. 17, Fri., 5 p.m.
Midsemester .................................................. Oct. 15, Fri.
Homecoming, holiday ...................................... Oct. 18, Sat.
End of Twelfth Week; last day for withdrawal from
course without college or school approval ........... Nov. 12, Fri., 5 p.m.
Thanksgiving Recess begins ............................... Nov. 24, Wed., 10 p.m.
Classes resume .............................................. Nov. 29, Mon., 7:30 a.m.
*Closed Period: .................................................. Dec. 6, Mon.-Dec. 18, Sat.
*Pre-examination Week ................................. Dec. 6, Mon.-Dec. 12, Sun.
*Semester Final Examinations ............................ Dec. 13, Mon.-Dec. 18, Sat.
Semester ends; last day for removal of incomplete grade (5 p.m.);
Winter Recess begins ................................... Dec. 18, Sat., 10 p.m.
DEADLINE FOR RECEIPT OF ADMISSION APPLICATIONS
AND CREDENTIALS FOR SPRING SEMESTER ............. Dec. 12
Note: It may become necessary to close admissions at an earlier date if
numbers of students admitted reach the maximum that can be
accommodated.

1977 SPRING SEMESTER
Walk-through Registration ................................. Jan. 14, Fri.
Instruction begins; Late Registration Fee applies .... Jan. 17, Mon.
Late Registration closes ................................. Jan. 21, Fri., 5 p.m.
End of Second Week; last day for additions to programs
of registered students ................................ Jan. 28, Fri., 5 p.m.
End of Fourth Week; $5 Change of Program Fee applies;
last day for withdrawal from course without grade;
last day for change in grading option ................. Feb. 11, Fri., 5 p.m.
Midsemester .................................................. Mar. 11, Fri.

*Pre-examination Week and Semester Final Examination Week are closed to extracurricular
and social campus activities.
Spring Recess begins .......................... Mar. 12, Sat., 10 p.m.
Classes resume .................................. Mar. 21, Mon., 7:30 a.m.
Honors Assembly ................................. To be arranged
End of Twelfth Week; last day for withdrawal from course
without college or school approval ............... Apr. 16, Fri. 5 p.m.
*Closed Period: .................................. May 2, Mon.-May 14, Sat.
*Pre-examination Week .......................... May 2, Mon.-May 8, Sun.
*Semester Final Examinations .................. May 9, Mon.-May 14, Sat.
Semester ends; last day for removal of incomplete grade (5 p.m.):
Summer Recess Begins .......................... May 14, Sat., 10 p.m.
Commencement ................................... May 15, Sun., 7:30 p.m.

*Pre-examination Week and Semester Final Examination Week are closed to extracurricular and social campus activities.
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a Retired January 1, 1975.
b Appointment effective January 1, 1975.
c Retired September 1, 1974.
d Appointment effective September 1, 1974.
12  ADMINISTRATIVE OFFICERS, 1974-75

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STEPHEN R. BROGDEN, M.L.S. .................................................. Director, Harwood Foundation
VERLE T. SIMPKINS ............................................................... Director, Civil Defense University Extension Program
JOHN W. BENTON, M.A. ............................................................. Director, Civil Defense Education Program

INSTITUTE FOR SOCIAL RESEARCH AND DEVELOPMENT

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LEE BERKEY ZINK, Ph.D. ............................................................ Acting Director, Bureau of Business Research
ROBERT S. LANDMANN, M.A. ...................................................... Associate Director
EDWIN H. CAPLAN, Ph.D. .......................................................... Director, Bureau of Revenue Training Program
RICHARD ALAN ANDERSON, Ph.D. ............................................. Director, Center for Environmental Research and Development
LUCIEN E. ROBERTS, M.A. .......................................................... Director, Center for Human Resources Development
ELMER ARTHUR SCHOLER, Ph.D. .............................................. Director, Center for Leisure and Recreation
DAN D. CHAVEZ, Ph.D. .............................................................. Director, College Enrichment Program

THEODORE BARTELL, Ph.D. .......................... Director, Criminal Justice Program
ROBERT U. ANDERSON, B.A. ........................ Acting Director, Division of Government Research
JUAN CANDELAARIA, B.A. .......................... Director, Special Services Program
WILLIAM A. SHINNICK, M.S. ........................ Director, Technology Application Center
BARBARA BROWE, M.A. .......................... Director, Gerontology Center
PEGGY BLACKWELL, Ph.D. .......................... Director, M.A.G.E. Project
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DAVID T. BENEDETTI, Ph.D. ........................ Associate Dean
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ROY LINTON JOHNSON, JR., Ph.D. ........................ Assistant Dean
JOHN THOMAS ZEPPER, Ed.D. ........................ Assistant Dean
RICHARD CRENSHAW ALLEN, JR., Ph.D. ........ Director, Los Alamos Graduate Center

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GERALD M. SLAVIN, Ph.D. ........................ Director

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JOHN S. BAKAS, M.A. .......................... Assistant Dean of Admissions
WILLIAM L. WALTER, B.A. ........................ Assistant Dean of Admissions
FRED M. CHREIST, JR., M.B.A. ........................ Registrar
HELEN G. JACKSON, B.A. ........................ Assistant Registrar
EURAL MITCHELL, B.A. ........................ Assistant Registrar

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CHICANO STUDENT SERVICES
JOSE’ANTONIO MONDRAGON, M.A. Equivalent for Admin. .................. Coordinator

COUNSELING CENTER
SVEN F. WINHER, Ed.D. ........................ Director

INTERNATIONAL SERVICES
GERALD M. SLAVIN, Ph.D. ........................ Director
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**BETTY G. NEHER** ............................................................ Assistant Director  

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**BERRY DEAN COX, M.A.** ................................................... Director of Police and Parking Services  

**POPEJOY HALL**  
**WILLIAM J. MARTIN, M.F.A.** ............................................ Director  
**WALTER GEORG SCHREIBER, M.F.A.** .................................. Technical Director  

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**CHARLES JACK SHEEHAN, M.A.** ............................................ Director  
**VIRGINIA M. EDGAR, M.A.** ................................................ Associate Director  
**GEORGE SANDOVAL, B.A.** .................................................. Assistant Director  
**JOHN E. WHITESIDE, M.A.** ................................................ Assistant Director  

### STUDENT HEALTH CENTER

**MICHEEL A. HICKEY, M.D.** ................................................ Director  
**JACK M. McCABE, M.D.** ..................................................... Associate Director  
**JOSEPH S. BERES, M.D.** .................................................... Assistant Director  
**CLAUDE H. B. BROWN, M.P.H.** ......................................... University Physician  
**OLGA M. EATON, M.D.** ..................................................... University Physician  
**JOSEPH A. HADDON, M.D.** ................................................ University Physician  
**EFFIE E. G. MEDFORD, M.D.** ............................................. University Physician  

### STUDENT PERSONNEL

**KAREN M. GLASER, M.S.Ed.** .............................................. Dean of Students  
**CHARLES PAUL ROBERTS, M.S.** ......................................... Associate Dean of Students  
**KAREN ABRAHAM, Ed.D.** .................................................. Associate Dean of Students (Student Activities)  
**RUDOLFO N. GALLEGOS, B.A.** ............................................ Assistant Dean of Students  
**M. OLGA GANDARA, M.A.** ................................................ Assistant Dean of Students  
**ANTHONY A. OLIVER, M.A.** ................................................ Assistant Dean of Students  
**LINDA ELLEN FRIEDMAN, M.A.** .......................................... Assistant Dean of Students (Housing)  
**JANET M. WALKER, M.A.** .................................................. Assistant Dean of Students (Housing)  

### WOMEN'S COORDINATING CENTER

**VERONICA JEAN FRAKES, B.A.** ............................................ Coordinator
GENERAL INFORMATION

GOALS OF THE UNIVERSITY

THE UNIVERSITY of New Mexico has as its primary responsibility the task of serving the citizens of the State of New Mexico by offering the opportunity of a well-rounded education at the higher level. The ultimate goal of college or university education is to equip the maximum number of citizens with the understanding and wisdom which will aid them in becoming useful and responsible members of a democratic society. The University also recognizes its duty to supply other services which foster the culture and welfare of the people.

GENERAL EDUCATION

PERSONAL DEVELOPMENT. There are skills, intellectual abilities, and standards of behavior which are essential to the educational and moral progress of every individual. Therefore, the University recognizes its responsibility to help each student toward the highest possible personal development through the attainment and maintenance of skills of communication, skills of reasoning and critical thinking, good habits of study and of independent investigation, and sound standards of behavior in matters of health and social responsibility.

LIBERAL EDUCATION. The University proposes also to bring the student to an awareness of current problems and a desire to aid their solution, and above all, to give him the enlarged perspective that comes through an understanding of the social, scientific, artistic, literary, religious, and philosophical traditions—the cultural heritage of mankind.

SPECIAL AND PROFESSIONAL EDUCATION

It is a further purpose of the University to provide opportunities for training in scholarly and technical fields. To serve the needs of the State and the welfare of its people, the University offers a variety of curricula for those students who desire and are capable of professional attainment. Training in the professions is intended to supplement the general education of the student and to equip him for a career.

SCHOLARSHIP AND RESEARCH

A prime responsibility of the University is to make its contribution to the total body of knowledge through original investigation. A special obligation to give due concern to the problems of the State and region is also recognized. To these ends the University encourages its students and faculty to engage in research, scholarship, and creative activity by providing suitable facilities in an atmosphere conducive to achievement.

The findings of research are made available to the public through various bureaus, a program of publications, and technical advisory services.

ADULT EDUCATION AND CULTURAL PROGRAMS

In order to extend its services to those not regularly enrolled as full-time students, the University offers extension, independent study, and evening courses. In addition, by sponsoring exhibits, lectures, forums, and concerts on its campus and through the media of radio and television, the University seeks to make significant contributions to the cultural life of the State.
ACCREDITATION


THE ENVIRONMENT

The University of New Mexico was created by an act of the Territorial Legislature in 1889. Since that time the 20 acres comprising the original campus have become more than six hundred; buildings have increased from a single structure to 120. Although situated in the center of metropolitan Albuquerque, the University has remained in touch with its roots in the cultural multiplicity of the State. The distinctive architectural style, contemporary in treatment but with strong influence from the Spanish and Pueblo Indian cultures, is characterized by protruding vigas, patios, balconies, portals, and earth-color walls slightly inclined to recall ancient adobe houses. Surrounded by giant cottonwood trees, elms and mountain evergreens, the campus embodies the life style fostered by the mild, sunny climate.

University administrators have for many years realized that the situation of the University of New Mexico provides it with a wealth of source material in the historical background of the nation, and that its proximity to the Indian, Spanish-American, and Mexican cultures makes it a natural place for the study and appreciation of those cultures. They have, therefore, encouraged the development of Southwestern and Latin American studies and research. Some of the results of this emphasis have been the offering of a major in Latin American Studies, the annual field session in Anthropology, and the various paintings, carvings, and weaving to be found throughout the campus buildings.

LIBRARIES

More than 800,000 volumes make up the University’s holdings in all libraries. The collection is expected to exceed one million volumes within the next few years as a result of a 1972 New Mexico bond issue series which made $10,000,000 available for library material purchases for all of the state’s public colleges and universities.

Zimmerman Library, home of the general library collection, is located at the north end of Smith Plaza in the heart of the Central Campus. The building frequently has been cited as the best example of the modified Pueblo-style of Southwestern architecture unique to the University.

A number of special collections of New Mexico and Southwestern materials
are housed in Zimmerman Library. The handsome Clinton P. Anderson Room contains a notable collection of Western Americana, much of which came from Senator Anderson's private collection.

The Fine Arts Library is located in the Fine Arts Center and encompasses materials for architecture, art, drama, and music, including large numbers of slides, tapes, and scores in addition to books.

A working collection of materials pertaining to the study of business makes up the William J. Parish Memorial Library on the ground floor of the Business and Administrative Sciences Building.

The Schools of Law and Medicine each have their own libraries on the North Campus.

MUSEUMS

Museums are as much a part of the teaching-learning process as classrooms. Anthropology, art, biology, and geology all are represented in specialized museums on campus.

The Maxwell Museum of Anthropology, at the south end of the Anthropology Building, houses both permanent and short-term exhibits on all aspects of the story of mankind. It is open to the public as well as to students and faculty.

The University Art Museum houses the University's permanent collection of art works and is the scene of several noteworthy special exhibitions each year. The Museum also exhibits the work of faculty and students of the Department of Art. It is open to the public on a regular basis.

The most important single source of New Mexico vertebrates and plants is contained in the Museum of Southwestern Biology maintained by the Department of Biology. It also contains the J. Stokely Ligon bird collection and the George B. Wilmott collection of amphibians. Housed in the Biology Building, it is primarily a research museum and its use is limited to University faculty and students and other serious students of Southwestern field biology.

Minerals, rocks, fossils, and map displays are among the articles featured in the Geology Museum in the Geology building. The Museum is the site of a visual seismic recorder connected to a seismograph at the U.S. Coast and Geodetic Survey's Albuquerque Seismic Center in the Manzano Mountains southeast of Albuquerque. The Albuquerque Gem and Mineral Club also maintains rotating exhibits of specimens, including gems and precious stones, at the museum. The Geology Museum is open to the public.

The Institute of Meteoritics is a division within the Department of Geology and maintains on display a large collection of meteorites, including the world's largest known stone meteorite recovered in N orthon County, Nebraska, in 1948.

POPEJOY HALL

The 2,000-seat Popejoy Hall, in the Fine Arts Center, is recognized as one of the finest cultural facilities in the Southwest. It is designed and acoustically equipped to accommodate virtually every type of live performance, from Broadway touring theater to symphony concerts, ballets, lectures and convocations. Its offerings draw thousands of persons each year. It is primarily an educational and cultural resource of the University and in its scheduling assigns first priority to programs of the University departments and agencies.
HARWOOD FOUNDATION

The University of New Mexico maintains in Taos the Harwood Foundation which serves as a museum, library, and community center. The Foundation has an excellent collection of paintings by artists who have lived and worked in New Mexico.

JONSON GALLERY

Open to the public daily from noon to 6 p.m., the Jonson Gallery at 1909 Las Lomas Rd. NE features monthly one-man or group shows by New Mexico artists, with emphasis on contemporary painting.

ISRAD (INSTITUTE OF SOCIAL RESEARCH AND DEVELOPMENT)

ISRAD was established in 1968 to analyze current problems and to give expert assistance to community leaders, government officials, businessmen, industrial executives, minority and disadvantaged groups, and private organizations. The Institute is a major part of the University's commitment to aid and promote the social and economic development of New Mexico, the Southwest, and the nation. The Institute functions through a series of operating agencies which provide three distinct, but interrelated, kinds of services.

The Bureau of Business Research primarily gathers, analyzes and interprets data concerning the economic life of the state. Results of studies made by the Bureau are presented to the public through Bureau publications, the press, radio and television. The Bureau of Revenue Training Program also directly serves the state through its training programs, offered jointly with the UNM School of Business and Administrative Sciences, for employees of the New Mexico State Bureau of Revenue. The Technology Application Center specializes in information dissemination of a problem-solving nature. Both small and large firms in the state are served by its programs to communicate to private industry newly developed product ideas, technical information, and other new technology.

Covering a wide range of social and environmental concerns particular to the state are the Center for Environmental Research and Development, the Center for Leisure and Recreation, the Division of Government Research, and The Criminal Justice Program. The activities of these agencies include providing technical assistance and consulting services to community and governmental agencies working with urban and rural environmental planning problems, recreational development, intergovernmental relations, and the causes and consequences of crime in the community.

The College Enrichment Program aids graduating seniors from low-income backgrounds who have the potential for college success but who need motivation, financial aid, and tutoring and counseling services. Also concerned with providing tutoring services to undergraduate students from disadvantaged backgrounds, The Special Services Program attempts to increase the rate at which students are retained at the University by helping them deal with the institutional and personal pressures that lead to dropping out. Finally, the Center for Human Resources Development operates two programs, New Careers and the Home Improvement Project, designed to provide specific, job-oriented training to people recruited from low income areas.
ADMISSION AND REGISTRATION

Admissions Office in Scholes Hall. Robert M. Weaver, Dean of Admissions and Records. All correspondence about undergraduate admissions should be addressed to the Office of Admissions, University of New Mexico, Albuquerque, New Mexico 87131.

Non-Discrimination Policy

All applicants are considered equally regardless of sex, race, color, national origin, marital status, age or beliefs.

Application Deadlines

Deadlines for receipt of applications and all required credentials for the fall and spring semesters are 30 days in advance of the published registration date. A number of specialized programs with limited enrollments require applicants to have met all admission requirements considerably earlier than the all University deadline. Applicants for such programs should see appropriate sections of the catalog for possible early deadlines.

Students are accepted for admission to the undergraduate colleges of the University for the fall, spring, and summer sessions, except for Architecture and most programs in the allied health sciences.

American College Tests (ACT)

ACT results, required for advisement and placement purposes, must be filed by freshmen applicants, including transfers with fewer than 26 semester hours of transferable credit. Other national tests may not be substituted for this requirement. The University recommends that the ACT be taken on a summer or fall testing date following the junior year in high school. It is the student’s responsibility to arrange for scores to reach the Admissions Office directly from ACT. Scores on transcripts or student copies do not fulfill University requirements.

Beginning Freshmen

Requirements for Admission

The student must be a graduate of a high school accredited by a regional accrediting association or the State Department of Education or State University of the State in which it is located. Graduates of unaccredited high schools who meet admission requirements in all respects except high school accreditation may validate the unaccredited work by qualifying scores on the American College Test.

The minimum qualitative requirement for admission is a grade average of C (2.0 on a 4.0 system) in previous academic work.

A fixed pattern of subject matter is not prescribed, (See "Announcement next page") but the student is urged to include preparation in a substantial number of the college preparatory courses available in high school or preparatory school. It is strongly recommended that the student planning to study in the areas listed below have completed the indicated high school courses as background for college studies in order to complete the prescribed curriculum without a loss of time:
Engineering or Architecture. Two years of algebra, one year of plane geometry, and one-half year of trigonometry or college preparatory mathematics.

Mathematics and Statistics. Two years of algebra and one year of geometry. More advanced courses, particularly trigonometry, are desirable for students planning to take calculus.

Pharmacy. One year of chemistry, one year of biology, one year of physics, at least two years of algebra and one year of geometry and trigonometry, four years of English and one year of social sciences and/or humanities.

Nursing. Two years of college preparatory mathematics (algebra and geometry) and at least two years of laboratory science (biology, chemistry, or physics).

Dental Hygiene. Two years of high school science, preferably biology, chemistry, and a well-rounded variety of subject areas.

Pre-Medicine, Pre-Dentistry, Sciences, Business and Administrative Sciences. Intermediate algebra and plane geometry.

Latin American Studies. Two years of high school Spanish.

Professional Physical Education. College preparatory algebra, biology, chemistry, and physics.

ANNOUNCEMENT OF REVISED ADMISSION REQUIREMENTS:
Effective with the 1977 Fall semester, as evidence of adequate preparation for successful college work, it will be required that transcripts of freshman applicants show at least 13 units in specified subject matter areas. Of these 13 units, 11 units must be distributed as follows:

English—3 units
Social Studies—2 units (including 1 unit in U.S. History)
Natural Sciences—2 units, 1 unit of which must be in Biology, Chemistry or Physics
Students intending to study nursing are advised to have completed at least 1 unit in chemistry.
Mathematics—2 units (Algebra, Geometry, Trigonometry, or higher mathematics). The minimum 2-unit requirement may be satisfied with 2 units of algebra or 1 unit of algebra and 1 unit of geometry. A student intending to study mathematics, physics, engineering, or architecture, will find it necessary in order to complete his prescribed curriculum without loss of time, to have completed at least two units of algebra, one unit of geometry, and one-half unit of trigonometry or higher mathematics. Students planning to enter the fields of pharmacy, pre-medicine, pre-dentistry, nursing, biology, chemistry, geology, psychology, economics, political science, sociology, or business administration, are advised to include in their preparation at least two units of algebra and one unit of geometry.
Languages other than English—2 units of a single language

The remaining 2 units of the specified 13 must be chosen from the following list of restricted electives:
Group A—English, Journalism, Speech
Group B—French, Spanish, Latin, German, and other foreign languages
Group C—Algebra, Plane Geometry, Solid Geometry, Trigonometry, or higher mathematics
Group D—General Science, Biology, Chemistry, Physics, Physiology, Geology
Group E—History, Geography, Sociology, Economics, Government, Psychology, Social Science
Group F—Fine Arts (Music, Art, Drama)

DEFICIENCIES. Deficiencies in one or more of the four specified subject matter areas (English, Mathematics, Social Studies, Natural Sciences) may be satisfied by attainment of an ACT score of 20 or higher in that area or areas. All deficiencies may be satisfied by a composite ACT score of 22 or higher. Subject matter deficiencies cannot be satisfied in any other way.

SPECIAL ADMISSIONS. A limited number of students may be admitted to the University each year without regard to the specific subject matter requirements set forth above, upon review and approval by the Committee on Entrance and Credits.

HOW TO APPLY

ENROLL-ACT. This procedure is recommended and preferred because it eliminates a number of repetitious steps for the applicant. Admission is automatic if the applicant (1) will graduate from an accredited high school, (2) takes the ACT test on one of the national test dates as a senior in high school, (3) in taking the ACT requests scores to be sent to the University of New Mexico, and (4) earns a composite score of 22 or higher OR self-reports a bona fide high school grade-point of at least 2.0. (Admission on the basis of a self-reported 2.0 (C) high school grade-point average is conditional upon receipt of a final high school transcript reflecting an earned 2.0 grade-point average.)

Upon receipt of ACT test scores, students who qualify for admission according to the requirements described above will be sent a certificate of admission, a verification form, and additional directions. The verification form must be returned to the UNM Admissions Office in order to complete the Admission process. Students admitted under Enroll-ACT must also remit a $15.00 non-refundable application fee with the completed verification form. The only remaining requirement will be to arrange, following graduation, to have a final high school transcript including graduation date, sent to the Office of Admissions.

ADMISSION BY APPLICATION. Students who prefer to use the traditional application procedure may submit an application for admission and the $15.00 non-refundable application fee and arrange for official ACT scores and high school transcripts to be sent to the Office of Admissions.

When these items have been received, the Office of Admissions will send to the applicant notice of acceptance or denial. When the student applies early in his senior year, a notice of eligibility is issued as soon as processing is completed. This preliminary notice is firm for the student's planning purposes subject only to completion of his high school program. Final notifications of admission are accompanied by registration information.
WHEN TO APPLY
A student may apply by application or by Enroll-ACT any time prior to the
deadline for the semester he plans to enroll but it is recommended that he do so
early in the senior year. This is particularly important for applicants for financial
aid.

UNIVERSITY COLLEGE. All freshmen are enrolled in the University College until
they have completed satisfactorily a minimum of 26 semester hours and have met
specific requirements for admission to the degree-granting colleges of the Uni­
versity or to the Bachelor of University Studies program. Students are referred to
the University College section of this catalog.

EARLY ADMISSION
The University will admit a limited number of highly qualified applicants
after completion of the junior year of high school. To be considered for early
admission, the applicant must have achieved an exceptional record on a min­
imum of fifteen units in an accredited high school, have the unqualified recom­
modation of the principal or headmaster, and have achieved a score satisfac­
tory to the University on the American College Test. A personal interview with
the Dean of Admissions is usually required before a decision is made.

ADMISSION BY EXAMINATION
A student 18 year of age or older who has not been graduated from high
school may be admitted on the basis of a standard score average of 50 or above
on the high-school-level General Educational Development tests or standard
scores averaging 22 or above on the American College Test.

CEEB ADVANCED PLACEMENT PROGRAM
The University participates in the Advanced Placement Program of the
College Entrance Examination Board. By department, placement and credit is
awarded as follows:

Biology. Credit to a maximum of 8 semester hours is granted for scores of 5
and may be allowed for scores of 4 upon review by the departmental faculty. A
maximum of 4 semester hours may be allowed for grades of 3 upon departmental
review. Course equivalencies are determined by the Department of Biology.

Chemistry. Credit for Chemistry 101L and 102L granted for scores of 3
through 5. Credit for Chemistry 121L and 122L granted only for scores of 4 and
5.

English. Credit granted for scores of 3 or better.

History. Credit granted for scores of 4 and 5. A score of 3 may be accept­
able upon review by departmental faculty.

Mathematics. No credit allowed. Placement on basis of departmental examin­
atations.

Modern Languages. Credit granted for scores of 4 and 5. A score of 3 may
be acceptable upon review by departmental faculty.

Physics. Credit is determined by score (3 minimum) and a personal interview
with departmental faculty.
CLEP SUBJECT EXAMINATIONS

The University of New Mexico participates in and is a test center for the College Level Examination Program (CLEP) administered by the College Entrance Examination Board. Credit is granted to newly admitted and regularly enrolled students who achieve scores of 45 or as indicated on the CLEP subject examinations listed below, as approved by the appropriate academic department. (Credit is not granted for subject examinations not listed below, nor is credit granted for completion of the CLEP General Examinations.)

<table>
<thead>
<tr>
<th>CLEP Subject Examination</th>
<th>Equivalent UNM Course</th>
<th>Credit Granted (Semester hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>Biol 110-111</td>
<td>6</td>
</tr>
<tr>
<td>Intro to Bus Law (Min. Score of 60 req.)</td>
<td>B&amp;AS 310 or 359</td>
<td>3</td>
</tr>
<tr>
<td>General Chemistry</td>
<td>Chem 101L-102L</td>
<td>8</td>
</tr>
<tr>
<td>Introductory Micro- and Macroeconomics</td>
<td>Econ 200-201</td>
<td>6</td>
</tr>
<tr>
<td>Introductory Macroeconomics</td>
<td>Econ 200</td>
<td>3</td>
</tr>
<tr>
<td>Introductory Microeconomics</td>
<td>Econ 201</td>
<td>3</td>
</tr>
<tr>
<td>Money and Banking</td>
<td>Econ 315</td>
<td>3</td>
</tr>
<tr>
<td>English Composition</td>
<td>Engl 101</td>
<td>3*</td>
</tr>
<tr>
<td>Analysis and Interpretation of Literature</td>
<td>Engl 102</td>
<td>3*</td>
</tr>
<tr>
<td>American Literature</td>
<td>Engl 280</td>
<td>3*</td>
</tr>
<tr>
<td>English Literature</td>
<td>Engl 280</td>
<td>3*</td>
</tr>
<tr>
<td>Afro-American History</td>
<td>Hist 284</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization</td>
<td>Hist 101-102</td>
<td>6</td>
</tr>
<tr>
<td>Elementary Computer Programming—Fortran IV</td>
<td>Math 155</td>
<td>2</td>
</tr>
<tr>
<td>College Algebra</td>
<td>Math 121</td>
<td>3</td>
</tr>
<tr>
<td>Statistics</td>
<td>Math 102</td>
<td>3</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>Math 123</td>
<td>1</td>
</tr>
<tr>
<td>American Government</td>
<td>Pol Sc 200</td>
<td>3</td>
</tr>
<tr>
<td>General Psychology</td>
<td>Psych 107</td>
<td>3</td>
</tr>
<tr>
<td>Tests and Measurements</td>
<td>Psych 410</td>
<td>3</td>
</tr>
<tr>
<td>Human Growth and Development</td>
<td>Psych 320</td>
<td>3</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>Psych 210</td>
<td>3*</td>
</tr>
</tbody>
</table>

* Both objective AND essay portions of examinations must be completed. The essay is graded by UNM and credit is subject to departmental approval.

UNM requires original transcripts of test results sent from CLEP, Box 1821, Princeton, N.J. 08540. Credit for these examinations appearing on transcripts from other colleges will not suffice.

TRANSFERRING STUDENTS

ADMISSION PROCEDURE

A new student who has attended other colleges or universities seeking admission to an undergraduate college is required to file with the Office of Admissions and Records an application for admission accompanied by a $15.00 non-refundable application fee. The student must also request that each institution attended send an official transcript of his record to the Dean of Admissions. Summaries of coursework at several colleges on one transcript will not be sufficient. A student applying with fewer than 26 semester hours of college credit acceptable by this University must also have official scores on the American College Tests (ACT) and a complete official transcript of high school work sent to the Dean of Admissions. No application will be processed until all required items are on file.

A student enrolled in another institution at the time of application and who is applying for admission for the following session to one of the undergraduate colleges of this University should arrange to have an official transcript which includes a listing of courses in progress as well as all completed work sent to the
Dean of Admissions. On the basis of these partial credentials, a determination of admission status will be made subject only to receipt of the final transcript, enabling the student to make definite plans for transfer.

An evaluation of transferred credit will be completed as soon as possible after the admission status has been determined. In some instances it will not be prepared until after notification of admission has been issued. If the student receives an evaluation prior to registration, it should be retained for advisement purposes.

The student must indicate on the application all previous college attendance. Applicants are not permitted to ignore previous college attendance or enrollment even though they may prefer to repeat all previous college courses. Students found guilty of non-disclosure or misrepresentation in filling out the admission application forms, or students who find after admission or enrollment that they are ineligible for academic or any other reason to return to their last institution and who fail to report this immediately to the Admissions Office, will be subject to disciplinary action, including possible dismissal from the University.

WHEN TO APPLY
The application, required credentials, and ACT results (when applicable) must be on file in the Admissions Office not more than 6 months in advance of the session for which application is being made and not less than 30 days prior to the semester for which application is being made.

UNIVERSITY COLLEGE
All students who have completed fewer than 26 semester hours of acceptable college credit will be required to enroll in the University College. (See the University College section of this Catalog).

Students who have completed 26, but fewer than 64, semester hours of acceptable college credit and who are found admissible but who have not met the special admission requirements of the degree-granting college of their choice may be required to enroll in the University College until qualified for transfer to the degree-granting college. (See the respective college sections of this catalog for admission requirements.)

The University College will not accept students who have attempted 72 or more academic semester hours or who have earned 64 or more academic semester hours.

REGULATIONS
The minimum qualitative requirement for University admission is a grade average of C in all previous college work attempted. Individual colleges may require a higher average for acceptance of transfers. Applicants are referred to the portion of this catalog concerning respective colleges.

A student under academic suspension from another college or university may not enter the University of New Mexico during the term of suspension. Upon termination of the suspension period there is no bar to admission, if the student is eligible in other ways.

In general, students under disciplinary suspension are not admitted to the University of New Mexico, but since causes for disciplinary suspension vary from institution to institution, a student may be suspended from one school for reasons that would not be considered actionable at another. Thus, it is the practice of
the University of New Mexico to review individually applications for admission from students under disciplinary suspension from other institutions and when justified to make exceptions to the general policy.

Students from fully accredited institutions ordinarily will be given full credit for work transferred, insofar as the courses taken are the same as, or equivalent to, courses offered in the college in which the student enrolls in this institution. Courses in which grades of D are earned in other institutions are not acceptable for credit in the University of New Mexico. Credit in courses in religion may be allowed provided content can be considered literary, philosophical or historical.

Only an approximate evaluation can be made prior to registration, and all credit is tentative until the student has completed at least one semester of satisfactory work in residence.

Credits transferred from an accredited junior college will be accepted up to a maximum to be determined by the college in which the student is enrolled. In accepting junior college credits, no courses will be considered as above sophomore level.

Only credit earned in non-technical subjects is initially accepted from technical institutes which are accredited by a regional collegiate accrediting association. No credit is normally accepted by this University from technical institutes, business schools or other post high school institutes which are not members of regional collegiate accrediting associations. However, students applying to or currently enrolled in the University who have earned technical credit which they believe would be applicable to the associate or baccalaureate degree they are pursuing may have an official transcript sent from the school directly to the University of New Mexico, Office of Admissions and Records. It will then be the student's responsibility to request referral of his credentials by the Admissions Office to the division of the University having supervision of his particular program. The division will determine whether any or all of the credit is acceptable in its program and return the transcript with its recommendations to the Office of Admissions. An interview or demonstration of competence or both may be required before the decision regarding credit is made. Acceptance of such credit would be binding only to the specific program recommending credit. It would be subject to reevaluation should the student later enter another program offered by the University.

Applicants from recognized collegiate institutions which have not been fully accredited must have the equivalent of a 2.5 University of New Mexico index to be eligible for admission by transfer. Credit earned in such institutions is usually accepted on the same basis as by the state university of the state in which the institution is situated. When acceptance of credit on a validation basis is indicated, the student will be required to validate such credit by at least a 2.0 index on his first 30 semester hours of residence study here. Where it seems proper, examinations for the validation of credit may be required.

Independent study and extension credit from institutions not accredited by regional accrediting associations is not accepted for transfer. A student who has completed such correspondence or extension work in a course comparable to one offered by this University has the privilege of establishing credit here under the regulations governing special examinations to establish credit.
UNCLASSIFIED STUDENTS. Students transferring from unaccredited or partially accredited institutions are unclassified until they have validated credit in accordance with the University regulations. This designation is also used temporarily when the evaluation of work from accredited institutions has not been made and definite classification cannot, therefore, be determined.

CONCURRENT ENROLLMENTS. A student enrolled in this University must have prior written approval from the dean of his college to enroll concurrently for credit in residence or by extension or correspondence in another collegiate institution.

EXAMINATION TO ESTABLISH OR VALIDATE CREDIT

A student admitted to regular status in an undergraduate college of the University may, with appropriate approval, take an examination to establish or validate credits in courses appearing in the University's general catalog. See the General Academic Regulations section of this catalog.

READMITTED STUDENTS

A student who has previously enrolled in residence in the University but whose attendance has been interrupted by one or more regular semesters is required to file an application for readmission. The degree student who, while absent from the University, has attended another collegiate institution, or has taken college-level courses by correspondence or extension, must provide complete official transcripts of such studies. The application fee is not required of undergraduate students who have formerly attended the University in degree status. Students applying for readmission in regular status are required to meet the application deadlines.

A student enrolled in another institution at the time of application and applying for readmission to one of the undergraduate colleges should arrange to have forwarded an official transcript which includes a listing of courses in progress as well as all completed work. On the basis of these partial credentials, a determination of readmission status will be made pending receipt of the final transcript, enabling the student to make definite plans for re-entry.

Although credit earned during suspension from this University will not be accepted for transfer, attendance at another institution during suspension must be indicated on the student's application for readmission and an official transcript of record must be furnished.

UNIVERSITY COLLEGE

The readmitted student in regular status who has not completed 26 semester hours of acceptable college credit will be required to enroll in the University College (see "University College").

The readmitted student in regular status who has completed 26, but fewer than 64, semester hours of acceptable college credit and who is found readmissible but who does not meet the special admission requirements of the degree-granting college to which the student is seeking readmission may be required to enroll in the University College until qualified for transfer to the degree-granting college. (See the respective college sections of this catalog for admission requirements.)

The University College will not accept students who have attempted 72 or more academic semester hours (including hours with grade of Incomplete) or who have earned 64 or more academic semester hours.
NON-DEGREE STUDENTS

Non-degree Status is for applicants desiring to enroll for undergraduate course offerings of the University without entering regular status in one of the undergraduate colleges. The applicant who wishes to register in non-degree status is required to file an application for admission with the Office of Admissions.

To be eligible for enrollment in undergraduate courses in Non-degree Status, an applicant must meet one of the following minimum requirements: (1). Must be at least 21 years of age, or (2). Must have achieved graduation from an accredited high school or its equivalent and been out of high school for at least one year.

It is recommended that transient or visiting students from other colleges enroll in Non-degree status.

A student who has been declared ineligible for academic or any other reason by this University or by another collegiate institution may not enroll for Non-degree Status during the period of ineligibility. A student who has exhausted his eligibility in the University College and who is not academically eligible to enter a degree-granting college of this University may not enroll in Non-degree Status.

Veterans planning to attend the University under one of the public laws governing veterans educational benefits should not attempt to enroll in Non-degree Status. To be eligible for educational benefits, a veteran must be enrolled in regular status.

A former student previously enrolled in regular status in an undergraduate college of the University must apply after an absence from the University for readmission to regular status, and may not apply for non-degree status.

A student refused admission to regular status cannot be considered for admission to non-degree status.

Previous academic records are not required of applicants for non-degree status. It is urged, however, that non-degree students planning to enroll in advanced courses requiring prerequisites bring with them at registration some evidence that prerequisites have been fulfilled.

Applicants for non-degree status are required to certify that they are not under suspension from any college or university. A student found guilty of non-disclosure or misrepresentation in filling out the admission application form, or a student who finds after admission or enrollment that he is ineligible for academic or any other reason to return to the last institution attended and who fails to report this immediately to the Admission Office, will be subject to disciplinary action, including possible dismissal from the University.

Students registered in non-degree status are subject to all University regulations governing registration, attendance, and academic standing. Credit earned in non-degree status is recorded on the students' permanent record and may be applied in an undergraduate degree program when the students have satisfactorily established degree status by meeting the entrance requirements of the University and of the degree-granting college of their choice. Students in non-degree status who do not have a bachelor's degree or equivalent may not enroll in 500-600 level courses. Non-degree students are normally limited to
enrollment in undergraduate credit offerings. A maximum of 6 hours of GRADUATE credit may be granted for non-degree work, but ONLY (a) if the students are later admitted to the Graduate School, and (b) if their petition for such credit is approved by their major department and the Graduate School.

NON-DEGREE STATUS LIMITATIONS

A student is permitted to earn a maximum of thirty semester hours of credit in non-degree status, except for the student who has previously completed a baccalaureate degree. No undergraduate college of the University will accept in a degree program in excess of 30 semester hours earned while the student has been registered in non-degree status, nor is a college obligated to accept any hours earned in non-degree status which do not fulfill college degree requirements. If regular status is not attained, the student will be allowed to register in courses as an auditor only, receiving no credit.

The student in non-degree status may not enroll for more than 7 semester hours during a regular session without special approval of the Director of the Division of Continuing Education and Community Services. Those students in non-degree status who have completed baccalaureate degrees or higher and transient or visiting students are not subject to this limitation.

Non-degree students applying for regular status are required to follow admission procedures and to provide all items requested of transfer students (see p. 23).

CREDITS FOR TEACHER CERTIFICATION

Non-degree students desiring to take education courses leading to teacher certification must successfully complete the College of Education screening examination. Students who have an earned degree may take such education courses during their first semester of enrollment provided that they complete screening concurrently; students without an earned degree are not eligible to enroll in most education courses until completion of the screening process. All non-degree students planning to take education courses should consult the Office of the Dean, College of Education, before enrollment.

INTERNATIONAL STUDENTS

The University admits qualified students who are citizens of other countries. The non-citizen is required, for visa purposes, to enter in regular status. These students, therefore, are required to present, in addition to the application for admission: official certified transcripts from each secondary school attended; official certified transcripts from each college and university attended; American College Tests (ACT) scores, if applicable (see p. 19); official certifications of any state or national examinations taken; evidence of satisfactory results on the "Testing of English as a Foreign Language" (TOEFL) examination in areas where examination is administered (in other areas, a certificate or statement from the American consul as evidence of a competent reading, writing, and speaking knowledge of the English language will be considered); and a certified statement which shows ability to meet financial responsibilities while in the United States.

To facilitate the admission procedure, the applicant should gather all credentials and send them in the same mail to the Dean of Admissions, except that TOEFL and ACT results are sent direct to the University by the testing offices.
Applications for graduate-level study (beyond a first college-level degree) and all the credentials listed above (excepting only the secondary school credentials) should be mailed to the Dean of the Graduate School.

VETERANS

Veterans who served and servicemen currently serving on active duty for more than 180 days, any part of which occurred after January 31, 1955, and who (a) were released under conditions other than dishonorable; (b) were discharged for a service-connected disability, or (c) continue on active duty are eligible under the Veterans Readjustment Benefits Act of 1966 as amended.

The veteran student should follow the requirements and procedures outlined in the "Admission and Registration" section of the catalog in seeking admission to the University. For certification of eligibility for educational benefits under one of the Public Laws, the student should make application to the Regional Office of the Veterans Administration in the home state. For the purposes of obtaining special services and for certifying your enrollment at the University of New Mexico, contact the Counseling Center. This step is necessary each term of your attendance in order to initiate your G.I. Benefits.

MILITARY CREDITS

Credit for service training and experience is granted on the basis of measured educational achievement, in conformity with the procedures recommended by the North Central Association of Colleges and Secondary Schools and the American Council on Education. Students who were eligible for educational benefits under one of the Public Laws or who served on active duty during a period of at least one calendar year after January 31, 1955, must apply in the Office of Admissions and Records for such credit during the first semester of enrollment in regular status. Any credit tentatively allowed will become a part of the student's permanent record after completion of a minimum of 12 semester hours at this University. Total semester hours of military credit to be accepted in a specific degree program will be at the discretion of the degree-granting college of this University in which the student is registered. A maximum of 8 semester hours elective credit is allowed for basic or recruit training apportioned as follows: First Aid, 2 semester hours; Hygiene, 2 semester hours; Physical Education Activity, 4 semester hours. Eight semester hours, apportioned the same as credit granted for service in the U.S. Armed Forces, will be granted to foreign students who have completed military training, provided they can show official credentials in support of their statements.

Credit earned in specialized army and navy programs conducted by college and university staffs is allowed in accordance with the recommendations of the administering institution. Credit for work done in formal training programs is allowed in accordance with the recommendations of the American Council on Education or on the basis of examinations here. U.S. Armed Forces Institute courses are acceptable if courses have been taken through university extension divisions accredited by regional accrediting associations. Other U.S.A.F.I. courses may be accepted if recommended by the American Council on Education and validated by successful scores on "End-of-Course Tests" or "Subject Standardized Tests." U.S. Armed Forces Institute correspondence courses not directly transferable or validated by these tests may be established by examination in this
University. No credit is allowed for the College-Level General Education Development Tests nor for the Comprehensive College Tests (General Examinations). The veteran has the opportunity, while enrolled in regular status in the University, to demonstrate his competence in any University subject, and to earn credit in that subject, by making a satisfactory grade on an examination to establish credit (See "General Academic Regulations" section of this catalog).

REGISTRATION

ORIENTATION AND ADVISEMENT
Orientation will be conducted for all new students admitted to the University for the fall semester. A number of sessions are planned so that groups will be small and students can be given personal consideration. The purpose of the program is to acquaint new students with the campus, to provide academic advisement and personal counseling when requested, and to familiarize them with educational programs and administrative procedures. There is also a special orientation session at the beginning of each semester. Students who desire assistance with their academic program during the semester should request that their college office assign a faculty adviser.

REGISTRATION PROCEDURE
Details of the registration procedure are contained in a special notice issued by the Admissions and Records Office, and distributed to students in advance of each registration period.

PAYMENT OF TUITION AND FEES
Payment of tuition and fees is required in advance of registration. Instructions for payment and payment deadline dates are made available to the student in advance of each session. For specific information about tuition and fees, refer to the "Student Expenses" section of this catalog.

SELECTIVE SERVICE REGULATIONS
Although the draft is no longer in effect, young men are still required to register on their eighteenth birthday. Students can register at walk-through registration any semester, or they can call the Selective Service Office in Albuquerque for more information.

CHANGE IN COLLEGE
Students who desire to change their registration from one college to another within this University shall petition the dean or director of the college in which they are currently enrolled. This petition requires approval of both colleges and is then filed in the Office of Admissions and Records.

CHANGE IN ADDRESS
Students are expected to keep the University authorities informed as to their address. Any change in address should be reported immediately to the Office of Admissions and Records.

STUDENT RESPONSIBILITY
The University will hold students responsible for completion of the courses for which they have been enrolled, unless they obtain approval for a change in their registration, or file an official withdrawal from the University.
STUDENT INFORMATION

Certain facts of personal nature are considered to be “Directory Information;” however, only the individual student is permitted access to his or her academic record. Specific information concerning this policy may be obtained in the Registrar’s Office. (All regulations are in compliance with the Family Rights and Privacy Act of 1974).

CHANGE IN ENROLLMENT

See “General Academic Regulations.”
STUDENT EXPENSES

FEES FOR REGULAR SESSION

Fees are charged according to the number of semester hours carried by a student; auditors (those enrolled in a course for no credit) pay the same fees as students enrolled for credit. All tuition and fee charges, as well as fees for special services, are subject to change without notice.

REGISTRATION FEES:

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N.M. Residents</td>
</tr>
<tr>
<td>Students carrying 12 or more hours:</td>
<td></td>
</tr>
<tr>
<td>Tuition and Fees¹</td>
<td>$228.00</td>
</tr>
<tr>
<td>Student Group Health and Accident Insurance Premium (optional)²</td>
<td>12.30</td>
</tr>
<tr>
<td>Total Tuition and Fees with Group Insurance</td>
<td>$240.30</td>
</tr>
<tr>
<td>All students carrying 11 hours or fewer:</td>
<td></td>
</tr>
<tr>
<td>Tuition and Fees, per semester hour</td>
<td>$19.00</td>
</tr>
</tbody>
</table>

Applied music fees of $32 per credit hour, in addition to regular tuition, will be charged all full-time University students enrolling for applied music courses beyond their curriculum requirements. Part-time students should consult the Music Department for a schedule of applied music fees.

LAW AND GRADUATE

<table>
<thead>
<tr>
<th>Per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.M. Residents</td>
</tr>
<tr>
<td>Students carrying 12 or more hours:</td>
</tr>
<tr>
<td>Tuition and Fees¹</td>
</tr>
<tr>
<td>Graduate Student Association Fee—Non-Refundable³</td>
</tr>
<tr>
<td>Total Tuition and Required Fees</td>
</tr>
<tr>
<td>Student Group Health and Accident Insurance Premium (optional)²</td>
</tr>
<tr>
<td>Total Tuition and Fees with Group Insurance</td>
</tr>
<tr>
<td>All students carrying 11 or fewer hours:</td>
</tr>
<tr>
<td>Tuition and Fees, per semester hour</td>
</tr>
<tr>
<td>Graduate Student Association Fee—Non-Refundable</td>
</tr>
</tbody>
</table>

Graduate students who enroll for master's thesis or for doctoral dissertation pay regular tuition rates.

MEDICAL SCHOOL

<table>
<thead>
<tr>
<th>Per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.M. Residents</td>
</tr>
<tr>
<td>Tuition and Fees¹</td>
</tr>
</tbody>
</table>

Student Group Health and Accident Insurance is arranged by the Medical School; premium to be determined.

¹ Tuition and fees in the case of all new students includes a $5 matriculation fee; and in the case of all full-time students, includes fees for major athletic events.

² The group health and accident insurance is available only to students enrolling for 8 or more semester hours. Participation is at the student's option, except that foreign students are required to have this coverage for themselves and dependents.

³ The non-refundable Graduate Student Association fee is charged once each semester to each Law and Graduate Student regardless of the number of hours carried.
TUITION AND FEE PAYMENT

All students are required to pay tuition and fees, or to make arrangements satisfactory to the University for such payment, prior to the beginning of the registration procedure.

Instructions for payment of tuition and fees are outlined in the Fee Announcement which is sent to the student with his appointment for registration.

Checks or money orders should be made payable to THE UNIVERSITY OF NEW MEXICO and should be mailed to the Cashier, The University of New Mexico, Albuquerque, New Mexico, 87131. Do not mail cash. To assure credit to the proper student account, it is mandatory that payment be accompanied by the Appointment for Registration form and the Cashier’s Record form. All payments must be accompanied by the student’s name and social security number.

OTHER FEES FOR SPECIAL SERVICES

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application fee</td>
<td>$15.00</td>
</tr>
<tr>
<td>Change in program after end of fourth week</td>
<td>$5.00</td>
</tr>
<tr>
<td>Late payment penalty (tuition)</td>
<td>$5.00</td>
</tr>
<tr>
<td>Late registration fee</td>
<td>$5.00</td>
</tr>
<tr>
<td>Removal of Incomplete grade, per course</td>
<td>$2.00</td>
</tr>
<tr>
<td>Examination to establish or validate credit, per credit hour</td>
<td>$2.50</td>
</tr>
<tr>
<td>Penalty for dishonored checks</td>
<td>$2.00</td>
</tr>
<tr>
<td>Residual ACT Testing</td>
<td>$10.50</td>
</tr>
<tr>
<td>Graduate School Foreign Language Test</td>
<td>$10.00</td>
</tr>
<tr>
<td>Miller Analogies Test</td>
<td>$7.50</td>
</tr>
<tr>
<td>Air Force ROTC activity fee, per semester</td>
<td>$8.00</td>
</tr>
<tr>
<td>Graduation fee, all bachelor’s and master’s candidates</td>
<td>$10.00</td>
</tr>
<tr>
<td>Master’s thesis binding fee</td>
<td>$8.00</td>
</tr>
<tr>
<td>Law students’ dues for N.M. Student Bar Association, per yr.</td>
<td>$10.00</td>
</tr>
<tr>
<td>Application Fee—Andean Center</td>
<td>$15.00</td>
</tr>
<tr>
<td>Engineering Co-op Fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>English 010</td>
<td>$35.00</td>
</tr>
<tr>
<td>Mathematics 010</td>
<td>$35.00</td>
</tr>
<tr>
<td>Mathematics 020</td>
<td>$35.00</td>
</tr>
<tr>
<td>Home Economics 445L (Home Management)</td>
<td>$50.00</td>
</tr>
<tr>
<td>Horseback Riding (PE 192)</td>
<td>$45.00</td>
</tr>
<tr>
<td>English Horsemanship</td>
<td>$65.00</td>
</tr>
<tr>
<td>Snowshoeing</td>
<td>$65.00</td>
</tr>
<tr>
<td>Stock Seat Horseman</td>
<td>$65.00</td>
</tr>
<tr>
<td>Bowling Fee—Payable at Bowling Lanes</td>
<td></td>
</tr>
<tr>
<td>Skin and Scuba Diving (PE 108)</td>
<td>$15.00</td>
</tr>
<tr>
<td>Adv Skin and Scuba Diving (PE 109)</td>
<td>$20.00</td>
</tr>
<tr>
<td>Skiing (PE 186) Ski Instruction Fee, payable at 1st class meeting</td>
<td></td>
</tr>
<tr>
<td>Skiing (PE 186) Ski Lift Fee, Optional Equipment Rental and Tram Fee—Payable at 1st class meeting</td>
<td></td>
</tr>
<tr>
<td>Ice Skating (PE 184)—Payable to Ice Arena</td>
<td></td>
</tr>
<tr>
<td>Wilderness Experience (PE 194)</td>
<td>$10.00</td>
</tr>
<tr>
<td>Chemistry Laboratory Breakage Deposit Card</td>
<td>$10.00</td>
</tr>
<tr>
<td>Pharmacy Laboratory Purchase Card</td>
<td>$5.00</td>
</tr>
<tr>
<td>Applied Music (see “Courses of Instruction... Music”)</td>
<td></td>
</tr>
<tr>
<td>Mathematics 271</td>
<td></td>
</tr>
<tr>
<td>Industrial Education Laboratory Fees (some classes)—Payable at class. Maximum fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Art Education Laboratory Fee—In addition to the regular tuition and in lieu of text book purchase, a fee up to $10.00 per credit hour will be charged in each lab class, depending upon the nature of the materials necessary for the classroom.</td>
<td></td>
</tr>
<tr>
<td>Fine Arts Course Charges—Charges are made for classroom supplies and special services provided in many courses offered by departments of the College of Fine Arts; these charges, which vary in direct proportion to the actual cost of supplies and services provided, must be paid at the Fine Arts Box Office during the first three weeks of each semester.</td>
<td></td>
</tr>
</tbody>
</table>

* Applies to college credit already earned in another college-level institution but not directly acceptable under University regulations.

The Refund Schedule for withdrawal applies to these courses.
BREAKAGE. The tuition provides for a nominal amount of breakage in laboratory or other courses. Excessive breakage will be charged separately to the students responsible therefor.

INSURANCE PLAN. See p. 47 for explanation.

ASSOCIATED STUDENTS FEE. The assessment of this fee is a voluntary action of the student body, through its organization, the Associated Students of The University of New Mexico, and the University collects this fee as an accommodation to the Associated Students. The amount of the fee is determined by vote of the members of the Associated Students and is subject to change at any time by new vote. The fee is included in the fees paid by all full-time students. The Associated Students Fee is distributed to the student organizations as shown in the budget of the Associated Students. Copies of the budget may be examined in the Office of the Dean of Students.

GRADUATE STUDENT FEE. Graduate students are assessed a non-refundable fee determined by the Graduate Student Association and set forth in their constitution. The University collects this fee as an accommodation and it is turned over to the Graduate Student Association.

STUDENT ACCOUNTS. Students are required to satisfy all financial obligations due the University prior to registering for a new semester.

REFUNDS UPON WITHDRAWAL
Registration fees will be refunded (where the student withdraws or drops courses voluntarily) to the end of the 4th week of the semester as follows:

- 90% refund during the 1st week
- 80% refund during the 2nd week
- 60% refund during the 3rd week
- 30% refund during the 4th week

Students withdrawing after the 4th week of a semester, or those withdrawing at any time under discipline or because of academic deficiencies, will not be entitled to any refund.

PROGRAM CHANGE. Five dollars per course is charged for each change of program processed after the fourth week of classes. Tuition, as applicable, is charged for all courses added. The refund schedule above, for withdrawal, applies when courses are dropped and a tuition adjustment is necessary.

ESTIMATE OF TOTAL EXPENSE
The minimum amount necessary for expenses of resident students while attending the University is estimated as follows, per semester:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition and fees</td>
<td>$228.00</td>
</tr>
<tr>
<td>Student health and accident insurance</td>
<td>12.30</td>
</tr>
<tr>
<td>Books and supplies</td>
<td>100.00</td>
</tr>
<tr>
<td>Board and room</td>
<td>540.00*</td>
</tr>
<tr>
<td>Clothing, laundry, misc.</td>
<td>319.70</td>
</tr>
<tr>
<td><strong>Total, per semester</strong></td>
<td><strong>$1,200.00</strong></td>
</tr>
</tbody>
</table>

Non-resident students must add $414.00 per semester to the foregoing tuition.

* Average per semester for the school year.
GENERAL DEFINITION OF RESIDENT STUDENT FOR TUITION PURPOSES. By state law a resident student is defined as a person who has been continuously domiciled in New Mexico for not less than one year next preceding his registration for a term or semester and who can provide evidence satisfactory to the University of their intent to retain residence in New Mexico.

Any person unable to qualify as a resident for tuition purposes shall be required to pay the non-resident fee.

CHANGES IN RESIDENCE STATUS. Any student seeking a change in resident status should first obtain a petition for in-state tuition classification form from Dean of Admissions and Records. A change can be made only after this petition has been completed and returned to the Dean of Admissions.

Regulations governing residency for tuition purposes are established by the State of New Mexico and administered by the individual institutions of higher education.

An individual seeking a change from non-resident to resident status must submit a written request by the end of the fourth week of the semester in which the change is desired.

The following is a summary of the general rules:

**Minor Students** (less than 18 years of age) are entitled to resident student status upon proof of the bona fide domicile in New Mexico of their custodial parents or guardians for the one year immediately preceding the student’s registration.

**Adult Students** are entitled to resident status if they have maintained bona fide domicile in New Mexico continuously for 12 months immediately preceding their registration and if they can provide evidence satisfactory to the University of intent to retain residence in the State.

**Teachers.** Any person who has taught in a public or parochial school system in New Mexico on a full-time basis for a full school year of approximately nine months immediately in advance of their registration may qualify as residents of New Mexico for tuition purposes, provided such persons can give evidence satisfactory to the University of intent to continue to make New Mexico their home.

**Armed Forces Personnel (and their dependents).** Members of the U.S. armed forces assigned to active duty within the boundaries of New Mexico, or their spouse or minor child, may claim residence for tuition purposes during the period of active duty assignment within the State. Assignment of residence for tuition purposes on this basis is temporary and evidence of continued qualification must be presented in advance of each session of enrollment.
STUDENT HOUSING

FACILITIES

THE UNIVERSITY operates residence halls for students. All of these structures are modern, relatively new buildings with attractive living accommodations designed to meet the academic needs of University students. The convenience and economy of housing and dining facilities located on campus within easy walking distance of classroom and recreation facilities are welcomed by students carrying a full academic load.

It is hoped that the housing services will be an integral part of the total educational experience provided by the University. Each hall is supervised by qualified staff trained in counseling and in advising student groups. Residents of each hall elect a governing body which plans and organizes a full program of educational and governmental activities. All residents are afforded the opportunity to enjoy and participate in a democratic type of group living.

To better provide for the individual educational needs of students, co-ed and non co-ed housing is available. Details are contained in the housing materials which are sent upon request.

Dogs or other pets are not permitted in University buildings or on University premises for sanitary reasons.

HOUSING POLICY

Undergraduate students may live either on or off campus. If the student elects to live on campus, he is required to sign a room and board contract which obligates the student for one entire semester. Written consent of parents must be filed with the Office of the Dean of Students for all first semester freshmen whose homes are not in Albuquerque and who wish to live off campus.

Living quarters in residence halls are available to students with a minimum course load of six (6) semester hours during the Fall and Spring semesters and one (1) semester hour during the summer session. A portion of the residence hall capacity is reserved for returning students. The remaining space is assigned to students new to the University in the order of receipt of room and board contract, $25.00 deposit, and initial payment. All students occupying rooms in residence halls are required by contract to take their meals at the University dining halls. Special diets are not provided.

RESERVATION PROCEDURE

For further information on the various living situations, housing programs, and for applications, write to Housing Reservations and Collections Office, La Posada Hall 203.

ROOM AND BOARD FEES

To gain the maximum financial advantage of the room and board contract, students should remain in the halls for both fall and spring semesters. Students in residence for the fall semester are given the opportunity to extend their contract for room and board for the spring semester. A deferred payment plan for room and board is available.

Rates include a $3.00 residence hall social fee each semester, provision of a
telephone in each student room, and University supplied bed linens. The rates do not provide for room and board between semesters or for meals during official recesses listed in the Academic Calendar. The rates are also subject to limited change if necessary to defray unexpected increases in operating costs.

MARRIED STUDENT HOUSING

The University operates 220 apartments, one-bedroom, two-bedroom, and three-bedroom, some furnished and some unfurnished. An applicant for apartment housing must be enrolled for at least six (6) semester hours of university work, Summers excepted. Apartment residents may remain in University housing during the Summer months if they plan to re-register for the Fall semester. It is not necessary for the student to carry Summer work. Single students with legal dependents are also eligible to apply for apartment housing. No pets are permitted. For further information contact Housing Office, La Posada 201, University of New Mexico, Albuquerque, New Mexico, 87131.
FINANCIAL AID

THE STUDENT AIDS OFFICE is responsible for the administration of undergraduate student financial aid and financial counseling to students who apply for aid. Students who are interested in loans, scholarships, or Work-Study employment should apply to this office. Some of the programs administered by the Student Aids Office are: National Direct Student Loans, Nursing Student Loans, New Mexico Student Loans, Federal Guaranteed Loans, University Short Term Loans, The Federal Work-Study Program, The University Scholarship Program (both Academic and Athletic), the Supplemental Educational Opportunity Grant Program, and the Basic Educational Opportunity Grant Program. The Student Aids Office is located in Mesa Vista Hall.

GENERAL POLICY STATEMENT

The Faculty Committee for Scholarships, Prizes, Loans, and High School Relations sets general University of New Mexico policy and regulations under which the Student Aids Office administers programs herein described. Some of these policy statements concerning students on financial aid granted on a need basis are:

1. The primary purpose of the University's Student Aid Program is to provide financial assistance to students who would be unable to attend without it. The University, however, will honor with Scholarships, certain students who have superior academic records.

2. The principal and primary responsibility for financing a University education will remain with the student and his parents.

3. Financial aid will be offered to the student only to supplement the funds the student's parents can provide.

4. All students seeking admission to the University who will require financial aid are encouraged to apply for such aid.

5. Financial aid may be in the form of a scholarship, a grant-in-aid, a loan, a part-time job, or in some combination of these four.

6. The total amount of financial aid offered in various forms to a student by the University and all other financial aid sources will never be allowed to exceed his real need.

7. The ability of a family to meet University expenses will be determined by considering carefully the family's relative financial strength, in terms of income, assets, debts, and in terms of additional children to be educated. But parents should be prepared to make financial sacrifice to pay for their child's education.

8. The University will clearly state the total yearly expenses for the student and care will be taken to keep these up to date.

9. Students who need financial aid should expect to borrow a reasonable part of this aid to meet the cost of their education.

10. The University's financial aid funds and employment opportunities will be offered as a "package" arrangement to incoming and enrolled students.
11. Each student must complete 12 semester hours each semester with an average grade of 2.0 (or C) on a 4.0 scale. Courses taken under the Credit Option or Credit/No Credit grading systems and included in the 12 semester hours must be recorded as Credit. Incomplete courses will not be accepted within the 12 semester hour requirement.

12. Any student who withdraws during a semester must have a valid documented reason for such withdrawal, in order for aid to be renewed the following semester.

13. Any student who feels he has a justifiable reason for attaining less than a 2.0 average or for withdrawal under circumstances not deemed valid by the Director of Student Aids, may after he has appealed to the Director of Student Aids and been denied, apply for a hearing before a sub-committee designated by the Chairman of the Scholarship, Prizes, Loans, and High School Relations Committee. The application for appeal must contain the facts of his case in writing.

Policy on Renewal of Academic Scholarships is:

1. Freshmen must have a 2.5 scholastic average (or C+) on a 4.0 scale, with at least 12 semester hours taken for grade purposes, for first renewal. Credit/No Credit courses may not be included in the 12 hour minimum.

2. For all semesters subsequent to the first, the student must attain a 3.0 average (or B) on a 4.0 scale. Except, that a student may be renewed for one semester if he fails to attain a 3.0 average provided his overall average, including that semester, is 3.0 or greater. If he fails to attain an average of 3.0 in two successive semesters he is removed from the scholarship. The conditions provided in Item 1 concerning hours taken etc.; are continued for each semester the student receives a scholarship.

3. A student may receive a maximum of eight semesters under the scholarship.

4. Students must reapply each academic year prior to June 1 for renewal of their scholarships.

5. If a student leaves the University of New Mexico to attend another institution of higher education, renewal of the scholarship will not be considered if the student returns to the University.

Each student is informed in the letter awarding him the scholarship of the conditions of renewal.

LOAN FUNDS

The University administers its own Student Loan Fund and cooperates in the administration of several others. Applications and information concerning all loan funds are available in the Student Aids Office.

The maximum amount available from this fund is $100. General rules applying to the University loan funds are:

1. Applicant must have been in residence at the University of New Mexico for at least one semester.
2. Applicant must be receiving grades of "C" or better in subjects carried at the time of application.

3. Applicants desiring loans from the Student Loan Fund may be requested to have the signature of one substantial local citizen on the bank note.

4. In order for a student to be eligible to apply for a student loan, it will be necessary for him to have paid in full any previous loans which he has obtained.

Six other loan funds are available for small, short-term loans: The Mortar Board Loan Fund, the Khatali-Vigilante Loan Fund, the Joe L. Kramer Loan Fund, the Phikeia Loan Fund, the Donald R. Fellows Memorial Loan Fund, and the S. U. B. Club Loan Fund. These six funds are administered through the Office of the Dean of Students.

Other loan funds available to students at the University are: The American Association of University Women's Loan Fund; Revolving Loan Fund of the Ancient, Free and Accepted Masons of New Mexico; Educational Loan Fund of the Grand Commandery of Knights Templar of New Mexico; The McGaffey Memorial Loan Fund of the Albuquerque Rotary Club; The Women's Club Loan Fund; The Altrusa Club Loan Fund; The G. Perry Steen Memorial Student Loan Fund; Zonta Club of Albuquerque Loan Fund; A. & L. Rosenbaum Loan Fund; The Pharmacy Scholarship Loan Fund; The Kiwanis-Milne Loan Fund; the State Bar of New Mexico Loan Fund; the Lois and Harry Bruch Memorial Loan Fund; the Walter B. Fuente Memorial Loan Fund; the Faculty Women's Club Loan Fund; the Track Two Law Loan Fund; The H. R. "Mick" Ressler Loan Fund; The Rotary Loan Fund; The Feinsilver Loan Fund; and The Mr. and Mrs. Kilbourne L. House Memorial Loan Fund.

NATIONAL DIRECT STUDENT LOANS

The National Direct Student Loan Program is one of the features of the Higher Education Amendments Act of 1972. Under the terms of the act, funds are available for loans to qualified undergraduate and graduate students. The deadline for filing a loan application is June 1 for the fall semester and November 1 for the spring semester.

NURSING STUDENT LOANS

Low interest loans, from Federal funds, are available to regularly enrolled students in the College of Nursing who are in need of funds to help finance their education.

The student must be enrolled in the College of Nursing to qualify for a loan under this program. Interested students should apply to the Director of Student Aids, Mesa Vista Hall. Deadlines for applications are June 1 for the fall semester and November 1 for the spring semester.

FEDERAL PROGRAM OF LOW-INTEREST INSURED LOANS TO STUDENTS

The University participates in this program established under the Higher Education Act of 1965, PL 89-329, as amended. Loans made to students under this program are endorsed with Federal funds. Applicants may secure these loans from commercial lending institutions after being certified by the University. Repayment starts nine months after the student leaves school. Interest will be paid by
the Federal Government while the student remains in school as a full time student. The student must pay 7% simple interest during the payout period beginning the first day of the tenth month after he ceases to be a full-time student. Interested students should contact the Director of Student Aids, Mesa Vista Hall, for further information.

THE NEW MEXICO STUDENT LOAN PROGRAM

The University is a participating institution in the New Mexico Student Loan Program established by the State Legislature in January, 1970. This program provides long-term low-interest loans to residents of New Mexico who attend educational institutions in New Mexico.

To be eligible a student must be enrolled or accepted for enrollment and demonstrate financial need. There are no interest or principal payments due until 12 months after the student leaves school. Interest starts at 7% simple interest and payment is due after the twelfth month.

Interested students should apply to the Student Aids Office, Mesa Vista Hall.

COLLEGE WORK-STUDY PROGRAM

The University participates in the College Work-Study Program established under the Economic Opportunity Act of 1964, as amended. This program permits colleges and universities to employ students who are in need of earnings from part-time employment in order to pursue their courses of study. Students are limited to 15 hours per week while enrolled full time in the University. During summer, and periods when the University is not in session, they may work 40 hours per week. Interested students should apply to the Director of Student Aids, Mesa Vista Hall, for application forms and further information.

OTHER STUDENT EMPLOYMENT

Another opportunity for student employment is through the off-campus, part-time employment office, which is a division of the Student Aids Office. These jobs are filled regularly and the average rate of pay is $2.20 an hour. Most of the positions for women are in sales and secretarial positions while jobs for male students range from draftsman to delivery and warehouse work. Off-Campus Employment Service Program cannot place a person in a job before his arrival on campus since most jobs must be filled immediately upon receipt from the employer. Positions are posted with a job description, hours open for work and salary. The student can work as many or as few hours offered by the employer. Off-Campus Employment is a service to any student desiring a job and is not based on financial need or academic standard.

VOCATIONAL REHABILITATION

Through the New Mexico Division of Vocational Rehabilitation which operates under the supervision of the State Board for Vocational Education, the State and Federal Government offer financial assistance for payment of tuition to those students who have physical and emotional disabilities. Other assistance may also be given to those physically handicapped students who are financially unable to provide the services for themselves.
The following are some of the requirements for acceptance for service by the program:

(1) Applicant must have a permanent physical disability, whether congenital or as a result of an accident or a disease, and (2) must be capable of carrying a full class load and maintaining a "C" average. (3) Training in the vocation chosen must offer an opportunity for employment for the individual and must be within his physical and academic limitations.

Both men and women are eligible for the service. Limited services may be offered to Veterans depending upon the services offered under the G.I. Bill by the Veterans Administration.

The Rehabilitation Service is a part of our system of public education as are our grammar schools, high schools, colleges and universities. Those who can qualify should apply for this service.

**HOW TO APPLY.** Those students having disabilities who wish to apply should do so by writing to one of the New Mexico Rehabilitation Offices at: the Oil Center Building, 3010 Monte Vista N.E., Suite 102, Albuquerque New Mexico; Northeast Heights Office, Oil Center Building, 117 Richmond N.E., Albuquerque, New Mexico; 216 Washington Avenue, Santa Fe, New Mexico; 200 West First Street, Roswell, New Mexico; Dennison Building, 1480 N. Main Street, Las Cruces, New Mexico; 207 East Broadway, Farmington, New Mexico; P.O. Box 1388, Las Vegas, New Mexico; P.O. Box 1847, Taos, New Mexico; 1095 North Canal, Carlsbad, New Mexico; 421 Connelly, Clovis, New Mexico; 211 West Mesa, Gallup, New Mexico; P.O. Box 00, Española, New Mexico; 808 Pinos Altos, Room 8, Silver City, New Mexico. An application for services must be made and written authorization for services must be secured from the Division of Vocational Rehabilitation prior to the rendering of services for a Vocational Rehabilitation student.

**SCHOLARSHIPS AND AWARDS**

The University awards scholarships to a substantial number of its entering freshmen and upperclassmen each year. The qualifications expected of the recipients and the amounts of the awards vary. Some carry special stipulations or require that the student major in a specific field, but the majority of awards require only a strong scholastic record and a need for financial assistance. Information on all scholarships and awards may be obtained from the University Student Aids Office.

Students holding University sponsored scholarships must reapply for them each year. The deadline for renewal application is June 1.

Application for admission to the University of New Mexico, and scores on the American College Tests (in the case of freshman applicants), must be on file in the Admissions Office before a student can be awarded a scholarship (see "Admission" section of this catalog). A scholarship application must also be submitted to the Student Aids Office; only one scholarship application is required regardless of the number of scholarships in which a student may be interested. Scholarship application forms may be obtained from the Student Aids Office. High school seniors may also obtain forms from their high school counselors or principals. April 1 is the deadline for freshmen application for financial aid for the following fall semester.
These factors are considered in awarding scholarships: (1) the academic record; (2) scores on the ACT, if applicable; (3) need for financial assistance; (4) the recommendation of the student's counselor or principal (in the case of freshman applicants); (5) special abilities and/or accomplishments.

The Thomas S. and Louise Freeman Bell and the Daniel C. Jackling Scholarships are for students with outstanding academic records. The Bell and Jackling Scholarships vary in amount from $300 to $800, with a financial evaluation by College Scholarship Service used as the criterion for determining the amount of the award. Tuition scholarships are awarded to students with outstanding academic records. Financial need is not so important a consideration in the awarding of these scholarships as in the Bell and Jackling awards.

Athletic Grants-in-Aid are available to a limited number of students and are granted on the basis of recommendation and predicted academic success. The aggregate of all institutional aid authorized by these grants-in-aid to any individual does not exceed tuition, general institutional fees, board and room, books, and $135.00 per year for incidental expenses.

A few scholarships are available for students who are not residents of New Mexico. These students are required to file statements with College Scholarship Service regardless of the award sought.

Fellowships and Assistantships for graduate students are also available. Application for these may be made to the Dean of the Graduate School.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANTS

The University of New Mexico, under provisions of the Higher Education Act of 1965, PL 89-389, as amended, awards several Educational Opportunity Grants each year to incoming freshmen and enrolled students. In order to be selected a student must:

(1) be accepted for enrollment and be in good standing;

(2) show evidence of academic or creative promise and capability of maintaining good standing in his course of study;

(3) be of exceptional financial need and unable to pursue a course of study without the Grant.

Students who think they are qualified should write or see the Director of Student Aids, Mesa Vista Hall, for application forms and further information.

BASIC EDUCATIONAL OPPORTUNITY GRANT

The University of New Mexico is an eligible institution for Basic Educational Opportunity Grant Program recipients. This program is an entitlement program, at present limited to students who did not attend post-secondary education prior to April 1, 1973. The Grants are renewable for four academic years. Information pertaining to this program, as well as applications are available in the Student Aids Office. Students may also obtain applications in their high schools, post offices and other public agencies.
STUDENT SERVICES

All divisions of the University concerned with student services outside the classroom are under the coordinating supervision of the Vice President for Student and Campus Affairs. There follow descriptions of some of the services and programs which supplement the University’s educational program and assist the student in his academic and personal development.

DEAN OF STUDENTS

The office of the Dean of Students is a multi-faceted administrative organization concerned primarily with student life and education outside of the classroom. The Dean of Students is responsible for: 1.) The student personnel aspects such as programming, counseling, and staff training in the Residence Halls. 2.) The Student Activities Office (located in the Student Union) which coordinates the chartering of all student organizations, provides assistance and initiates programs in conjunction with student organizations, and assists students in obtaining a wide range of University sponsored activities and becoming more involved in campus life. This office supervises the Student Information Center which is located in the main lobby of the New Mexico Union and is a centralized area for students and visitors to receive information about the UNM campus. It is staffed by specially trained student employees. Information provided by the Center includes standard University policies and regulations, dates and times of all campus events, referrals to appropriate campus offices, information regarding student organizations, and directions and campus maps. 3.) The Administrative Office of the Dean of Students which is located (off the mall) in the South wing of Mesa Vista Hall. The professional staff is available for personal counseling, academic advisement, and referrals to other campus agencies. Their function is similar to that of an ombudsman and they will help interpret to students University policies and procedures. Other functions of this office include short-term loans, record of illness, withdrawal from the University and writing recommendations for students to prospective employers and graduate schools. Generally speaking, the Dean of Students staff will assist students in obtaining any information concerning the University. 4.) Special programs and services are available to disabled students who need assistance. Further information may be obtained through the Office of the Dean of Students, Mesa Vista 1176, telephone 277-6448, or through The Special Services Program, Mesa Vista 2013, telephone 277-3506.

COUNSELING CENTER

The University Counseling Center is located in the south wing of Mesa Vista Hall, second floor. It is open Monday through Friday, 8:00 to 5:00. During these hours a counseling psychologist is available; appointments can also be made by calling 277-3511.

The Counseling Center renders a variety of services which are available to all students, faculty, and staff of the University and their families without charge. Generally speaking, these services focus on self-development and personal growth in relation to family, peers, the University, and careers.

The most common kinds of services include personal and social counseling, educational guidance, learning problems, and vocational guidance and coun-
STUDENT SERVICES

Counseling. Standardized tests in the areas of aptitude, personal adjustment, study habits, and vocational interests are available upon request. All test results and personal information are held confidential. In addition, general information about careers, job listings, and specific trends in hiring can be found in the Career Information Center.

Upon request by individuals in management positions, and to the extent of available staff time, the Center provides consulting services in the areas of organizational psychology, the management of human resources, selection procedures, and conflict resolution.

Additional functions of the Counseling Center include veterans' guidance through the provision of tutoring services for veterans and enrollment certification for the purpose of obtaining benefits under the G.I. Bill.

OFFICE OF INTERNATIONAL PROGRAMS AND SERVICES

INTERNATIONAL PROGRAMS. The growth of international programs at the University of New Mexico reflects a phenomenal development characteristic of American universities. The Office maintains a listing of faculty capabilities for overseas programs, and coordinates new international projects which the University may undertake.

INTERNATIONAL STUDENT PROGRAM. The University of New Mexico is committed to the support and encouragement of an international student program. The Director of the International Office acts in a liaison capacity with faculty and administrative departments of the University on behalf of the foreign students. His staff also endeavors to assist students from abroad by counseling with them and by encouraging them to use the services offered by the University in areas such as academic advising, student health insurance (foreign students are required to have this coverage for themselves and dependents), counseling and testing, housing and employment.

In addition to making proper referrals, the International Office provides orientation programs, community hospitality, and immigration assistance to the student from abroad. The Director attempts, moreover, to give a maximum of personal attention to the unique problems of the foreign students.

FULBRIGHT PROGRAM. The Director of International Programs and Services acts as Fulbright Program Adviser. His duties in this capacity include publicizing the Fulbright competition, announcing grants offered, providing application forms, counseling American students, and arranging faculty committees for interviews and evaluations. He also provides information and counseling for all other awards for study abroad such as the several Marshall Scholarship programs, Foreign Area Fellowships, Dougherty Foundations, etc.

AMERICAN STUDENTS ABROAD. Information and counseling is offered to the American student who wishes to study abroad. Documents concerning institutions of higher learning throughout the world, admission practices, equivalences, costs and methods of applying the work to American credit are available. The office maintains a current bibliography on both study and student travel and issues the International Student Identification Card to eligible persons.
UNM SUMMER SESSIONS ABROAD. The University of New Mexico offers three summer sessions abroad for the cultural enrichment of students as well as for bilingual teachers in the area. These sessions are administered by the Director of the Office of International Programs and Services, who interviews prospective participants and provides the necessary information and forms for the sessions.

UNM SUMMER SESSION—GUADALAJARA, MEXICO

Each year from approximately June 20 to July 31, the University of New Mexico, in cooperation with the Universidad Autónoma de Guadalajara sponsors a summer session in Guadalajara, Mexico. Students from schools other than UNM are invited to apply and may take from 3 to 9 credit hours selected from course offerings in the Department of Arts & Sciences. Normally, 4 semesters of college level Spanish are considered necessary for successful participation with the exception of those enrolled only in 200 level Spanish courses. Before undertaking registration, interested students should make inquiries at the Office of International Programs and Services, UNM.

UNM SUMMER SESSION—MADRID, SPAIN

From approximately June 15 to July 25 each year, the University of New Mexico sponsors a summer session in the Spanish capital of Madrid, Spain. Students from schools other than UNM are also invited to apply, and may take from 3 to 9 credit hours selected from course offerings in Spanish Language and Civilization. Four semesters of college level Spanish are normally considered necessary for successful participation. Interested students should make inquiries at the Office of International Programs and Services before undertaking registration.

Full time qualified students will be given preference for admission to the program. All students will be interviewed to ascertain the level of their linguistic and academic preparation.

BILINGUAL INSTITUTE—QUITO, ECUADOR

The Departments of Modern and Classical Languages and the College of Education currently co-sponsor an eight week summer institute in Quito, Ecuador for bilingual teachers during June and July.

Preference will be given to those who are teaching in bilingual programs or who have teaching experience and are entering into the field of bilingual education. This program is open to all bilingual teachers in the United States. For further information, please contact the Office of International Programs and Services, UNM.

THE INTERNATIONAL CENTER

The International Center, a facility which is sponsored by the Associated Students of the University of New Mexico, is the focal point of cross-cultural interaction in the community.

The International Center coordinates programs with the university as well as various Albuquerque community organizations. With assistance from the Office of International Programs and Services, the Center sponsors programs designed to promote goodwill and understanding among the students from some 57 foreign countries and the American students. Both American and foreign students participate in the administration of the International Center.
HEALTH SERVICE

The Student Health Center is located on the main campus between Johnson Gym and the Student Union. It provides facilities for essentially the same kinds of medical care that one would expect to receive from a private physician. There are seven full time general physicians and seven consultant specialists operating a clinic 8 a.m.-4 p.m. Monday through Friday and 8 a.m.-12 noon on Saturday. In addition, there is a 24-hour Emergency Service staffed by nurses and corpsmen, with a staff physician on call.

A complete clinical laboratory and Radiology Service is available at the Health Center. There is a 35 bed infirmary, physio-therapy, immunization clinic, and a Mental Health Team at the Center.

Students are seen primarily by appointment, but there is a screening clinic and walk-in service to serve students whose problems should not be postponed.

The Student Health Center is funded through a budgeted allocation from student fees and is available to all students carrying six or more semester hours. With the exception of certain lab tests, meals in the infirmary, and medication, all services are free of charge.

Students enrolling for the first time or re-enrolling after an absence of a year or more are required to fill out a Health Status Questionnaire. The staff at the Health Center observe the same ethical codes concerning confidentiality as your family physician does. Information regarding individual's health status leaves the Health Center only after written permission from the student is received.

The Student Health Center, in cooperation with the College of Pharmacy, provides convenient pharmaceutical services, where students may purchase prescription and non-prescription items. A broad formulary is offered based upon the most commonly prescribed medications. The Pharmacy is open during clinic hours except from 12:00 noon to 1:00 p.m. Students enrolled for six hours or more may utilize the Pharmacy services.

STUDENT HEALTH INSURANCE

The University provides an optional health insurance program with a national insurance company. It provides for benefits to apply against expenses incurred for emergency care and consultation not available at the Student Health Center. Coverage is in effect during the entire semester, whether at school or away on vacation periods. Additional coverage for non-student spouse and/or dependents is available.

Any student enrolled during a regular semester for six or more semester hours is eligible to participate in the plan upon payment of a special fee. Except for emergencies, students must be referred from the Student Health Center to be eligible for insurance benefits.

Details are mailed to all new and re-admitted students as part of admissions procedure. In addition, a representative of the Company holds regular hours at the Health Center to answer questions and assist with claims.

THE CAREER SERVICES CENTER

The Career Services Center is a centralized student services activity established to assist all University students and UNM graduates achieve their career
employment goals. The Center works with all levels of students who are in need of career information, and maintains close contact with all colleges and departments within the University in its total effort to assist UNM graduates in achieving their career goals.

Career advisory service and assistance is provided eligible students and alumni interested in commercial, industrial, governmental, educational, or service professions. Information concerning new or existing career opportunities, trends in employment, and educational requirements is furnished those who desire the assistance of the Center.

The Career Services Center acts as a general clearing house for registrants seeking employment and for employers seeking college trained personnel for business, education or service positions. Prospective employers are provided administrative assistance and facilities for interviewing candidates. Registrants are furnished assistance in preparing a career file encompassing biographical data, scholarship and educational achievements, employment experience, professional activities, and letters of recommendation. The professional credential or career records are maintained on file for alumni as long as the services of the Center are desired.

The Center maintains continuous contact with the conditions and trends of the nation's job market and with representatives of commerce and education. Every attempt is made to assist candidates in achieving desired career employment according to their aptitudes and abilities.

The Career Services Center is located on the second floor, south wing of Mesa Vista Hall.

Services rendered by the Career Services Center to students and prospective employers are free.

WOMEN'S CENTER

The Women's Center at 1824 Las Lomas (corner of Yale and Las Lomas) is open weekdays from 9:00 a.m. to 5:00 p.m. The Center has a comprehensive library of books, periodicals, and pamphlets concerning women. Zimmerman library has a complete catalog file of this library. There are counselors at the Center for all problems—academic, personal, interpersonal, and legal. The Center staff works to facilitate the needs of women by cooperation with and utilization of the various departments in student and academic affairs. The Center is funded by UNM, ASUNM, and GSA.

The University Clinical Law Program has an office in the Women's Center. This service is available to women students and staff members.

NEW MEXICO UNION

The New Mexico Union is planned to provide a focal point for the cultural and recreational activities of the University. All students are members of the Union, and their cooperation and contributions are necessary to insure its successful operation. The Union Board, made up of student, faculty, and administrative representatives, formulates policy for the operation of the Union.

Union food services include a cafeteria with a rotating food service counter, the Casa del Sol (a Mexican food facility on the second floor), a dining room and catering facilities. The Dean of Student Activities, Associated Students of the University of New Mexico, the Graduate Student Association, the Alumni
Association, and the Department of Development have offices in the Union. Lounges, a ballroom, theater, and many meeting rooms enable the Union to serve the University community, and scheduling of events in these areas is a function of the Union Director's office.

ATHLETICS

The University's intercollegiate athletic program is a department within itself but works closely with the Physical Education Department, which, in turn, shares a responsibility with all other segments of the University to maintain general academic standards of high quality. Athletes are expected to participate, first and primarily, as full members of the student community. The faculty of the University, within its powers, assumes responsibility for keeping the environment conducive to these objectives.

Men's intercollegiate athletics are governed by regulations of the Western Athletic Conference and the National Collegiate Athletic Association. Women's athletics are governed by the Intermountain Athletic Conference and the Association for Intercollegiate Athletics for Women. All intercollegiate athletics are subject to the athletic policies of the University and North Central Association of Colleges and Secondary Schools.

Varsity sports include football, basketball, track and field, cross country, volleyball, baseball, tennis, golf, swimming, wrestling, gymnastics, skiing, field hockey, and water polo.

The University through the Health, Physical Education and Recreation Department conducts an intramural and recreation program. The intramural program includes swimming, tennis, handball, golf, cross-country, track and field, volleyball, touch football, bowling, baseball, softball, and basketball. In addition, facilities are available for free play, co-recreation, and sports clubs. For additional information contact the Intramural Office in Johnson or Carlisle Gymnasiums.

The Athletic Offices and service facilities for student athletes are located on the south campus and are coordinated with many indoor sports on the main campus in Johnson Gymnasium, which includes an indoor pool, two large arenas, handball courts, and other specialized areas. The University Basketball Arena, with a seating capacity of 15,000, is located on the south campus, just west of University Stadium, which seats 30,000. Outdoor recreational facilities maintained by the University include a golf course, tennis courts, and numerous playing fields, located both on the main and south campuses. Additionally, a modern baseball field is located on the south campus.

RELIGIOUS LIFE ON THE CAMPUS

While the University itself maintains no religious program, various religious disciplines maintain campus centers which serve the University community. Ministers, priests, and rabbis are available to assist the students through worship services, personal counsel, and in group activities. The various religious centers offer courses in religion and Bible study each semester.

Religious organizations affiliated with the University and serving the University community are: Albuquerque Christian Fellowship, Baha'i Student Association, Baptist Student Union, Campus Crusade for Christ, Canterbury Chapel,
Christian Science Organization, Christian Student Center, Divine Light Mission, Islamic Society, Jewish Student Union, Lobo Christian Fellowship, Lutheran Student Association, Aquinas Newman Center, Nichiren Shoshu Association, Orthodox Baha'i Club, Pentecostal Student Fellowship International, Student Association of the Church of Jesus Christ of Latter Day Saints, Symphony of Life, 3HO Foundation (Happy, Healthy, Holy Organization), and the United Ministries Center.

The Alumni Memorial Chapel, located conveniently in the center of the campus, is a non-sectarian religious sanctuary financed by contributions from alumni and friends of the University. It is available to any religious group, for meetings on a scheduled basis. It is also open throughout the school year for private meditations. It has become a very popular wedding chapel available to alumni and members of the University community. The Chapel may be scheduled through the Office of the Vice President for Student and Campus Affairs, Scholes Hall 161, or telephone 277-4041.

STUDENT ORGANIZATIONS

ASSOCIATED STUDENTS

All undergraduate students enrolled for 12 or more semester hours are affiliated as "The Associated Students of The University of New Mexico." The Associated Students function under a constitution approved by student referendum, by the faculty, and by the Regents of the University. The government of the Associated Students has three principal branches: the executive, consisting of the President and certain appointed executive officers; the legislative, consisting of the Student Senate composed of 20 senators elected at large; and the judicial, consisting of the Student Court appointed by the President and approved by the Senate.

HONORARY AND SERVICE ORGANIZATIONS

The following organizations are active: Phi Beta Kappa, Phi Eta Sigma, Phi Kappa Phi, Blue Key, Mortar Board, Alpha Phi Omega, Las Campañas, Spurs, and Vigilante.

Many professional and departmental organizations are also active on the campus.

SOCIAL GROUPS

Fraternities: Alpha Tau Omega, Kappa Alpha, Lambda Chi Alpha, Phi Gamma Delta, Phi Delta Theta, Phi Kappa Psi, Phi Sigma Kappa, Pi Kappa Alpha, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Sigma Pi Epsilon.

Sororities: Alpha Chi Omega, Alpha Delta Pi, Chi Omega, Delta Delta Delta, Kappa Alpha Theta, Kappa Kappa Gamma, Phi Mu, Pi Beta Phi.

Fraternity and sorority relations are controlled by the Interfraternity Council and the Panhellenic Council respectively.

Other social groups: Town Club, Delta Sigma Theta, Omega Psi Phi.
STUDENT PUBLICATIONS

The New Mexico Lobo, the campus newspaper, is published daily every regular week of the University year. The Thunderbird, a literary magazine containing literary contributions submitted by students is published periodically.

The publications are edited and managed by students under the supervision of the Student Publications Board comprised of both student and faculty members, the majority of the Board, however, being student members.

The student editors and managers of these publications are elected by the Publications Board for a period of two semesters.

CAMPUS PARKING INFORMATION

If a student desires to park a motor vehicle within a zone area on campus, a parking permit is required. Paid parking is in effect Monday through Friday, 7:00 A.M. to 4:30 P.M. Visitors should park at meters or make arrangements for parking at Parking Services, 1821 Roma N.E. the campus is divided into lettered zones and students living in residence halls will be allowed to park in zone “G” only, which is the zone around the dormitory areas and includes part of a large lot at the computing center. Commuting students may purchase parking permits for the spaces available in any zone. In addition, there is free parking on the North Campus with free shuttle bus service. The bus service will start at 7:15 A.M. and the last bus will depart for the North campus lots at 6:15 P.M. on scheduled class days only. The bus will stop on the central campus on a ten minute schedule. Overnight parking in the free lots will be at the owner’s risk.

The total parking fee for both semesters will be $27. A second semester permit fee is $13.50 which must be paid at time of application. If a student withdraws from school, a refund for the second semester only will be allowed upon surrender of the permit before the second semester starts. Motorcycles and other motor driven cycles will pay $15 per year and parking will be restricted to cycle parking lots only. The parking permit will designate the zone eligibility and parking will be restricted to that zone. A copy of the UNM Parking and Traffic Regulations will be furnished with the parking permit, please read it thoroughly.

A student with a serious physical handicap may secure a letter from the Student Health Center requesting special zone parking.

Only Parking Services can authorize parking and sell permits. Permits are non-transferable. You should not buy a permit from anyone except Parking Services, nor should you use anyone else’s permit. If you use a permit not issued by Parking Services, your car may be towed and impounded and you can be charged with fraud which carries a penalty of 6 months or a $100 fine or both.

Students with out-of-state license plates must have New Mexico plates within 30 days or purchase a non-resident student sticker for $1.00 from Parking Services.
GENERAL ACADEMIC REGULATIONS

THE STUDENTS are advised to familiarize themselves with the academic regulations of the University. They are solely responsible for complying with all regulations of the University, of their respective colleges, and of the departments from which they take courses, and for fulfilling all requirements for their particular degrees.

CLASS HOURS AND CREDIT HOURS

A class hour consists of 50 minutes. One class hour a week of recitation or lecture, throughout a semester, earns a maximum of one credit hour. One class hour a week of laboratory, orchestra, chorus, studio, or physical training, throughout a semester, earns from one-third to one-half credit hour.

COURSE NUMBERING SYSTEM

Courses are numbered from 001 through 799. Courses from 001 to 099 may or may not carry credit, but are not applicable toward a baccalaureate degree; from 100 to 199, lower division, are normally open to freshmen; from 200 to 299, lower division, normally open to sophomores; from 300 to 499, upper division, normally open to juniors, seniors, fifth-year undergraduates, and graduates; 500 to 799, graduate and professional, normally open to students enrolled in the Graduate School only, the School of Law, or the School of Medicine.

Freshmen, may in some instances, qualify for courses numbered in the 200’s. Courses numbered 300 or above are not open to lower division students (freshmen and sophomores) except in rare instances, and then only with the approval of the college dean. See the section of this catalog concerning your college for specific regulations.

GRADES

The grades awarded in all courses are indicative of the quality of work done. Their significance in most courses is as follows:

A, Excellent. 4 grade points per credit hour.
B, Good. 3 grade points per credit hour.
C, Satisfactory. 2 grade points per credit hour.
D, Barely Passed. 1 grade point per credit hour.
F, Failed. F is also given in any course which the student drops after the fourth week of a semester or second week of a summer session while doing failing work.
CR, Credit. Gives credit for the course but is not computed in the scholarship index. At the graduate level Cr is used to report completion of a master’s thesis or doctor’s dissertation.
NC, No Credit. Not computed in scholarship index. At the graduate level NC is also used to report unsatisfactory completion of master’s thesis or doctoral dissertation.

Certain workshops and courses may be offered under CR and NC, as defined above, only with the approval of the Committee on Entrance and Credits.
Pr, Progress. This grade is used to indicate that a thesis or dissertation is in progress but not complete. When the thesis or dissertation is complete, CR or NC is reported.

I, Incomplete. The grade of I is given only when circumstances beyond the students' control have prevented completion of the work of a course within the official dates of a session.

W, Dropped without discredit. W is given in any course which students drop officially after the fourth week of the semester or second week of the summer session, while doing passing work. (See “Change in Program of Studies” and “Withdrawal from the University.”)

GRADES IN HONORS COURSES

Grades assigned in the General Honors Program, the Undergraduate Seminar Program, some departmental honors courses, and a few seminars are as follows:

A, Honors. 4 grade points per credit hour.

CR, Credit. Gives credit for the course but is not computed in the scholarship index.

NC, No Credit. Not computed in scholarship index.

CREDIT (CR) GRADE OPTION ENROLLMENT FOR UNDERGRADUATES ONLY

Effective with the 1970 Spring Semester the University adopted regulations whereby students may elect to take certain courses on a Credit Grade Option basis. The following limitations apply:

1. Only one course per semester will be allowed;

2. A maximum of 24 hours under this option will be allowed toward the degree (This maximum will be reduced by the number of hours earned in any departmental offerings specifically approved for CR/NC grading.);

3. The following may not be taken under this option: a) courses in General Honors Program and the Undergraduate Seminar Program; b) courses which are a part of the student's major (as defined by the major department), with the exception of those courses especially approved for use of credit-no credit grading (such as Guid 429, Workshop in Counseling); however, students cannot be penalized by a department if, in the process of selecting or changing major fields, they have taken a course in their major on a Credit Grade Option basis; c) in some departments and colleges, courses which are a part of the students' minor (see specific colleges and/or departmental requirements); d) examinations to establish credit; e) correspondence courses.

4. Hours are not computed in the scholarship index, even though a final grade of CR (Credit) indicates satisfactory completion of a course.

5. Students may not enroll on the credit option basis when repeating a course in which they have previously been enrolled under the regular grading system.

CHANGE IN GRADE. No grade except I can be raised by completion of other extra work or by a special examination. A grade of I can be changed to a passing grade in a manner to be determined in each case by the instructor.
concerned with the approval of the dean or director of the college. The I may be removed by the student upon completion of the work of the course (1) by the published ending date of the next semester of residence, or (2) within the next 4 semesters if the student does not reenroll in residence. The student may change the I to a passing grade by satisfactorily performing the work prescribed by the instructor. (Arrangements should be made with the instructor within a reasonable time in advance of the planned date of completion.) The student obtains from the office of the dean or director a permit to remove the I, pays the $2 fee, and takes the card to the instructor, who completes it and returns it to the Office of Admissions and Records where official entry on the student’s record is made. A grade of incomplete which is not removed during the periods and by the procedure prescribed above remains on the record indefinitely.

Any other change in grade, after the grade is on record in the Office of Admissions and Records, may be made only after reasons for such change have been submitted in writing by the instructor concerned, and approved by the Committee on Entrance and Credits. Any change in grade must be requested within 12 months after the end of the grading period.

SCHOLARSHIP INDEX. A student’s academic standing is referred to in terms of a scholarship index obtained by dividing the total number of grade points earned at the University of New Mexico by the total number of hours attempted with letter grades in courses numbered 100 or above at the University of New Mexico. Hours given a grade of W, Cr, NC, or I are excluded in the computation. Honors and prizes depending upon scholarship are determined by ranking students according to this index.

CHANGES IN ENROLLMENT

CHANGE IN PROGRAM OF STUDIES. Detailed procedures for accomplishing change in a student’s program of studies are available from the student’s college office or from the Office of Admissions and Records.

ADD. A course may not be added to a student’s program after the second week of the semester or the first week of the summer session. (See the Academic Calendar.)

DROP. A student has the right to drop a course, or courses, during the first four weeks of the semester or the first two weeks of the summer session without a grade, except that a grade of F, assigned by an instructor on the basis of University regulations relating to student dishonesty, will be shown on the official transcript and computed in the scholarship index. When a student drops a course after the first four weeks of the semester or the second week of summer session up to and including the last day of the twelfth week of the semester or the sixth week of the summer session, the student will receive a grade of W if passing the course or a grade of F for undergraduate (NC for graduates) if failing the course at the time of dropping, as determined by the instructor in the course. A student cannot drop a course, or courses, after the twelfth week of the semester or the sixth week of the summer session and receive a grade of W without petition to, and approval by, the dean or director of the college, which is limited to hardship cases involving circumstances beyond
the student's control. See below (Withdrawal from the University) if dropping all courses.

Students are responsible for the completion of every course for which they have registered; if they drop a course at any time without complying with official change of program procedures, they will receive a grade of F in the course. A fee of $5 is charged for any change made in the student's program of studies after the end of the fourth week of the semester or after the end of the second week of the summer session.

WITHDRAWAL FROM THE UNIVERSITY

When students wish to withdraw from all the courses in which they are enrolled during a semester, or summer session, they should secure a withdrawal card from the office of the Dean of Students. When a student withdraws officially from the University during the first four weeks of the semester or the first two weeks of the summer session no grades are assigned, with the exception of grades of F assigned on the basis of University regulations relating to student dishonesty. Grades of W or F as determined by the instructors in their courses are shown on the students' records if they withdraw officially from the University from the end of the fourth week through the twelfth week of the semester or from the end of the second week through the sixth week of the summer session. After the end of the twelfth week of the semester or the sixth week of the summer session no student is permitted to withdraw with a grade of W without petition to, and approval by, the dean or director of his college or school, which approval is limited to hardship cases involving circumstances beyond the students' control. When students leave the University during a semester and do not carry out their withdrawal according to this regulation, they become liable for a grade of F in all their classes, even though they are passing their courses up to the time of leaving.

MILITARY WITHDRAWAL. Under faculty regulations undergraduate students who formally withdraw from the University to enter military service after completing twelve weeks of instruction will receive full credit for each course in which they are enrolled provided the instructor certifies a grade of C or better for the course at the date of formal withdrawal. They will receive a grade of W if the instructor certifies a grade of less than C. Final semester seniors who have satisfactorily completed at least half of the work in courses for which they are enrolled that semester, provided these would complete their degree requirements, may be certified for graduation by the faculty of their colleges. Military orders or evidence of enlistment must be made available to the Dean of Students at the time of withdrawal.

CHANGE IN GRADING OPTION. No change in grading options (including audit, credit option, and letter grade) in any course can be made after the fourth week of the semester or the second week of the summer session.

Any change in grading option after registration has been completed requires completion of a Program Change Request.

It is the students' sole responsibility to make certain that he or she is registered in any course on the proper grading option.

Graduate students are referred to the Graduate Bulletin.
ADDITION OF INDEPENDENT STUDY OR EXTENSION COURSES TO PROGRAM. A resident student may enroll for independent study and extension courses only when the addition of such courses does not cause his program to be in excess of the maximum load allowed, and only after permission has been given by the dean or director of his college.

REPETITION OF COURSE

A student may repeat a course without special permission but may receive credit only once. Effective with the 1971 Spring Semester, only hours and points for the repetition are counted in the scholarship index provided the repetition resulted in a higher grade. The original grade remains on the record but is not counted in the grade point average.

A student who fails a course at the University of New Mexico and repeats the same course, with a grade of C or better, at another college or university may have the credit accepted for transfer, but the F earned at UNM will continue to be computed in the index.

During the registration procedure it is the responsibility of the student repeating a course to notify the Office of Admission and Records by completing the repetition of course form.

AUDITED COURSES

A student may register for a course as an auditor, without credit, provided permission of the instructor concerned is obtained. An auditor who fails to attend class may be dropped at the instructor's request. The fee for audited courses is the same as for credit courses.

SCHOLASTIC REGULATIONS

The standing of all students (including those who withdraw from the University during the session) with respect to scholarship is checked at the end of each semester and summer session. At such times, all students who are deficient in scholarship are placed on probation, or suspended, in accordance with the following regulations.

PROBATION

UNIVERSITY COLLEGE. The minimum scholarship index to remain in good academic standing in the University College is 1.40 through the semester or summer session in which a student has equaled or exceeded the limit of 30 hours attempted. Thereafter the minimum scholarship index required shall be 1.70. Students are placed on academic probation at the end of any semester or summer session in the University College if their scholarship index falls below the applicable minimum indicated above.

DEGREE-GRANTING COLLEGES AND NON-DEGREE STATUS. Students in degree-granting colleges or in non-degree status are in good academic standing if their academic records show either: (1) a scholarship index (as defined in this catalog) of 2.0 or better, or (2) a grade-point average of 2.0 or better on all work taken while enrolled in a degree-granting college or in non-degree status. Students will be placed on academic probation at the end of any semester or
summer session when their academic record fails to equal one of the two minimums set out above.

SUSPENSION

UNIVERSITY COLLEGE. Students are subject to suspension at the end of any semester or summer session in which they were carried on academic probation as defined above, unless they have succeeded in removing themselves from such probation by acquiring the minimum scholarship index. No students, however, are subject to suspension or dismissal because of their scholarship index until the end of the semester or summer session in which the cumulative number of hours attempted exceeds 16.

DEGREE-GRANTING COLLEGES AND NON-DEGREE STATUS. Students in degree-granting colleges or in non-degree status are subject to suspension at the end of any semester in which they were carried on academic probation unless they have succeeded in removing themselves from such probation by that time.

Students who have been suspended are not eligible to re-enter for a period of one calendar year from the date of suspension. The readmission of suspended students to the University after the expiration of the suspension period is contingent upon the approval of the deans or directors of the colleges to which they are seeking admission or readmission. Students suspended for poor scholarship or who, after having been placed on probation, fail to re-register for the following semester, shall be considered as on probation upon their return to the University. The same regulation applies to students who withdraw from the University while on probation (unless their withdrawal grades make them subject to suspension). A dean may require a student who is on probation at the time of registration to enroll for the minimum number of hours, and may at any time require a student on probation to drop as many hours as seem to be in excess of the student's ability.

Regulations on probation and suspension as described above apply only at the end of a semester or summer session. However, during the progress of any semester or summer session the dean of a college may refer the case of a delinquent student to a college committee on scholarship; and such committee may recommend to the dean probation or suspension from the University for such student.

Attention is called also to the possibility of suspension as a result of excessive absences. (See below).

ATTENDANCE

Students are required to attend all meetings of the classes in which they are enrolled unless excused by the instructor. No extensions of the vacation periods are given to any students, regardless of the location of their homes. Non-attendance at classes due to late registration is considered the same as absence incurred after registration.

Instructors will keep a record of class attendance, and will report excessive absences to the Records Office. A student with excessive absences may be dropped from a course with the grade of F, upon recommendation of the instructor.
Absences due to illness, field trips, athletic trips, etc., are to be reported by the student to the instructor and to the Dean of Students. Such report does not relieve the student of responsibility for lost work. It is the duty of the student to take the initiative in arranging with the instructors to make up work missed.

If a student is admitted to the Student Health Center Infirmary, the Dean of Students Office is automatically notified. If a student has been ill and needs verification, notify the Dean of Students Office, extension 3361. It is expected that professors will normally indicate at the beginning of a semester whether the student will need verification of this nature from the Dean of Students Office.

Students who are absent and unexcused from final examinations, or other closing exercises of the classes in which they are enrolled shall be given the grade of F. A grade of I may be given when there is a valid reason for absence from the examination.

DISHONESTY IN ACADEMIC MATTERS

Every student is expected to abide by the highest standards of honorable conduct in academic matters. Dishonest action in connection with tests, quizzes, or assignments, whether in the classroom or out, may be cause for dismissal from the University.

Non-disclosure or misrepresentation in filling out applications or other University records will make a student liable for disciplinary action, including possible dismissal from the University.

TRANSCRIPTS OF CREDIT

No charge is made for transcripts of record requested by the student to be sent to other collegiate institutions, state departments of education, employers, or prospective employers. A student may be issued without charge a maximum of one transcript for his personal use during a year of his enrollment in the University. Transcripts of record cannot be issued until all financial obligations to the University have been satisfied.

EXAMINATIONS

REGULAR EXAMINATIONS. Examinations in each course are held at the close of each semester, and at intervals during the semester at the discretion of the instructor. All students, including graduating seniors, are required to take semester final examinations.

SPECIAL EXAMINATIONS. A special examination is one taken at a time other than regularly with the class. Classified as special examinations are: examinations given to make up missed regular course examinations; examinations to establish credit; examinations to validate unaccredited, or otherwise unacetable, credit earned at other college-level institutions; and examinations to remove a grade of I.

A fee is charged for all special academic examinations administered by the faculty. All examinations to establish or validate credit are charged for on a per-credit-hour basis. (See other fees for special services).

Before the student is admitted to a special examination, the student must present to the instructor a permit signed by the dean or director of the college
concerned. For those examinations where a fee is required, the permit must show
the Comptroller's receipt of the fee.

EXAMINATION TO ESTABLISH OR VALIDATE CREDIT. Students admitted to or en-
rolled in regular status in undergraduate colleges of the University may, with
appropriate approval, take an examination to establish or validate credit in
courses appearing in the University's general catalog (examinations to establish
credit will not be provided in non-professional physical education activity courses)
and in which they have not been previously enrolled at the University of New
Mexico. Students enrolled in the Graduate School have the same privilege, except
that only undergraduate credit can be earned in this manner. An interview with
the department concerned is required. Upon recommendation of the department
chairman and approval by the dean or director of their colleges, the students
secure from their college office a permit for the examination, pay in advance
the required fee of $2.50 per credit hour, and present the receipted permit to
the department as authorization to take the examination. Credit will be allowed
and placed on the student's permanent record only if a grade of C or better is
earned. Credits earned by examination at the University of New Mexico may
count toward graduation and residence requirements.

For information concerning the Advanced Placement Program and the Col-
lege Level Examination Program of the College Entrance Examination Board
see Undergraduate Program Aptitude Test. See degree requirements "Admis-
sions and Registration."

DEGREE REQUIREMENTS

Candidates for any undergraduate bachelor's degree offered by any of the
colleges of the University must meet several all-university minimum degree re-
quirements. Also the candidate is subject to several all-university limitations.
These are:

1. A minimum of 128 semester hours of earned and acceptable credits.

2. A cumulative scholarship index of 2.0 or a 2.0 grade point average on
the last 128 semester hours of degree work.

3. Residence Credit Requirement: A minimum of 30 semester hours of credit
earned at the University of New Mexico exclusive of extension and cor-
respondence (independent study) credit, 15 semester hours of which must
be earned after the candidate has accumulated 92 hours of earned
semester hour credit. In no case is the number of hours specified to be
earned after the student has completed 92 semester hours in the degree
program to be interpreted as necessarily the last hours.

A student may fulfill part or the whole of this residence requirement
by summer session attendance.

The student who has completed a baccalaureate degree and who is
seeking a second undergraduate degree will be reclassified by the
degree college in accordance with the hours and requirements com-
pleted toward the new degree. Residence credit requirements for the
second degree will be determined on the same basis as those for the first
degree.
4. A maximum of 24 semester hours of CR grading (Credit Option and CR/NC approved courses) can be applied toward a bachelor's degree.

5. A maximum of 40 semester hours of extension and correspondence (independent study) credit can be applied toward a bachelor's degree and no more than 30 of this number can be correspondence credit.

6. Residence Requirements in Major and Minor. At least one-half of the minimum number of credit hours required for major study and one-fourth of the minimum number of credit hours required for minor study must be class or laboratory work earned in residence in the University. When a senior transfer student plans to complete a major by presenting credit hours earned in residence at another institution, the major department, or the director of the interdepartmental major, may modify this ruling, not, however, below one-fourth of the total minimum hours required for the major (or the interdepartmental major).

7. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

Additional degree requirements for a specific bachelor's degree will be found in the appropriate college section of this catalog.

Candidates for any associate degree offered by any of the colleges of the University must meet several all-university minimum degree requirements. Also the candidate is subject to several all-university limitations. These are:

1. A minimum of 60 semester hours of earned and acceptable credits, 30 of which must be University of New Mexico credit.

2. A cumulative scholarship index of 2.0.

3. A minimum of 6 semester hours earned in residence on campus or at a University of New Mexico branch.

4. A maximum of 9 semester hours may be earned by independent study (correspondence).

Students may graduate under the catalog requirements for the year in which they were enrolled for the first time in the degree-granting college of the University of New Mexico from which they are seeking a degree, provided they complete graduation requirements within a continuous six-year period. If students interrupt attendance, or transfer from one degree-granting college to another within the University, they must graduate under the catalog in effect at the time of their readmission or transfer.

The student is solely responsible for knowing the rules and regulations concerning graduation requirements and for registering in the courses necessary to meet specifications for the degree.

TWO UNDERGRADUATE DEGREES. Two undergraduate degrees may not be granted a student until he has earned the equivalent of 5 years' college work (as represented by a minimum of 30 semester hours above the requirements for the first degree) and has fulfilled all requirements for both degrees, including
residence credit requirements. A transferring graduate should notify the Dean of Admissions when applying for admission if he plans to work for a second undergraduate degree. The degree of Bachelor of University Studies may not be used as a second undergraduate degree. Completion of a second major under a Bachelor of Arts or Bachelor of Science program is recorded on the student’s permanent record but does not result in the awarding of a second Bachelor of Arts or Bachelor of Science degree.

EXTENSION AND INDEPENDENT STUDY CREDIT HOURS ALLOWED TOWARD DEGREE

Credit is allowed for independent study and extension courses completed at this University or through other colleges and universities accredited by regional accrediting associations. Credit for extension and independent study courses completed in institutions not accredited by regional accrediting associations is not accepted for transfer. A student who has completed such correspondence or extension work in a course comparable to one offered by the University has the privilege of establishing credit here under the regulations governing special examinations to establish or validate credit. The hours earned by independent study or extension from accredited institutions other than the University of New Mexico may be counted towards degree requirements but the grades will not be included in the grade-point average of the student. (See “Scholarship Index”). Courses taken from other institutions must correspond to those offered at the University of New Mexico.

Any graduating seniors not in residence who expect to offer credits earned by independent study toward fulfillment of degree requirements must have prior approval of the dean of their college. The student is solely responsible for complying with all regulations stated in the current Independent Study Bulletin.

COMMENCEMENT

Commencement exercises are held once a year at the end of Semester II. Students whose requirements were completed and degrees conferred in the preceding summer session or fall semester, as well as those who complete requirements in the spring semester, are invited to attend. Attendance is optional.

HONORS WORK AND GRADUATION WITH HONORS

It is possible for students to graduate with General Honors (Honors in General Studies), or with Departmental Honors, or with both. The designations for the various levels of Honors in General Studies are as follows: cum laude in General Studies, magna cum laude in General Studies, summa cum laude in General Studies. The students become candidates for Honors only; the level of Honors with which they are graduated is determined by the General Honors Council. Designations for graduation with Departmental Honors are as follows: cum laude, magna cum laude, and summa cum laude. In Departmental Honors also the students are candidates for Honors and the level of Departmental Honors with which they graduate is determined by their department (or college, in colleges which are not departmentalized).

Graduation with Honors, either General or Departmental, is in no sense automatic. The students are required to make application for candidacy. Information regarding Honors in General Studies and the method of gaining admission to this program can be obtained in the office of the Director of General Honors.
Information regarding the Honors Program in a specific department or college can be obtained in the main departmental or college office.

THE GENERAL HONORS PROGRAM. The General Honors Program, which may lead to graduation with Honors in General Studies, is available to any undergraduate student who wants to engage in a challenging intellectual program with an emphasis on interdisciplinary and educationally broadening activity. The program offers small seminar-type courses in a variety of styles, and students have an opportunity to study and work with other interested and interesting students from various departments. Emphasis is on discussion and student participation, with opportunities for self expression in a variety of ways. There are opportunities for individual study and informal activities, and students have a major voice in planning the course offerings and the structure of the program.

The core courses in the program (Gen St 301, 302, 403, 404—see p. 322) are taken in the Junior and Senior years. The best time to join the program is as a second semester sophomore or as a junior. Part of the course requirement (see below) can be fulfilled with Gen St 111, 112, 211 or 212 (Freshman or Sophomore General Studies Seminars—see p. 323), or with one-credit hours courses in the Undergraduate Seminar Program (see below), which may be taken at any time in the student’s undergraduate years. For freshmen and sophomores who are interested in the General Honors Program, these courses provide a good way of keeping in touch.

The formal requirements for graduation with Honors in General Studies are:

1. Completion of 9 credit hours in courses Gen St 301, 302, 403, 404 (normally six hours from 301 and 302, and three hours of either 403 or 404), the selection to be approved by the Director of the Program.

2. Completion of at least an additional 6 credit hours in either Gen St 301, 302, 403, or 404, in Gen St 111 or 112 (Freshman General Studies Seminar), in Gen St 211 or 212 (Sophomore General Studies Seminar), in Gen St 299 or 399 (Individual Study), or in Undergraduate Seminar Program courses.

3. A 3.2 over-all scholarship index.


Performance in the program is not judged by mechanical quantitative standards. The student is under guidance in small groups by a variety of faculty members who make detailed evaluations of students' work. (These evaluations are available to the student, but are confidential in the sense that they are available only to the instructor, the individual student, the Director of the Program, the administrative assistant, and the General Honors Council. Students are invited to discuss the evaluations with their instructors, and to add any comments they would like to.) Completion of the quantitative course requirement does not guarantee graduation with honors; a high level of achievement is required. The program is designed to offer students an opportunity;
the student is expected to respond with energy, imagination and conscientiousness.

To minimize the destructive aspects of grading, the following system is used: A (Honors) is computed in the scholarship index in the normal way; CR (Credit) gives credit for the course but this credit is not computed in the scholarship index; NC (No Credit) neither gives credit nor is computed in the scholarship index. Students are rewarded for excellent work, but are not penalized if they do not perform at the highest level.

Special advising and counseling by staff, faculty, and students are available to students in the General Honors Program and the Undergraduate Seminar Program. For information on this and all aspects of the program go to the Honors Center.

Students in the General Honors Program can also undertake Departmental Honors if they want to.

THE UNDERGRADUATE SEMINAR PROGRAM. Each semester about twenty one-credit hour seminars are offered on topics or activities of general interest. They are selected from proposals made by students and by faculty members. The subject matter is generally interdisciplinary, or at least such that the course would not be offered by a regular department. Classes are normally limited to fifteen students and the emphasis is on discussion and active student participation. There are no prerequisites, and the seminars are open to all undergraduate students. They are not Honors courses, but they can be used to fulfill part of the course requirement for students in the General Honors Program (see above). As in General Honors courses, grading is on the A/CR/NC system (see above).

Registration for the courses is on a first come, first served basis at the Honors Center. Information on registration procedures is available at the Honors Center.

THE DEPARTMENTAL HONORS PROGRAM. A Departmental Honors program is available to qualified students in many departments of the University and will ultimately be available in nearly all departments. Students should inquire of the chairman of their major department (or the dean of the college in colleges which are not departmentalized) as to the availability of a program. Candidates for a B.U.S. degree may be candidates for graduation with departmental honors if they meet the requirements for the major and for the Departmental Honors program in a certain department.

The purposes of departmental honors programs are as follows: (1) to intensify and deepen the students' knowledge in their major field; (2) to put this specialized knowledge into better relationship with knowledge in related fields and in the larger general area of the students' specialization; (3) to bring the students under closer guidance of, and into closer acquaintance with, teachers in their field.

Normally, students enter a Departmental Honors program in their junior year. They should at least make their intention of graduating with Departmental Honors known to their chairman or dean early in their junior year. Admission
to Departmental Honors candidacy cannot be granted later than the beginning of the student's senior year.

Minimal requirements for graduation with Departmental Honors are as follows: (a) an over-all grade point average of 3.2; (b) not less than 6 credit hours in independent study, senior thesis, or special courses open only to candidates for graduation with Honors in the department (or college, if the college is not departmentalized).

Departments or colleges may have differing additional quantitative and qualitative requirements. The prospective Departmental Honors student should confer with the chairman of the department (or the dean of the college) regarding the requirements above the minimum requirements set forth just above.

Graduation with Departmental Honors will never be a matter solely of performance in standard courses or of grade-point averages in either the field of specialization or the entire program of the student. Continuance in departmental honors programs and the level of honors at which the candidate will be graduated are both in the discretion of the department.

GRADUATION WITH DISTINCTION

Students graduating from the University of New Mexico who have completed a minimum of 60 hours in residence, and who have a scholarship index of 3.5 or better for all work completed at this University, will receive the degree "With Distinction." Any questions concerning eligibility which might arise in unusual circumstances will be reviewed and decided by the Entrance and Credits Committee.
UNIVERSITY COLLEGE

The UNIVERSITY COLLEGE is an academic division of the University of New Mexico that incorporates the University College, Bachelor of University Studies degree program, the College English Tutorial program, the Associate of Science in Laboratory Technology degree program, and the Testing Division.

UNIVERSITY COLLEGE

All freshmen and many sophomores of the University are enrolled in the University College. The fundamental purpose of the College is to provide a maximum opportunity for each student to create an individualized program of studies best suited to his particular needs, interests, and aptitudes. If you are enrolled in the University College, you may select from the large number of courses offered by the academic departments at UNM. And, if you are undecided about a major field of study, or desire to change your academic major, you may select the appropriate courses with a minimum of restrictions.

If you HAVE decided to prepare for admission to a particular degree-granting college of the University, you should undertake the program of courses recommended by that college and which is described in the section of this catalog devoted to that college.

If you have NOT decided upon a particular field of study, you are encouraged to develop a program of first-year courses designed to help you discover areas in which you have interest and special competence. Please note that this exploratory approach may require more than four years of academic work to earn a degree if you later choose to enter a highly structured degree program, one having many specific requirements.

Several resources are available to assist you in formulating a program of studies. Comprehensive orientation sessions dealing with all aspects of academic life are held during the summer for beginning freshmen. Faculty members in the various departments and some college offices are available during a semester on an individual basis, and special advisers are available to you throughout the year in the University College office.

When you have decided on an academic major and meet the admission requirements of your chosen degree-granting college, you are urged to transfer from the University College without delay. However, if you wish further to explore differing areas of interest, you may remain in the University College through the sophomore year, subject to the scholastic regulations of the College.

If you do not seek a four-year course of study, the University can provide a variety of two-year programs leading either to a two-year degree, or a certificate of completion.

A second major function of the University College is frequent communication with you regarding your academic record and its implications. To this end the College engages in several specific practices: (1) your academic record is maintained by the staff and is available for your examination at any time; (2) periodically you will receive letters and notices informing you of particular circumstances; (3) special advisers on the staff of the College are available for your use. They are knowledgeable in academic policies and procedures, and possess unusual competence in dealing with your individual problems. These and
other services are provided to you, if you wish to avail yourself of them. However, it must be stressed that YOU ARE SOLELY RESPONSIBLE FOR MEETING ALL REQUIREMENTS FOR TRANSFER TO, AND EVENTUAL GRADUATION FROM A DEGREE PROGRAM.

A third major activity of the University College is research investigation regarding UNM student characteristics. The University College staff has long been active in seeking to describe and analyze patterns of student enrollment and retention at UNM, the patterns of educational choice, and the relationships between student aptitude, interests, and academic achievement. In recent years there has been an intensification of this research function particularly in the areas of non-intellective factors.

ADMISSION REQUIREMENTS

For admission requirements to the University College, see the "Admission" section of this bulletin. The University College will not accept students who have attempted 72 or more semester hours or who have earned 64 or more semester hours (see definition next paragraph).

CONTINUATION IN UNIVERSITY COLLEGE

You will not be permitted to re-enroll in the University College if at the end of your previous semester or term of enrollment you had attempted a total of 72 or more semester hours. Attempted hours, for purposes of University College eligibility, include all hours of work you have attempted at this or any other institution of higher learning. Included in this calculation are all Incompletes, repetitions, and accepted military credits. The only grade that is excepted from this calculation is "Withdrawal Passing" (W or WP).

Nor will you be eligible to re-enroll in the University College if at the end of your previous semester or term of enrollment you had earned a total of 64 or more semester hours. Earned hours, for purposes of University College eligibility, are defined as all semester hours of credit accepted toward a degree whether earned at UNM or any other institution of higher learning, and including accepted military credits.

You may not enroll in the University College after you have been admitted to any degree-granting college of the University of New Mexico.

SCHOLASTIC REGULATIONS

All who are enrolled in the University College can be classified only as freshmen or sophomores. You cannot obtain junior or senior status until you have transferred to a degree granting college. The most critical all-university scholastic regulation that results from your classification is the following:

Courses numbered in the 100's are those open to freshmen. Courses numbered in the 200's are normally for those of sophomore status although in some instances freshmen may qualify for them. Courses numbered in the 300's and 400's are for upper classmen with junior and senior status. These courses are not open to freshmen except in rare instances.

As a freshman you should be predominantly enrolled for courses at the 100 level. Only when placement scores or previous background warrant would you be enrolled for a 200 level course. The only instances of a freshman re-
ceiving permission to take a 300 or 400 level course would be those rare exceptions such as a foreign student coming to the University whose knowledge of his native language exceeds the work offered in the first two years of that language.

For scholastic regulations governing academic probation and suspension see the section of this catalog titled, "General Academic Regulations." Determination of the minimum required scholarship index of a 1.40 or 1.70 is based upon University College eligibility hours as defined in the section above.

ADMISSION TO A DEGREE-GRAVNING COLLEGE

The minimum requirements for transfer from the University College to any degree-granting college are:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted; or
   (b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's hours attempted to at least 30. (See definition of scholarship index in this catalog.)

For additional admission requirements of a particular degree-granting college, refer to the admission regulations set forth in the section of this catalog devoted to that college.

TRANSFER FROM THE UNIVERSITY COLLEGE

Transfer to a degree-granting college is effective only at the close of a semester or summer session. Come to the University College office during the semester, preferably early in the semester, to file a transfer petition. This petition is your declaration of intention as to which degree program you wish to enter. A determination of your eligibility to transfer to that program will be made at the time the final grades are reported to this office, and in the light of the requirements for admission as specified by THAT degree-granting college. In the event you do not qualify for transfer the petition is invalidated, and you will need to file another petition in a subsequent semester or summer session.

CERTIFICATE OF COMPLETION

Upon application to the University College Office you will be awarded a University College Certificate if you meet the following requirements: (1) completion of 60 semester hours of college work with a passing grade, of which at least 30 hours have been earned in the University of New Mexico with 15 of these 30 hours earned in the University College of the University of New Mexico; and (2) a scholarship index of 1.70 through the semester or session in which the total of college credits earned first becomes 60 or more.
BACHELOR OF UNIVERSITY STUDIES

The degree of Bachelor of University Studies is offered by the faculty of the University of New Mexico and is administered through the University College. This program was initiated in April 1969.

The fundamental purpose of the degree program is to permit a student to assume the responsibility for developing an individualized program of studies designed to meet his particular needs. If you select this degree program you will find that it permits both inter-college and inter-departmental combinations of courses that would be difficult or impossible to obtain if you were meeting the specific requirements of any particular undergraduate degree college program. You also may structure a program of studies so that the sequence and combination of courses reflect either specialized or broad patterns of educational experience, depending upon your preference.

Strict compliance with degree program scholarship requirements is mandatory for entrance and continuation in the program. An entrance interview is required. The interview is informational in nature and is not utilized to restrict entrance to the program. As a student in the Bachelor of University Studies program you are responsible for complying with the General Academic Regulations of this University specified for the degree-granting colleges. If you have questions regarding any aspect of the program please address them to the Dean of the University College.

ADMISSION

All freshman students are admitted to the University College. A detailed statement of entrance requirements is contained in the section of this catalog titled “Admission and Registration.”

ADMISSION FROM UNIVERSITY COLLEGE

Requirements for transfer from the University College into the Bachelor of University Studies program are as follows:

1. Twenty-six hours of earned credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted; or
   (b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student’s total hours attempted to at least 30. (See definition of scholarship index in this catalog).
3. An informational interview prior to transfer.

TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

Transfer to the Bachelor of University Studies program from a degree-granting college of the University of New Mexico requires a scholarship index of 2.0. You may petition to transfer at any time. Admission will be granted following an informational interview if you meet the above requirement.
TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

If you seek transfer into the Bachelor of University Studies program from another institution, you must meet the University's general qualitative admission requirements for transfer, and must also present a minimum of 26 transferable semester hours of credit. All transfer work acceptable to the Admissions Office of the University is acceptable in this program. The required informational interview must be held no later than the end of the fourth week of the initial semester in the program.

DEGREE REQUIREMENTS

If you plan to graduate at the close of a given semester, you must make application for the degree with the Bachelor of University Studies clerk in the University College office by the end of the fourth week of that semester. You are encouraged to make such application during the semester preceding that in which you intend to complete degree requirements. A summary specifying the work remaining for the degree will be prepared and sent to you; however, you are solely responsible for completing all the requirements for graduation. No academic dividends or penalties are given in the Bachelor of University Studies program.

The specific graduation requirements are:

1. A minimum of 128 semester hours of earned credit. This may include up to four hours of physical education activity courses.
2. A minimum scholarship index of 2.0 on all work attempted at the University of New Mexico.
3. A minimum of 40 semester hours earned in courses at the upper division level.
4. A minimum grade point average of 2.0 on all upper division course work attempted at the University of New Mexico.
5. Subsequent to admission to the Bachelor of University Studies program, a minimum of one complete session of enrollment on the main campus of the University of New Mexico (semester or summer session).
6. A minimum of six semester hours of academic work earned while enrolled in the Bachelor of University Studies program.
7. Fulfillment of the residence credit requirement of this University.
8. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

ASSOCIATE OF SCIENCE DEGREE IN LABORATORY TECHNOLOGY

This two-year program prepares the Medical Laboratory Technician to perform laboratory procedures which aid the physician and pathologist in the diagnosis and treatment of disease in the hospital, clinic, or private laboratory. The Medical Laboratory Technician will usually work under the supervision of graduate Medical Technologists or other personnel with advanced training in the medical laboratory profession.
The curriculum includes a comprehensive selection of academic subjects to provide a sound structure for the cultural, social, and scientific development of the student. Formal instruction and clinical experience in the medical laboratory sciences complete the training of the Medical Laboratory Technician to meet his responsibilities as an important member of the health service team.

Professional direction and administration of the course will be provided by the Laboratory Sciences Division, Allied Health Sciences Center, UNM School of Medicine.

ADMISSION

The total class enrollment in the Medical Laboratory Technician Program is limited to ten. Students are admitted only in the fall semester. They will be accepted on the basis of scholarship, aptitude, and motivation.

Requirements for admission:
1. Admissibility to the University of New Mexico as described in the “Admission and Registration” section of the catalog.
2. Application must also be made to the Laboratory Sciences Program by April 1.
3. Selection by the Laboratory Sciences Selection Committee based on scholastic ability, personal interview and aptitude.

Communications regarding entrance to the program should be directed to the Dean of Admissions, University of New Mexico and/or Director, Laboratory Sciences Program, 1001 Stanford N.E. The deadline date for receipt of application and credentials by the Admissions Office and Laboratory Sciences department is APRIL 1. All applicants will be contacted to arrange for an interview with the Selection Committee following receipt of application and credentials.

CURRICULUM

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<tr>
<th>First Year</th>
<th>Spring Semester</th>
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<tr>
<td>Fall Semester</td>
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<tr>
<td>Engl 101 Wrtng w/Rdgs in Expos</td>
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<tr>
<td>Math 121 College Alg or 150, 162</td>
<td>3-4</td>
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<tr>
<td>Chem 141L Elements of Gen Chem</td>
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<td>Biol 121L Principles of</td>
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<tr>
<td>Second Year</td>
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<td>Fall Semester</td>
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<tr>
<td>Biol 136 Human Anat &amp; Physio</td>
<td>3</td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>3</td>
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<tr>
<td>Md Lab 101 Clin Urinalysis</td>
<td>2</td>
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<tr>
<td>Md Lab 101P Pract Urinalysis</td>
<td>1</td>
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<tr>
<td>Md Lab 102 Clin Serology</td>
<td>2</td>
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<tr>
<td>Md Lab 102P Pract Serology</td>
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<tr>
<td>Fall Session (July-Nov)</td>
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<tr>
<td>Md Lab 251P Pract Clinical Chem 1</td>
<td>4</td>
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<tr>
<td>Md Lab 252P Pract Clin Hematology</td>
<td>3</td>
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<tr>
<td>Md Lab 253P Pract Clin Microbial 1</td>
<td>3</td>
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<tr>
<td>Md Lab 254P Pract Clin Immunohepat</td>
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DEGREE REQUIREMENTS

The candidate for the degree of Associate of Science in Laboratory Technology must:

1. Complete all work outlined in the curriculum for Medical Laboratory Technicians.
2. Maintain a grade average of at least 2.0 in the college-level work attempted during the academic year and a minimum of 2.0 in all Chemistry and Biology courses.
3. Satisfactorily complete summer work program at affiliated hospitals.
4. Be recommended by the full-time faculty of the Laboratory Sciences Program, UNM School of Medicine.

QUALIFYING TO PRACTICE

Upon successful completion of the prescribed curriculum, the University confers the Associate of Science in Laboratory Technology degree and the graduate will be eligible and expected to write the National Examination for Medical Laboratory Technician of the Board of Registry, American Society of Clinical Pathologists.

TWO-YEAR SECRETARIAL PROGRAM

In recognition of the increasing demand for trained office personnel, this program is designed to give students not only the basic knowledge and skills necessary for initial employment, but also a solid background in the liberal arts. In recent years greater appreciation of the value of well-planned and well-directed office services has opened an attractive field of employment for college-trained men and women. Those who choose this curriculum are able to advance more rapidly toward positions requiring managerial and supervisory responsibility.

CURRICULUM

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<tr>
<th>Sophomore Year</th>
<th>Freshman Year</th>
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<tr>
<td>First Semester</td>
<td>Second Semester</td>
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<tr>
<td>Engl. 101 Wrtg w/Rdgs in Expos</td>
<td>Engl 102 Wrtg w/Rdgs in Lit</td>
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<tr>
<td>Bus Ed 112 Interm Typing</td>
<td>Bus Ed 111 or 102 Western Civ</td>
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<tr>
<td>Bus Ed 113 Shorthand Theory</td>
<td>Bus Ed 114 Shorthand Dictation</td>
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<tr>
<td>Sp Com 101 or 255 Intro To Spch</td>
<td>Bus Ed 262 Adv Typing</td>
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<td>or Pub Spkg</td>
<td>Elective</td>
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Sophomore Year

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<th>Freshman Year</th>
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<tr>
<td>First Semester</td>
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<td>Engl. 101 Wrtg w/Rdgs in Expos</td>
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<td>Bus Ed 112 Interm Typing</td>
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<td>Elective</td>
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<td>15</td>
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Electives should be taken from the following areas in consultation with the student’s major adviser:

<table>
<thead>
<tr>
<th>English</th>
<th>Mathematics</th>
<th>Psychology</th>
<th>Geology</th>
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<tbody>
<tr>
<td>Fine Arts</td>
<td>Political Science</td>
<td>Sociology</td>
<td>Data Processing</td>
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</table>

§ See Business Education adviser.
A student who has had previous instruction in shorthand and typewriting should talk with the advisers in Business Education about waiving Bus Ed 112, 113, and 114 and arranging a proper sequence of courses in the secretarial administration area. This arrangement would enable the student to select 9 or more hours from the list of electives. Up to 2 hours in non-professional physical education courses may be taken for credit.

THE COLLEGE ENGLISH TUTORIAL PROGRAM

This Engl 101, 102 option provides a special service to those of you who need extra help with college-level English and study skills during your first year at the University. It is especially recommended if you score 14 or below on the ACT English examination, or if you feel that college study will pose special difficulties for you because of a poor background in English or other educational disadvantages. Classes are composed of only six students, meet five hours a week, and give tutorial help in certain coordinated outside courses as well as English. The purpose of the program is to insure a successful first year for those of you who might otherwise fail due to inadequate skills for university study. Full credit is given for Engl 101 or Engl 102. There is no fee for the program. Admission is voluntary, but the number admitted is limited.

For information, contact the College English Tutorial Program, University College Building, Room 12, or telephone 277-2631. Applications should be submitted early.

TESTING DIVISION

The Testing Division is located in the Student Health Center and University College Building. The Division coordinates required testing by the University and administers individual tests requested by the Counseling Center and the University College advisement staff. The Division also serves as a center for national testing programs such as the Graduate Record Examinations, Miller Analogies Test, Law School Admission Test, American College Test, GED (high school equivalency test), and numerous others. Information concerning these programs may be obtained from the Division.

In addition to testing services, the Division performs institutional research related to the testing programs and provides consulting services to UNM faculty and staff in the area of measurement and evaluation. By special arrangement, Division personnel are available to assist non-UNM institutions or agencies with problems related to the use of tests. A test and evaluation library which contains tests published in the areas of intelligence, achievement, aptitude, interest, and personality as well as standard evaluation tests is available to qualified faculty, staff, and non-students.
The School of Architecture and Planning (formerly the Department of Architecture in the College of Fine Arts) was established by authorization of the faculty of the University of New Mexico, effective July 1, 1975.

ARCHITECTURAL EDUCATION

Because the architect of the future will not only design buildings but will be involved with problems of the total design of the physical environment, we can no longer think of an architect solely in terms of traditional architectural practice. The architect will have new, expanded responsibilities and will need a broader, more multi-disciplinary education. The School of Architecture and Planning at the University of New Mexico is organized to meet these new demands on the profession. Individual faculty members of the School take responsibility for major program areas; students and faculty together determine School goals and policies; a strong effort is made to proceed by consensus. The School places special emphasis on:

1. A high-quality, multidisciplinary education tailored to individual interests, abilities, and motivation.
2. Programs that are regionally oriented, dealing with architectural, planning, and environmental issues of the Southwest.
3. Applied research and public service to the State of New Mexico.
4. The direct commitment of funds and energy to the effective education and professionalization of disadvantaged groups.

CURRICULUM IN ARCHITECTURE

The six-year professional program in Architecture consists of a four-year undergraduate program leading to a baccalaureate degree, and a two-year graduate program leading to the degree of Master of Architecture.

The undergraduate program provides a liberal education with concentration on the basic knowledge, skills, and professional and social responsibilities required to solve the problems of the physical environment in preparation for entry into one of three options at the Graduate level: Architecture, Planning, or Environmental Science. It also provides a broad education for those students wishing to terminate their studies at this point and enter related fields.

The graduate program allows the student to specialize in a specific field in depth, so that the student can practice that specialty as a professional or pursue his or her interest through research and post-graduate study in a doctoral program at another university. (See Graduate Bulletin.)

ACCREDITATION

The Master's degree in Architecture is considered the first professional degree and is accredited by the National Architectural Accrediting Board (NAAB).

The graduate options in Planning and Environment provide the student with basic knowledge to pursue professional careers in either of these fields; however, professional degrees are not awarded in these options at this time.

LICENSING

Graduates of the School of Architecture and Planning with a Master's degree in Architecture are eligible to take the State Board examination by which
they may be licensed to practice as registered architects. However, a graduate holding this degree must determine through the State Board of Examiners in the licensing state the length of time to be served in internship, and the examinations to be taken.

ADMISSION PROCEDURES

All incoming freshmen are enrolled in the University College (see p. 65). A student may apply for transfer and acceptance into the School of Architecture and Planning from any college in the University (including University College) upon the completion of:

1. A minimum of 26 hours of credit.
2. A scholarship index of at least 2.5 on all hours attempted.
3. Demonstration of competency in English by receiving a score of 20 or higher on the American College Testing exam (ACT) or its equivalent.
5. A personal interview with School faculty.

Transfer students from other institutions must meet the general qualitative admissions requirements for transfers established by the University and meet all requirements established by the School of Architecture and Planning. A small number of students not meeting all the requirements of the School but demonstrating outstanding ability and promise may enter the School on a probationary status by special permission of the Dean.

GRADUATION REQUIREMENTS

A Bachelor's degree with a major in Architecture is granted upon satisfying all general University requirements and completing a minimum of 128 hours with a grade-point average of 2.0 or higher. Of these, 40 hours must be in courses numbered 300 or above, and no more than 4 hours of physical education courses may be included. A concentration of no less than 18 hours within some single department outside the major must be included.

1. Courses outside the major must include 30 hours of credit from the College of Arts and Sciences, of which 6 hours must be in Mathematics (above but not including Math 121), and 3 hours in either Physics, Biology, Geology, or Chemistry; 6 more hours outside the major must be selected from departments of the College of Fine Arts. 48 hours
2. Courses inside the major must include at least 6 hours of Art, 6 hours of Art History, and 9 hours of credit from the College of Engineering. (Note: Courses inside the major may not be used to satisfy requirements outside the major.) 70 hours
3. Additional courses may be taken in any field, including Architecture. 10 hours
Total 128 hours

SCHOLARSHIP

Enrollment quotas have been established for each year of the program. If a student's grades fall below a 3.0 in Architecture courses, or a 2.5 overall, the faculty reserves the right to drop that student from the School of Architecture and
Planning. Students who plan to enter the Graduate School for the professional study of Architecture, Planning, or Environment must graduate with a 3.0 overall average in order to be considered for admission to the graduate program.

OTHER PROGRAMS

Design Planning Assistance Center: Through the DPAC the School provides architectural and planning service to New Mexico community organizations who have no financial resources to obtain services elsewhere. This program provides the opportunity for students to work in the communities to gain experience similar to that of professional practice.

Center for Environmental Research and Development: Through the CERD, the research arm of the School, environmental issues of the Southwest are being studied, including conservation of energy, solar heating and cooling, water planning and land use, and environmental impact in semi-arid climates. This program enables students to work as research assistants, studying these and other environmentally relevant issues.
COLLEGE OF ARTS AND SCIENCES

THE COLLEGE of Arts and Sciences offers instruction in various areas which relate to man's cultural, social, and scientific achievement. Although the fields of study underlie the more specialized work of graduate and professional schools, the degree programs are not designed as vocational ends, but rather as the means for understanding mankind's achievements and problems. Concerning the acceptance of work in business and administrative sciences, education, engineering, medicine, nursing, pharmacy, and fine arts, see "Electives" and "Special Curricula."

DEGREES

Upon the recommendation of the faculty and the President of the University, the degree of Bachelor of Arts or Bachelor of Science is conferred by the Regents upon those candidates who have completed all requirements. Differing requirements are specified for the Bachelor of Arts degree and for the Bachelor of Science degree for majors in biology, chemistry, geology, or psychology. A candidate who completes the requirements for a major in mathematics, or physics will receive the degree of Bachelor of Science unless special request is made for the Bachelor of Arts degree. Bachelor of Science in Medical Technology is the only choice of degree in that field. Candidates with majors in any other subject will receive the Bachelor of Arts degree.

ADMISSION

All freshman are admitted to the University College. A detailed statement of entrance requirements is in the "Admission" section of this catalog.

ADMISSION FROM UNIVERSITY COLLEGE

Requirements for transfer from the University College into the College of Arts and Sciences are as follows:

1. Twenty-six hours of earned credit, of which 23 hours must be acceptable toward graduation from the College of Arts and Sciences.

2. (a) A scholarship index of at least 2.0 on all hours attempted; or
(b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.

3. Demonstrated competency in English writing by passing the Communication Skills Test. Students who have made a score of 25 or better on the English portion of the ACT need not take the Communication Skills test.

4. Students planning to major in one of the departments in the College of Arts and Sciences should transfer from University College at the end of their second semester, if they have fulfilled the minimum requirements listed in points 1, 2, 3 above.
TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

Transfer to the College of Arts and Sciences from another degree-granting college of the University of New Mexico requires a scholarship index of 2.0 on all work attempted while the student was enrolled in the other degree-granting college(s) and a demonstrated proficiency in English writing, established by passing our Communications Writing Skills test.

TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

A student seeking to transfer to the College of Arts and Sciences from another accredited institution must meet the University's general qualitative admission requirements for transfer and, in addition, must present a minimum of 26 semester hours, 23 hours of which must be in courses acceptable toward graduation from the College of Arts and Sciences and the passing of our Communications Writing Skills test.

COMMUNICATIONS WRITING SKILLS TEST. Transfer students and readmits may be admitted to the College of Arts and Sciences on a Provisional basis for one semester. If at the end of that time the students have not taken and passed the Communications Writing Skills Test they will be disenrolled.

TRANSFERRED GRADE OF D. Courses with grade of D transferred from another institution cannot be allowed for credit in the University of New Mexico. In certain sequences of courses in the College of Arts and Sciences, however, where grades of D from another institution are involved, it is possible for a student to secure a waiver of certain lower-division requirements. For information on this possibility, the student may consult the Dean of the College.

GRADUATION REQUIREMENTS

A degree from the College of Arts and Sciences is awarded upon completion of a program designed to give the student access to a relatively broad range of knowledge in the liberal arts (group requirements) coupled with deeper penetration of two disciplines (the major and the minor). In addition, most students have the opportunity to select electives that accord with specific interests not satisfied by group requirements, major, or minor.

The student declares a major and minor as soon as 80 semester hours have been earned toward a degree. This is accomplished by picking up a degree application from the Dean's office, completing it, and returning it to the Dean's office. A summary showing exactly what is required for completion of the degree will be prepared and sent to the student. The student is solely responsible for completing all requirements for graduation.

Students graduating from the College of Arts and Sciences must have a minimum of 96 hours of work taken in courses taught in the College of Arts and Sciences. Exceptions are allowed for majors in Home Economics where the number of Arts and Sciences hours may be reduced to 88.

Specific graduation requirements are as follows:

1. Completion of 128 acceptable semester hours, four of which may be physical education activity. Grades of F are not counted toward graduation.

2. Either (a) a grade-point average of 2.0 on all college level work ever attempted, or (b) a grade-point average of 2.0 on the last 128 semester hours.
3. Completion of at least 40 hours in courses numbered 300 or above, with at least a 2.0 average in all such hours attempted.

4. Completion of major and minor (see major and minor studies on following page).

5. Completion of the Group Requirements described below.

6. A student expecting to graduate in May, 1976 must apply for a degree at the College of Arts and Sciences office by December 20, 1975 or apply December, 1976 for graduation May, 1977.

7. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

GROUP REQUIREMENTS

The purpose of the following group requirements is to insure that the student will explore various fields of knowledge before beginning to concentrate too heavily in a field of his or her choice. The student’s program should be arranged so that these group requirements will be fulfilled as early as possible, preferably within the first two years.

To fulfill the group requirements the student must complete:

36 hours in five of the six groups—taking six hours in four areas and 12 hours in a FIFTH AREA.

The following restrictions apply:

1. No course may be applied to more than one group.

2. Hours from the major may be applied to only one group.

3. Hours from the minor may be applied to only one group.

4. Work done at another school or in another college may apply but requires approval of the Dean of the College.

5. Courses taken in the General Honors Program (exclusive of USP courses) may, with approval of the Dean, be counted toward the group requirements, up to a maximum of six hours. Such General Honors courses must be taught by regular faculty members and shall be of such content that satisfy relevant group requirements.

The six group requirements are as follows:

I. Communications.

   English: Any course for which the student has the prerequisites in English writing, specifically English 102, 220, 221, 222, 320, 321, 322, 421 and 422.

   Speech: Any course for which the student has the prerequisites.

   Linguistics: Any course for which the student has the prerequisites.

   Journalism: Any course for which the student has the prerequisites.

II. Humanities. English literature, foreign literature, comparative literature, history, philosophy.
III. Natural Sciences and Mathematics. Biology, chemistry, geology, mathematics, physics and astronomy, psychology. (Math 120 does not meet this group requirement but may be used for elective credit.)

IV. Social Sciences. Anthropology, economics, geography, political science, sociology.

V. Foreign Language. Courses, except literature in translation, at whatever level is appropriate to the student’s ability.

VI. Fine Arts. Recommended courses are: Arch 101, 261, 262; Art Hi 101, 130, 201, 202; TA 115, 116; Music 139, 140, 171; Film 210. Not acceptable for this group are courses in Studio, Design, Dance (with the two exceptions of Dance 262 and 263), Applied Music, Music Theory, or Ear Training.

MAJOR AND MINOR STUDIES

Upon completion of 80 hours, a student shall declare (1) a major and a minor subject or (2) two major subjects, or (3) one of the special curricula of the College, and the program of studies thereafter shall meet the approval of the chairman of the major department or the supervisor of the special curriculum. A student may not elect both a major and a minor outside the college.

Only work of at least C quality is accepted toward the major and the minor; in the case of a special curriculum, all work within the general area of the specialization must be of at least C quality. Cr (Credit) grades are not accepted in the major and minor with the exception of courses previously approved by the Entrance and Credits Committee in a few departments. (Courses in which grades of D are earned in the University of New Mexico may be accepted as electives and in fulfillment of group requirements.)

For the Baccalaureate degree in the College of Arts and Sciences in departments requiring a major and a minor, the major department may specify in lieu of a single minor in one department a distributed minor in courses in related departments. The distributed minor shall consist of not less than 30 semester hours nor more than 36 semester hours. With the permission of the Dean, some relaxation may be allowed in the rules relating to number of hours required in courses numbered 300 or above when this rule is in conflict with distributed minor requirements. In all cases, however, the student will be expected to have at least 35 hours in courses numbered 300 or above. The student should consult the chairman of his major department if he wishes to take a distributed minor.

DOUBLE DEGREE IN THE COLLEGE OF ARTS AND SCIENCES

Students wishing to pursue a second baccalaureate degree will need to complete a minimum of 30 hours beyond the first degree and must choose different majors and minors. The minor used for the first degree may be raised to a major but the first major may not be used as the minor for the second degree. In no case would a student receive two Bachelor of Arts or two Bachelor of Science degrees unless one had been earned from a different university.

CERTIFICATION TO TEACH IN HIGH SCHOOL

It is often possible for a student taking a degree in the College of Arts and Sciences to achieve certification as a secondary school teacher in New Mexico.
on the same basis as students graduating from the College of Education and without going beyond the 128 semester hours required by the College of Arts and Sciences for graduation. To do this, however, requires careful planning of the program. In certain major-minor combinations a student cannot achieve the B.A. or B.S. degree from the College of Arts and Sciences and also achieve teacher certification without taking more than 128 semester hours. The plan is possible only when the major-minor combination (or double major) is in subject areas usually offered in high school (see College of Education section for approved areas). All students at the University of New Mexico who expect to follow a course of study leading to certification are subject to the requirements for admission to teacher education listed in the College of Education section of this catalog.

Completion of Arts and Sciences group requirements will satisfy the General Education requirements for teacher certification by the College of Education.

See College of Education for a listing of professional education requirements for certification.

Recently the minimum number of hours required for teaching in New Mexico was raised. Twenty-four semester hours of credit in a teaching field are now required in English, foreign language, and mathematics. In composite areas 24 hours are required in the area, of which 12 semester hours of credit must be in the specific subject to be taught.

Please check with the Arts and Sciences office or the College of Education for courses included in each teaching field in addition to the specific subjects to be taught.

COMBINED CURRICULA

Degrees in both the College of Arts and Sciences and the College of Engineering may be obtained by following a five-year curriculum to be outlined in each case, jointly, by the deans of the two colleges. Any student interested in this curriculum should confer with the deans before the end of the sophomore year.

A combined preprofessional program in the College of Arts and Sciences and the School of Business and Administrative Sciences leading to both a bachelor’s and a master’s degree in five years has recently been initiated. Termed the “Three-Two” M.B.A. proposal, a student may complete his group requirements and major in the College of Arts and Sciences in his first three years, then complete the B&AS minor his fourth year in courses from the School of Business and Administrative Sciences as outlined in that section of this catalog.

ELECTIVE COURSES ACCEPTABLE AND UNACCEPTABLE

Acceptable

Most courses in the College of Arts and Sciences as well as those taught in most other colleges including:

1. Up to 6 hours of shorthand;
2. Up to 4 hours of ensemble music;
3. Up to 4 hours of PE activity of which 2 hours may be H Ed 164;
4. Eight hours of Dance may be substituted for the above 4 hours of PE and 4 hours of ensemble music; (not including Dance 262 or 263.)

5. Up to 3 hours of shop;

6. Up to 7 hours in Health, Physical Education, and Recreation to be chosen from H Ed 171, 212, PE 397, 398, 399, 466, 489, Recrea 175, 452, 480;

Unacceptable

1. Courses in typing or in office machines and filing and any hours in excess of 6 in shorthand in the College of Arts and Sciences;

2. Ensemble music in excess of 4 hours;

3. PE activity courses in excess of 4 hours;

4. USP courses in excess of 4 hours;

5. Shopwork in excess of 3 hours;

6. Courses in Health, Physical Education, and Recreation in excess of 7 hours or courses taken other than those listed as acceptable in Item 6 above;

7. Hours in excess of 3 in high school methods and in excess of 6 in practice teaching;

8. All courses in elementary education, nursing, and pharmacy which are primarily vocational or directed towards professional practice.

9. Vocation or technical courses in the Associate of Arts, Associate of Science or similar courses in Nursing, Pharmacy, Dentistry, and Medicine;

10. Courses taken in a school of law or medicine to be used for degrees in law or medicine may not be used toward a degree in Arts and Sciences.

FRESHMAN-SOPHOMORE PROGRAMS

Normally students enrolled as freshmen in the University College take only courses numbered 100-199. Courses numbered 200-299 are open to sophomores. Courses numbered 300 or above are not open to freshmen, unless the student has the permission of the instructor, the chairman of the department and the dean of the college.

DEPARTMENTS OR PROGRAMS OF INSTRUCTION

The College of Arts and Sciences offers the following as possible majors and minors:

**MAJORS**

Anthropology

Biology

Chemistry

Communicative Disorders

Economics

Economics-Philosophy

English

**MINORS**

American Studies

Anthropology

Asian Studies

Biology

Chemistry

Distributed

Communicative Disorders

Economics

English
OTHER PROGRAMS

The majors and minors listed below are not programs in the College of Arts and Sciences. However, a student may elect to take any one but may not take both the major and minor from the following programs outside the College of Arts and Sciences.

Art

Business & Administrative Sciences
Computing and Information Science
Electrical Engineering
Home Economics
Library Science
Mechanical Engineering
Music
Naval Science
Special Education
Theatre Arts (Drama)

Medical Technology

Major and minor requirements and descriptions of the courses offered will be found, listed by departments, in the catalog section “Courses of Instruction.”

PRE-PROFESSIONAL AND OTHER CURRICULA

Students are cautioned against assuming that 4-year college courses always prepare for professional work. At least one year of specialized graduate work is advisable, even if not actually required.

Students who plan to study Law will normally complete a degree in the College of Arts and Sciences before gaining admittance to a Law School.

Students wishing advice concerning curriculum preparatory to professional studies in Forestry may consult Professor William C. Martin, Department of Biology; those interested in curricula preparatory to Medicine or Dentistry may consult Dr. Earl Bourne, Biology Department, or Dr. Guido Daub, Chemistry
Department, or Dr. Monica Novitski, College of Pharmacy; those interested in Medical Technology may consult Dr. David Landau, Department of Biology.

CURRICULUM PREPARATORY TO DENTISTRY

The minimum requirement for admission to accredited dental schools is two years of acceptable academic work with a scholarship index of 2.5. In general the predental program is identical with the premedical curriculum outlined below.

The student should select the dental school(s) to which he plans to seek admission, and then, with the assistance of the predental adviser, plan a course of study which will meet the admission requirements of the school(s) in which he is interested. A student who plans to do more than 2 years preparatory to entering a dental school should select courses which will give him a broad liberal arts background as well as courses which will prepare him for the more technical requirements of dental school.

Ordinarily, the student will be expected to plan his academic program in such a manner that, if his plans to go to dental school do not materialize, he will still have made progress towards a baccalaureate degree.

Further information and advice may be obtained from Dr. Earl Bourne, Biology Department, Dr. Guido H. Daub, Chemistry Department, and Dr. Monica Novitski, College of Pharmacy: Pre-dental students should choose one of these three persons as the chairman of their advisory committee.

CURRICULUM PREPARATORY TO FORESTRY

Because of the variable admission requirements of different schools of forestry, the student is advised to seek admission information from the Department of Biology. Two years of preforestry are available.

CURRICULUM PREPARATORY TO MEDICINE

The requirement for admission to medical schools approved by the Association of American Medical Colleges and by the Council on Education of the American Medical Association is ordinarily at least 90 semester hours in a college of arts and sciences. However, because of the large number of applications to medical schools in recent years, it is difficult to gain admission without a bachelor's degree.

Although the requirements for admission to the various medical schools in the United States vary somewhat, there are certain basic minimum science requirements common to all. These include one year of general biology, general chemistry, a year of organic chemistry, a year of physics, and a year of mathematics with calculus. In addition, 27 of the 110 approved schools specifically require quantitative analysis, 11 require embryology, and 18 require qualitative analysis or physical chemistry. A few include specific language requirements and courses in the social and behavioral sciences. Exact requirements for each school are included in Medical School Admission Requirements, U.S.A. and Canada, a volume put out each year by the Association of American Medical Colleges. Students interested in a particular school should consult this volume.

In recent years medical schools have increasingly tended to give equal consideration for admission to students majoring in the humanities or social sciences. A liberal background and breadth of education are felt to be desirable for anyone seeking a professional career. Good performance in the minimum science
requirements is particularly important for these students, however, since they must demonstrate that they can handle the quantitative scientific material which is crucial in the modern medical curriculum.

Students interested in medical school generally take the Medical College Admissions Test in the spring of their junior year or the fall of their senior year. Hence it is advisable to complete the minimal basic science requirements by the end of the junior year. Because there are many more applicants for admission than there are places available, there is no assurance that a given student will qualify. Students should, therefore, select their major fields on the basis of their own interests, rather than from the limited viewpoint of specific pre-professional education.

Premedical students expecting to major in biology or chemistry are advised to complete the following course of studies during the first two years. Those majoring in the humanities or social sciences will need to take the same basic science courses before admission to medical school, but they will be able to spread them over a somewhat longer period.

<table>
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<tr>
<th>First Year</th>
<th>Second Year</th>
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<tr>
<td>Engl 101, 102</td>
<td>Engl Lit, Psych 101</td>
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<tr>
<td>Chem 101L, 102L or 121L, 122L</td>
<td>Chem 301, 303L, 302, 304L</td>
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<tr>
<td>Biol 121L, 122L</td>
<td>Humanities or Social Science</td>
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<tr>
<td>Math 150 or 162 or 180-181</td>
<td>Physcs 151, 152, 153L, 154L</td>
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<td>Electives</td>
<td>Electives</td>
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</table>

Further information and advice may be obtained from Dr. Earl Bourne, Biology Department, Dr. Guido H. Daub, Chemistry Department, or Dr. Monica Novitski, College of Pharmacy.

MEDICAL TECHNOLOGY CURRICULUM

Medical Technology is a combined study of chemistry, physics, biology and microbiology. A medical technologist is one who, by education and training, is capable of performing the various chemical, microscopic, bacteriologic and other medical laboratory procedures used in the diagnosis, study and treatment of disease.

The College of Arts and Sciences offers jointly with the School of Medicine, Allied Health Sciences Center, a program leading to the Baccalaureate degree in Medical Technology. In this program the student follows a prescribed curriculum which requires at least three years in the College of Arts and Sciences and a 12 month course in medical technology offered by the Laboratory Sciences division of Allied Health Sciences in the School of Medicine, which is approved by the AMA and the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Upon completion of this program, which satisfies the requirements for a Bachelor's degree in Medical Technology, the student is eligible to take the examination for certification offered by the Board of Registry of the American Society of Clinical Pathologists (ASCP). Students who complete the prerequisite courses in the Arts and Sciences portion of this program are hereby notified that the completion of these courses does not necessarily mean admission to the 12 month course in Medical Technology in the School of Medicine.

Upon completion of the 3 years academic study, a student is eligible to apply for the 12 month medical technology training program if he:

1. Has completed 96 hours, of which 4 may be PE, of the prescribed pro-
gram in medical technology as outlined below, since 32 hours of credit are allowed in the last 12 months of study in the School of Medicine toward the degree requirements.

(2) Has a minimum of 2.0 GPA in all subjects and a minimum of 2.0 GPA in all Biology and Chemistry courses.

A student may also elect to complete 4 years of academic study at the University leading to a Baccalaureate degree, then 12 months of training in the approved medical technology program. For specific requirements under this option, refer to "Medical Laboratory Sciences," section of catalog.

Undergraduate students transferring to UNM and students who have already earned their Baccalaureate degree will meet the UNM residence requirement if admitted to the 12 month Medical Technology program since 32 credit hours are completed in this year of work.

UNM students planning to take their training in some approved medical technology school other than the one on the UNM campus must complete a minimum of 107 hours in order to complete the senior residence requirement.

The order of courses in the prescribed program should be followed as closely as possible. Students wishing to follow this program should make their intention known to the Medical Technology adviser, Dr. David Landau, Department of Biology, as early in their student careers as possible.

### PRESCRIBED PROGRAM—MEDICAL TECHNOLOGY

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<th>Freshman Year</th>
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<td>First Semester</td>
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<tr>
<td>Chem 101L Gen or 121L</td>
<td>Chem 102L Gen or 122L</td>
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<td>Biol 121L Princ</td>
<td>Biol 122L Princ</td>
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<td>Math 180</td>
<td>Engl 102</td>
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<td>Engl 101</td>
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<td>Sophomore Year</td>
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<td>Chem 301-303L Organ</td>
<td>Chem 302-304L Organ</td>
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<td>Biol 253/255L Gen Bact. Intro Microbiol</td>
<td>Biol 454L Path Bact</td>
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<td>A&amp;S group requirement</td>
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<td>Junior Year</td>
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<td>Physcs 151-153L Gen</td>
<td>Physcs 152-154L Gen</td>
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<tr>
<td><strong>Chem 253 Quant Anal</strong></td>
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<tr>
<td>A&amp;S group requirement</td>
<td>Electives in College of Arts and Sciences</td>
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<td>Senior Year</td>
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<td>Med Lab Sci 406 Clin Serol</td>
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<td>Total number of hrs. required—128, 4 of which may be P.E. activity.</td>
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</table>

After completing the above course program and completion of a 12-months' course in medical technology at an approved school, the student will submit a

* Math 150 or the equivalent as determined by the placement examination given by the Department of Mathematics and Statistics.
** Not required if Chem 121L and 122L taken.
transcript of his work (to complete his application) for the degree of Bachelor of Science in Medical Technology from the University of New Mexico.

LATIN AMERICAN CENTER
Marshall R. Nason, Professor of Modern Languages, Director
Advisory Committee: Professors M. Nason (Chairman), B. Bunting (Fine Arts), S. Cohen (Economics), R. Holemon (Education), E. Lieuwen (History), G. Merkx (Sociology), M. Needler (Political Science), S. Ulibarri (Modern Languages).

The Latin American Center, partially supported by federal funding under NDEA Title VI, is an administrative unit of the College of Arts and Sciences and the Graduate School. It does not directly offer any degree programs or courses but is responsible for coordination and technical services in connection with the University's total program of academic work in the Latin American field. It prepares studies, reports, and proposals, and is concerned with plans for course offerings, staffing needs, coordination of library purchases, the interchange of scholars, and the arrangement of lecture series.

Applications for NDFL Title VI and for Fulbright-Hays fellowships are also received and processed by the Center.

Students interested in pursuing courses of study related to Latin America should consult the catalog listings under "Division of Inter-American Affairs" (immediately below), "Ibero-American Studies," and the Departments of History and Modern and Classical Languages, as well as offerings in the fields of anthropology, architecture, art history, business and administrative sciences, economics, education, political science and sociology.

The Latin American Center is the administrative unit responsible for the overseas study program of the Andean Study and Research Center at Quito, Ecuador. (See below.)

DIVISION OF INTER-AMERICAN AFFAIRS
Martin C. Needler, Professor of Political Science, Director

The Division of Inter-American Affairs is an administrative unit of the College of Arts and Sciences and of the Graduate School. The division offers the Bachelor of Arts and Master of Arts degrees in the field of Latin American Studies.

The undergraduate curriculum in Latin American Studies is designed to provide basic training in fundamental subjects and a choice of supplementary courses to meet individual needs and preferences. Emphasis is given equally to language study and the social sciences. Proficiency in Spanish and a reading knowledge of Portuguese are basic requirements for the Latin American major and students are encouraged to use the languages as tools in various advanced courses in the program. For degree requirements, see course listings under "Latin American Studies."

ANDEAN STUDY AND RESEARCH CENTER, QUITO, ECUADOR
Marshall R. Nason, Professor of Modern Languages, Director

In order to provide advanced and graduate students in Latin American lan-
The Andean Center constitutes a physical transfer of a portion of the Albuquerque-based Latin American Language and Area program to an overseas site and is, therefore, a fully accredited program designed to serve the student’s degree requirements while giving him significant cross-cultural exposure and the opportunity to improve his language skills. The study plan is designed to maximize the advantages of the South American location; it offers optimum opportunities to work with host-country specialists and to observe directly the social and cultural realities of a region which, because of its great diversity, constitutes virtually a Latin American microcosm.

By keeping the cost of study at the Andean Center (including international and in-country travel) at a figure close to the outlay of a UNM student living in a University residence hall, it is hoped that all aspirants to specialization in the Latin American field, both graduate and undergraduate, will find it possible at some point in their training to avail themselves of this exceptional opportunity for study and research abroad.

The Andean Center occupies a handsome facility independent of either of the Quito universities, but close enough to both to facilitate class attendance at either. The building houses all classroom and administrative functions and provides certain social conveniences for the students. Enrollees, generally, reside in Ecuadorian homes.

The program of studies is so structured that the study of Latin American history, languages (including Portuguese) and literatures are standard components. Emphasis in the social sciences, other than history, may vary from year to year. Efforts are made to provide special training for students in pre-professional fields such as journalism and education. Students desirous of informing themselves as to the exact course offerings for any semester should contact the Director, Latin American Center. The Quito Center is staffed by a Resident Director chosen from the UNM faculty, an Ecuadorian Associate Director and a bi-national teaching faculty consisting of UNM and Ecuadorian specialists.

Enrollment is open to juniors, seniors, and graduate students in good standing at the University of New Mexico or any other students eligible for admission to the University of New Mexico, provided they have the necessary linguistic skills to accommodate classroom work in Spanish and the normal requisites for upper division work. A pre-registration system has been provided for scheduling of courses and payment of fees prior to group departures for Quito. Students potentially interested in attending the Center should place themselves on the Latin American Center mailing list for special advisory releases.

Students who are recipients of University fellowships, scholarships and Title IV or VI grants (i.e., those which do not require that the recipient render specific service at Albuquerque) may utilize such assistance at the Andean Center. Some scholarship assistance and work-study assignments are available through the Associated Students of the University of New Mexico and the Student Aids office respectively.
THE ROBERT O. ANDERSON
SCHOOL OF BUSINESS AND
ADMINISTRATIVE SCIENCES

THE Anderson School has as its major objective the preparation of professional managers for the private, public, and not-for-profit sectors. Career preparation is emphasized in the following areas:

- General Management
- Professional Accounting Curriculum
- Computer Based Information Systems
- Financial Management
- Industrial Relations and Human Resources Management
- Managerial Economics
- Marketing Management and International Business
- Operations Management

The Anderson School emphasizes breadth in management education necessary for lifelong professional career development. The curriculum also provides essential skills which enable our graduates to secure excellent initial employment opportunities in their selected career fields.

DEGREES OFFERED

The Robert O. Anderson School of Business and Administrative Sciences offers three degrees: The Bachelor of Business Administration, The Master of Business Administration, and The Master of Industrial Administration. A Ph.D. in Business and Administrative Sciences now has been approved by the State Board of Educational Finance and will be offered in the near future.

Bachelor of Business Administration. The B.B.A. degree requires satisfactory completion of a four-year (128 hours) course of studies which features an upper division (junior and senior years) professional curriculum. Specific admission and graduation requirements are discussed in later sections.

Before admission to the upper division professional curriculum, the student first takes coursework in a number of foundation subject areas outside the field of business while enrolled in the University College or some other college. The coursework in the upper division consists of two groups. The first group is required of all students in the School and comprises the core of the subject matter in business and the administrative sciences, including courses in managerial controls, organizational sciences (behavior), operations, and environment. The second group in the upper division professional curriculum consists of elective courses of the student's own choosing.

The Program provides the opportunity for a 24-hour concentration in Accounting or more limited specialization in the fields of Computer-Based Management Information Systems, Finance, International Business, Management Science, Marketing, and Organizational Behavior. Qualified students who seek further specialization in these fields should plan on an additional year of study leading to the M.B.A. degree.

Master of Business Administration. The School offers two programs leading to the M.B.A. degree. One program is for persons already having completed
a bachelor's degree. For information concerning the Master of Business Administra-
tion degree, consult the Graduate Bulletin and the separate Bulletin of the
Robert O. Anderson School of Business and Administrative Sciences.

A second program leading to the M.B.A. degree is offered by the Robert O.
Anderson School of Business and Administrative Sciences jointly with cooperating
Departments in the University. It is a special program which permits a student to
complete a bachelor's degree in a field outside of business and an M.B.A. de-
gree in five years. This program is designed so that the first three years are
devoted to general university studies and the undergraduate major and the final
two years are used to complete the requirements of the graduate program of this
school. This program is described in a later section as the Three-Two Program.

Master of Industrial Administration. The M.I.A. degree is awarded to
candidates who successfully complete the Management Masters Program. This
two-year program is restricted to managers from public and private organiza-
tions with at least 3-5 years of managerial experience and who retain full job
responsibilities while enrolled. Additional information is available in the separate
Management Masters Program Bulletin and from contacting the Director of the
Executive Program.

SCHOLASTIC REGULATIONS

The student should become familiar with the general academic and scholastic
rules which apply to all students enrolled in the University.

Special attention is called to the rules on probation and suspension.

It is a firm policy of the School that course prerequisites must be observed.
Business and Administrative Sciences courses taken out of sequence cannot be
used to fulfill the degree requirements of the School regardless of the grades
earned in such courses.

BACHELOR OF BUSINESS ADMINISTRATION DEGREE PROGRAM

The Upper Division BBA Program at the University of New Mexico's Robert O.
Anderson School of Business and Administrative Sciences provides for the student
to enter the University College as a freshman and spread his first two years of
study over diverse disciplines—anthropology, sociology, history, psychology,
literature, economics, sciences, mathematics—and to concentrate in his last two
years on studies leading to the Bachelor of Business Administration degree. The
wide-ranging early studies give the student necessary breadth as a person and
necessary perspective on the world in which he will function as a manager.

The program is designed to give broad experience in the liberal arts and
applied sciences as preparation for productive living and progress toward
executive responsibilities. The program of studies designed to achieve these
objectives has three main divisions. The first division includes courses in a
number of areas of knowledge outside the fields of economics and business
and comprises 40 percent or more of the entire four-year program; the second
division is that of a group of courses in managerial controls, organizational
sciences, operations and environment specifically required of all students in
the School; the third division comprises a group of electives of the student's
own choosing.
ADMISSION

All freshman students are admitted to the University College. A detailed statement of admission requirements for that College is in the "Admissions" section of this catalog.

ADMISSION FROM THE UNIVERSITY COLLEGE

The minimum requirements for transfer from the University College to the Robert O. Anderson School of Business and Administrative Sciences are:

1. Sixty-two hours of earned credit.
2. A scholarship index of at least 2.0 on the last 62 hours attempted.
3. A scholarship index of at least 2.3 for the "Specific Requirements" (see below) or a grade of "C" or higher in each of these courses.
4. Satisfactory competence in both written and spoken communications. Students should be advised that effective communications (both oral and written) are essential for satisfactory performance in the upper division courses of the Robert O. Anderson School of Business and Administrative Sciences. Therefore, students who have difficulties in these areas are advised to take appropriate courses in English and Speech Communication as a part of their first two years' work.

5. Completion of the following course requirements:
   a. General Education Electives
      (1) Humanities (English-Literature, History, Modern Languages, Philosophy, Speech Communication) 9 hours
      (2) Social Sciences (Anthropology, Geography, History, Political Science) 9 hours
      (3) Laboratory Science (Biology, Chemistry, Geology, Physics) 4 hours
   b. Specific Requirements—Either a scholarship index average of at least 2.3 must be earned for this entire group of courses or a grade of "C" or better must be earned in each of these courses.* These courses are prerequisites for all 300- and 400-level courses in the Robert O. Anderson School of Business and Administrative Sciences.**
      (1) Math 121, 180 (or the equivalent) 6 hours
      (2) Econ 200, 201 6 hours
      (3) Behavioral Sciences—Either Psych 102 and a second year or higher psychology course or Soc 101 and a second year or higher sociology course 6 hours
      (4) Statistics—Math 102, B&AS 290L 4 hours
      (5) Computer Science—CIS 150 (or the equivalent) 3 hours
      (6) Introduction to Accounting—B&AS 202* 3 hours
   c. Electives 12 hours

* Students desiring an accounting concentration must earn at least a "C" in B&AS 202, and should schedule this course for the first semester of the sophomore year. Those aspiring toward an accounting concentration should consult with a member of the accounting faculty during their first semester at the University.

** B&AS 303 or 340 may be taken by those concentrating in accounting in the second semester of the sophomore year.
### SUGGESTED FIRST TWO YEARS OF BBA PROGRAM

#### Freshman Year

| First Semester | 3 hours | Math 121 College Algebra |
| Natural Science | 4 hours | Math 180 Calculus |
| Humanities Elective | 3 hours | Econ 200 Principles & Problems |
| Social Science elective | 3 hours | Soc 101 or Psych 102 |
| Elective | 3 hours | Humanities elective |
| 16 hours | 15 hours | Elective |

#### Sophomore Year

| First Semester | 3 hours | Math 180 Calculus |
| CIS 150 Computing for Bus Stu | 3 hours | Math 102 Probability & Stat |
| Econ 201 Principles | 3 hours | B&AS 290L Business Stat Lab |
| B&AS 202 Intro to Acct | 3 hours | Soc Science elective |
| Soc or Psych (200 level or above) | 3 hours | Humanity elective |
| Elective | 3 hours | Elective* |
| 15 hours | 16 hours | |

#### Junior and Senior Years

Suggested programs for the junior and senior years for each concentration are available from the Registrar's office of the School and from the advisers.

The admission requirements stated above are minimum requirements. Since the number of applicants may exceed the number of students that can be admitted, the School cannot guarantee admission to all applicants meeting these minimum requirements. If additional selection is necessary, it will be based on prior academic performance with particular attention to the courses listed under Specific Requirements.

First preference for enrollment in all of the following courses will be given to students who have been admitted to the Robert O. Anderson School of Business and Administrative Sciences. Other students will be accepted on a space available basis, provided: (a.) they meet necessary prerequisites; and (b.) they have the consent of the instructor and the Registrar of the School.

### APPLICATION FOR ADMISSION FROM UNIVERSITY COLLEGE

Application for admission to the Robert O. Anderson School of Business and Administrative Sciences should be made during the semester that the student expects to complete the requirements set forth above. Normally, this will be in the second semester of the sophomore year.

### TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

Students seeking to transfer from other degree-granting colleges of the University must present at least 62 semester hours of acceptable credit with a grade-point average of 2.0 or better on all work attempted. Transfer students must meet the minimum requirements for transfer from the University College (see items 1-5 above). Such students should notify the School of their intent to transfer and present a transcript of their college work not later than the twelfth week of the semester in which they will complete the requirements for admission.

### TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

Transfers must meet normal requirements for admission to this University, as well as admission requirements to the Robert O. Anderson School of Business and Administrative Sciences. In view of the rather distinctive nature of our

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* Students concentrating in Accounting may take B&AS 340 at this time.
Business and Administrative Sciences program, it is the general policy of this School not to accept as transfer credit work in Business and Administrative Sciences completed elsewhere at the junior and senior levels. Students desiring to transfer credit for upper division courses must obtain approval of the faculty.

**GRADUATION REQUIREMENTS**

To graduate with the degree of Bachelor of Business Administration the following requirements must be met:

1. Completion of all pre-admission requirements.
2. Completion of a minimum of 128 hours (excluding PE) with a scholastic index of at least 2.0 on all semester hours attempted at the University of New Mexico.
3. Completion of a minimum of 52 hours in courses in Business and Administrative Sciences and Economics (including B&AS and Economics courses required for admission) with a scholarship index of at least 2.0 on all hours attempted.
4. Transfer students from other universities must take a minimum of 24 hours in Economics and Business and Administrative Sciences while enrolled in this School.
5. Course requirements
   (a) Pre-admission requirements 62 hours
   (b) Business and Administrative Sciences’ Core
      B&AS 300 Management Science I 3 hours
      B&AS 301 Management Science II 3 hours
      B&AS 303 Accounting for Management Control 3 hours
      B&AS 306 Organization Behavior I 3 hours
      B&AS 307 Organization Behavior II 3 hours
      B&AS 308 Organization Environment 3 hours
      B&AS 309 Legal Environment of Business
      or
      B&AS 310 Business Law 3 hours
      (Students concentrating in Accounting must take 310, but need not take 309.)
      B&AS 322 Marketing Management 3 hours
      B&AS 326 Financial Management 3 hours
      B&AS 498 Senior Seminar (taken in the last semester of the senior year) 3 hours
      Econ 300 Micro-Economic Theory 3 hours
      Econ 315 Money and Banking 3 hours
      Total Business and Administrative Sciences’ Core 36 hours*
   (c) Electives
      Upper Division Humanities 3 hours**
      Upper Division Social Science and/or Behavioral Sciences 3 hours**

* The upper division core requirements are subject to change. Students are responsible for meeting the core requirements in effect at their time of admission to the School.

**Accounting concentrations may substitute accounting electives for these two requirements. It is highly recommended that students concentrating in Marketing or International Business meet these two requirements by selecting electives from the inter-disciplinary listing of courses under each of these respective Concentrations.
Other—at least 6 hours must be in Business and Administrative Sciences courses; with special permission of the School electives may include up to 6 hours of courses at the graduate level provided approval of the Graduate School also is obtained. Total Electives 24 hours Total Degree Requirements 30 hours

6. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

GENERAL STUDIES
Students who accept an invitation to join the University of New Mexico General Studies program may apply their various seminars to satisfying appropriate General Education Requirements or Electives when approved in advance by the Dean of the Robert O. Anderson School of Business and Administrative Sciences.

AIR FORCE AND NAVAL ROTC
Students enrolled in the Air Force or Naval ROTC may need an extra semester beyond four years to complete the requirements for the degree of Bachelor of Business Administration and their commission. However, it is possible for students to complete these requirements in four years by using their required Naval and Air Force Courses as their “other electives” (see Graduation Requirements, part 5 (c)). It is important that such students insure that they are taking the required courses for the degree.

APPLICATION FOR DEGREE
During the first semester of the senior year students must file an application for the B.B.A. Degree with the Registrar of the Robert O. Anderson School of Business and Administrative Sciences. A graduation summary sheet will then be prepared and a copy supplied to the student. No student will be included on a list of candidates for graduation unless an application for degree has been approved.

CONCENTRATIONS
Candidates for the B.B.A. degree need not declare a concentration. However, those students desiring a concentration may choose from the following. In all instances, the courses listed for a concentration are in addition to the core courses required of all candidates for the B.B.A. degree. Those not desiring to complete a concentration will be certified as having a concentration in General Management and so listed in the graduation program.

Accounting: Advisers: Mr. Caplan, Mr. Christman, Mr. Clancy, Mr. Collins, Mr. Mori, Mr. Yeakel.
In addition to the core courses required of all B.B.A. candidates the accounting concentration consists of these courses:
B&AS 340, 341, 342, 346, 440, 443, 449 21 hours
B&AS 348 and 445 are strongly recommended as electives. Students interested in careers in professional accounting are urged to consider an additional year of study leading to the MBA degree.

**Computer-Based Management Information Systems: Advisers: Mr. Clancy, Mr. Newpeck.**

The course requirements are B&AS 449, 460, and five courses (15 hours) approved by the adviser.

**Finance: Advisers: Mr. Kwan, Mr. Simonson, Mr. Yeakel.**

Students electing a finance concentration, in addition to B&AS 326, must take B&AS 470, 471, 472, and two of the following: B&AS 340, 341, Econ 303, 350, 400, 415, and 425.

**International Business: Advisers: Mr. Lenberg, Mr. Raveed, Mr. Winter**

The course requirements are:

(a) B&AS 483 and 485 and
(b) 18 credit hours from the following: at least two of Econ 420, 424, 450; and remainder from Anthro 314 or 406, Econ 421, 455, 478, Geog 301 or 302 or 332 or 333 or 381, Hist 282, 303, 349, 384, 427, 438, 481, 483, Pol Sc 240, 355 or 356, 357, 442, 443, 445, Psych 373, Soc 425, French 201 or 275, German 201, Russian 201, Spanish 201 or 211 or other interdisciplinary studies with Adviser’s consent.
(c) It is highly recommended that the student’s 6 credit hours of electives in Upper Division Humanities and Upper Division Social Science and/or Behavioral Sciences also be selected from the courses listed under (b) above.

**Management Science: Advisers: Mr. Bell, Mr. Newpeck, Mr. Peters, Mr. Reid**

The course requirements are B&AS 436, 439, 449 and two courses (6 hours) in additional mathematics, computer science, or related subject areas approved by the adviser.

**Marketing: Advisers: Mr. Cooper, Mr. Lenberg, Mr. Raveed, Mr. Winter**

The course requirements are:

(a) B&AS 480, 483, 485, 486, 487 and
(b) 9 credit hours from the following: Econ 330, 332, 424, Journ 401, 402, Psych 413, Speech Comm 305, 341, 414 or other interdisciplinary studies with adviser’s consent.
(c) It is highly recommended that the student’s 6 credit hours of electives in Upper Division Humanities and Upper Division Social Science and/or Behavioral Sciences also be selected from the courses listed under (b) above.

**Organization Behavior: Advisers: Mr. Champoux, Mr. Finston, Mr. Jehenson.**

In order to qualify for a concentration in organizational behavior, students must have earned a scholarship index of 3.0 or better in B&AS 306 and 307. Additional courses in this concentration are B&AS 464 and 466 plus two upper division courses in psychology and/or sociology.
THE "THREE-TWO" PROGRAM FOR THE MASTER OF BUSINESS ADMINISTRATION DEGREE*

Completion of the "Three-Two" program is accomplished in the following manner:

1. For the first 3 years of his university studies, the student pursues a normal program of undergraduate work in either (a) the College of Arts and Sciences, (b) one of the other colleges in the University, or (c) the Bachelor of University Studies program.

2. During the third year of academic work, application is made for admission to the M.B.A. program of the Robert O. Anderson School of Business and Administrative Sciences.

3. In his fourth year of academic work, the student begins the first year of the M.B.A. program and also completes the requirements for a Bachelor's degree in his undergraduate field. Cooperating departments throughout the University will accept the courses in Business Administration taken during this year as constituting a minor for the purposes of the Bachelor's degree. At the end of the fourth year, all requirements for the Bachelor's degree will ordinarily have been met and the degree awarded.

4. During the fourth year of academic work, application is made for admission to the Graduate School. In order to continue in the M.B.A. program, the student is expected to meet the following requirements: (a) complete the Bachelor's degree requirements with an overall grade point average of 3.0, (b) maintain a "B" average in Business and Administrative Sciences courses; and (c) be accepted for admission by the Graduate School.

5. In his fifth year of study, the student will complete the second-year requirements and electives of the M.B.A. program.

6. In order to satisfy the requirements for the M.B.A. degree the student must earn a minimum of 30 hours with thesis or 32 hours without thesis while enrolled in the Graduate School.

ADMISSION

As indicated above, students electing the "Three-Two" program must apply for admission to the M.B.A. program during the third year of their undergraduate program. Application should be made to the Coordinator of Graduate Studies, Room 290, the Robert O. Anderson School of Business and Administrative Sciences in the semester preceding the beginning of the fourth year. No undergraduate student will be permitted to enroll in any 500 level course offered by the School unless he has been officially admitted for study.

*Students who will have earned a Bachelor's degree prior to entering the M.B.A. program should refer to the Bulletin of the Robert O. Anderson School of Business and Administrative Sciences for details concerning admission, curriculum and degree requirements. Copies of this bulletin may be obtained from the Coordinator of Graduate Studies, Robert O. Anderson School of Business and Administrative Sciences, The University of New Mexico, Albuquerque, New Mexico, 87131.
Requirements for admission are:

1. Completion, by the end of the semester in which application is made, of at least 90 hours of course work towards the Bachelor's degree. Not less than 30 of these hours must have been taken at the University of New Mexico.

2. Normally, a minimum grade point average of 3.0 on all work taken at the University of New Mexico.

3. Demonstration of sufficient breadth in the undergraduate program (see "Breadth Requirements" following.)

4. Completion, with a grade of "C" or better, of the following courses in mathematics and economics (or their equivalents): Math 162 and 163 or 180 and 181; Econ 201, 300, and 303. (Note: These requirements can be met after admission to the School—see below.)

5. A satisfactory score on the Admission Test for Graduate Study in Business must be submitted to the School. This examination is administered by the Educational Testing Service. Detailed information about the test and application forms may be acquired from the UNM Testing Center or by writing directly to Educational Testing Service, Box 966, Princeton, New Jersey, 08540. Since an application cannot be considered without the results of this test, students are urged to make arrangements to take it early in the semester preceding admission to the program.

TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

Transfers must meet normal requirements for admission to this University and must have completed 30 credit hours of course work at the University of New Mexico before being admitted to the first year of the M.B.A. program (fourth year of the "Three-Two" program). In view of the rather distinctive nature of our Business and Administrative Sciences program, it is the general policy of this School not to accept as transfer credit work in Business and Administrative Sciences completed elsewhere at the junior and senior levels.

DEGREES IN COMBINATION WITH OTHER COLLEGES OF THIS UNIVERSITY

At the graduate level, joint programs are available with the School of Law, and the Department of Nuclear Engineering, and the Division of Computing and Information Science. Similar programs are being planned with the School of Architecture and Planning. The student must satisfy the academic requirements of both entities, and early consultation on his curriculum with the respective schools or departments is encouraged.

BREADTH REQUIREMENTS

It is the objective of the Robert O. Anderson School of Business and Administrative Sciences to offer graduate, professional education within an intellectual framework provided by a broad liberal arts pre-professional program. As a general guideline, minimum breadth requirements for entry into the fourth year of the program are:
Recommended Courses for the First Three Years of the “Three-Two” Program

- **English and Literature**: 9 hours
- **Econ 201, 300, 303**: 9 hours
- **Behavioral Sciences (Recommended courses: Psych, Soc-Psych, Anthro)**: 10 hours
- **Political Science**: 3 hours
- **History and Philosophy**: 9 hours
- **Math 180 and 181 or 162 and 163**: 6-8 hours
- **Laboratory Science**: 8 hours

A student who has not taken the Mathematics and Economics courses listed above may still be admitted. He will, however, be required to take one or

*It is highly recommended that students planning to concentrate in Marketing or International Business meet these two requirements by selecting appropriate courses from the interdisciplinary listing of courses (or their prerequisites) indicated under each of the respective Concentrations.*
two additional courses offered by the School during his fourth year. These additional courses may increase the length of his program by a semester or summer session.

In order to reduce the possibility of a lengthened program, students who are considering the "Three-Two" program are encouraged to consult with an adviser in the Robert O. Anderson School of Business and Administrative Sciences at the earliest possible date in their academic career. Cooperative planning by the student, his adviser in the major field, and an adviser from this School should enable the development of an undergraduate program which meets the needs and interests of the student while, at the same time, providing the background required for admission to the M.B.A. program.

THE M.B.A. PROGRAM
First Year Core Courses:
B&AS 500 and 501 Quantitative Analysis I and II 6
B&AS 502 and 503 Accounting and Management Information Systems I and II 6
B&AS 504 and 505 Organizational Economics I and II 6
B&AH 506 and 507 Organizational Behavior I and II 6
B&AS 508 Organizational Environment 3
B&AS 509 Organizational Intelligence Systems 1-3
B&AS 510 Management Sci I 2

Second Year Core Courses:
B&AS 520 Operations Research and Production Management 3
B&AS 522 Marketing Management 3
B&AS 526 Financial Management 3
B&AS 528 Sem Integrative Management 2
B&AS 598 Seminar in Integrative Management 3
**Electives 15

The fifth year course of studies is the normal second year of the M.B.A. curriculum. A reasonable degree of specialization is possible in the areas of Accounting, Finance, Marketing, Management Science, and Organizational Behavior. See the Bulletin of the Robert O. Anderson School of Business and Administrative Sciences for details. Detailed information on course sequencing for the "Three-Two" program and statements setting forth specific course requirements and specialization options in the M.B.A. program may be obtained from the Coordinator of Graduate Studies, Room 290, the Robert O. Anderson School of Business and Administrative Sciences.

**Three hours must be taken in one of the basic areas included in the first-year core. Otherwise, courses may be taken in Business and Administrative Sciences or in other subject areas appropriate to the candidate's career objectives.
EDUCATORS hold key positions in our society. They create conditions which encourage learners of all ages to realize their own potential. The major purpose of the College of Education is effective preparation of such professional educational personnel as teachers, counselors and administrators. This mission is carried out with the cooperation of other colleges within the University of New Mexico.

The many programs of the College of Education prepare persons for positions at all levels of schooling from the primary level through the university level. The programs also prepare persons to hold positions in a variety of educational organizations from public school systems to educational organizations designed especially to serve particular minorities.

As our society becomes more complex, the educational settings will become more diverse and more demanding upon the professional educator. For this reason new professional roles are expected to emerge. It is the responsibility of the College of Education, therefore, to examine the institution of education in our society and to develop new curricula to prepare personnel capable of functioning in these new educational settings.

ACCREDITATION AND CERTIFICATION

Because the University of New Mexico is fully accredited by the National Council for the Accreditation of Teacher Education (NCATE) and the State Department of Education, graduates of this institution’s teacher education programs are eligible to apply 1) for appropriate certification to teach in New Mexico, 2) for comparable certification (same level and/or same subject field) in all of the 28 states of the United States which have entered voluntarily into reciprocity agreements for certification based upon NCATE accreditation of institutional programs.

Every University of New Mexico program which leads to teacher certification for New Mexico elementary and secondary schools includes at least four years of college work. The completion of a bachelor’s degree in one of these programs at the University makes the person eligible to apply for a 4-year Provisional Certificate in New Mexico. This certificate entitles the holder to teach in the State for four years and may be renewed only once for an additional four years. Forms for application for a New Mexico certificate are available from the College Recorder in the College of Education.

By the end of the eight-year period of provisional certification the holder must qualify for 1) the Continuing Certificate 2) the Professional Certificate or 3) other special field certificates. Persons interested in these certificates should consult the Graduate School Bulletin, department chairmen in the College of Education, or the dean of that college.

Certification may also be obtained in the areas of Special Education, Guidance and Counseling, School Administration, Teaching English as a Second Language, and Reading Specialist. For further information consult department chairmen in the College of Education.

CONTINUING CERTIFICATE.† Students desiring the Continuing Certificate must complete a 30 semester-hour graduate program not necessarily culminating in

† Detailed information concerning curriculum may be found in other sections of this catalog.
a master’s degree. The major portion of credits in this program must be in subject-matter areas. Each student desiring this certificate must plan a program with an adviser. This is a five-year certificate and may be renewed for five-year periods.

PROFESSIONAL CERTIFICATE. Students desiring the Professional Certificate must complete a master’s degree, the major portion of which must be graduate credit earned in subject matter areas. All master’s degree programs at the University of New Mexico do not necessarily meet such requirements. Students interested in obtaining this certificate should consult the Graduate School Bulletin and their advisers in the College of Education before planning a master’s degree program. This certificate does not need to be renewed.

DEGREE PROGRAMS
The College of Education offers programs leading to a degree in Associate of Arts in Education. Enrollment is limited to participants in special projects; further information can be obtained from the Dean’s office.

Many bachelor’s degree programs are offered which prepare undergraduate students for a variety of professional educational roles, as well as for professional roles in related areas such as Recreation and Dietetics. In later sections of this catalog, curricula for all of these programs are described.

The College of Education offers, through the Graduate School, programs leading to the Master’s degree, the Doctor of Philosophy degree, and the Doctor of Education degree. Sixth-year graduate programs leading to the “Certificate of Education Specialist” are also available. Consult the current Graduate School Bulletin and appropriate departments for details of these programs.

SCHOLASTIC REQUIREMENTS
See General Academic Regulations section.

DEPARTMENTAL HONORS
A departmental honors program is offered in several of the departments of the College of Education. Application for participation in the program must be made during the junior year. The program may consist of any one of the following: (1) a senior thesis, (2) a reading and tutorial program under the major adviser, (3) honors in student teaching. All students permitted to enter the honors program will meet University regulations as described. Permission of the major adviser is required for enrollment in 497 courses, Reading and Research in Honors.

MAXIMUM NUMBER OF HOURS
Students enrolled in the College of Education may not enroll for more than 19 hours during a regular semester, or 10 hours during an eight-week summer session unless:

1. Grades for the previous semester were B’s in two-thirds of the coursework, with no grade below C, and,

† Detailed information concerning curriculum may be found in other sections of this catalog.
** With the exception of the Language Arts programs and Children’s Literature area, only courses listed under a specific subject (usually offered in the College of Arts and Sciences) in the catalog are considered “subject matter” areas.
2. A written petition to the chairman of the department is approved for extra hours, not to exceed 21 in a regular semester or 11 during summer session.

A maximum of eight hours in non-professional physical education courses will be counted toward graduation.

ADMISSION TO A TEACHER EDUCATION PROGRAM

If you wish to apply for admission to a teacher education program, determine your eligibility according to one of the following criteria:

1. You are enrolled in University College and
   a. you have completed 14 or more hours and have a 2.5 or higher grade point average, or
   b. you have completed 26 or more hours and have a 2.0 or higher grade point average, or
   c. you have a 2.0 or higher grade point average based upon 24 to 30 hours of work accomplished during the last two or three semesters, or
   d. you have received notice that this is your last semester of eligibility.

2. You are enrolled in Arts and Sciences, Fine Arts, BUS or any other degree college, or in non-degree status, and your overall grade point average is 2.0 or higher.

3. You are a transfer student provisionally enrolled in the College of Education. Some College programs can accept only limited numbers of students each semester; therefore, any student wishing to transfer should check with the department he is considering prior to making a commitment to move to Albuquerque.

4. You have already earned a bachelor's degree.

After determining that you are eligible for application to a teacher education program, the following procedures will apply:

1. Come to the College of Education Records Office. Complete an Application for Admission to a Teacher Education Program form, and obtain information on the compilation of a data folder.

2. Complete and return your data folder to the College of Education Records office by the second week of each semester, or the first week of summer session.

3. Complete an interview with a College of Education faculty member in the program to which you are applying.

4. Special Education majors must successfully complete Sp Ed 210 and 211, taken before screening into the program.

5. Art Education majors must successfully complete Art Ed 220, taken concurrently with screening into the program.

6. You will be notified by mail whether or not you have been provisionally admitted to a Teacher Education Program.
7. Before you are moved from provisional status to full admission status, you must complete a program of studies form which is approved by your adviser and filed in the Records Office of the College of Education.

The requirements for selection into a teacher education program referred to in the preceding paragraphs are considered to be minimal. Even though students meet these requirements they may not be selected into certain programs. Because departmental programs differ, their admission requirements may go beyond those minimum requirements described above. Therefore, it is important that you contact the chairperson of the department offering the program you wish to enter for further information concerning specific requirements and/or limitations.

Until you are formally admitted to a teacher education program you are not eligible to register for or enroll in any upper division (300 and 400 level) professional education courses required for certification. Exceptions are granted only to transfer students from other institutions during their first semester of enrollment and students who have earned a baccalaureate. (Graduate students planning to work for initial certification, or toward certification in a new teaching field, must successfully complete the screening process for admission to a teacher education program during the first semester of enrollment).

NOTE: Any students admitted to a teacher education program during their junior year will probably be required to spend one or more additional semesters beyond the usual four-year period, in order to complete the desired program.

ADMISSION TO THE COLLEGE OF EDUCATION

If you wish to be admitted to the College of Education you must have successfully completed the screening process for ADMISSION TO A TEACHER EDUCATION PROGRAM (see above).

If you are already enrolled at the University of New Mexico, whether in University College, a degree granting college, BUS or in non-degree status, you will not be eligible to transfer to the College of Education until this screening process is completed. Students transferring from other institutions may be enrolled in the College of Education provisionally for a maximum of two semesters, during which time they must complete the screening process for admission to a teacher education program.

It is not necessary to be enrolled in the College of Education in order to pursue certain teacher education programs. If you are not enrolled as a major in the College of Education but plan to become certified, you must be admitted to a teacher education program and must complete all requirements specified by that program. Students majoring in Art Education or Music Education may be enrolled as a major in the College of Education or the College of Fine Arts. Students majoring in all other teacher education programs must be enrolled in the College of Education.

Exceptions to the requirements discussed above are granted to special students wishing admission to an Associate of Arts in Education program. If you are interested in one of these two-year programs, contact the Office of the
Dean of the College of Education for information concerning curricula and enrollment requirements. Students who are selected to work toward an Associate of Arts in Education degree will be admitted to a specific program, rather than to University College.

PROFESSIONAL LABORATORY EXPERIENCES

All degree programs offered through the College of Education include organized and sequential experiences with children and youth. These required experiences (usually referred to as professional laboratory experiences) include directed observation of pupils at work and at play, guided participation with groups of children, and formal student teaching assignments.

OBSERVATION AND PARTICIPATION. Selected elementary and secondary schools in the Albuquerque Public Schools, other nearby school systems, and selected community agencies are used for observation and participation with children and youth. These teaching experiences are carefully planned and directed cooperatively by University faculty members and representatives of the cooperating school systems and agencies.

STUDENT TEACHING. The student teaching assignment is considered one of the most important prerequisites to graduation and certification for teaching. The student teaching assignment is carried under the personal direction of selected cooperating teachers in the Albuquerque area public and private school systems and professors from the University. The University of New Mexico is indebted to the administration and teachers of the Albuquerque Public Schools for the excellent working relationships and learning laboratories provided under these arrangements. Because of the importance of this experience, specific requirements are set up for admission to student teaching.

Requirements for Admission to Student Teaching

The student must have:

1. Earned an overall grade point average at the University of New Mexico of at least a 2.0; specifically, the student may not be on probation. Graduate students must maintain a 3.0 grade point average.

2. Been admitted to a teacher education program at the University of New Mexico. Any stipulations indicated at the time of admission must have been removed.

3. Applied for admission to student teaching with the University supervisor of student teaching the SEMESTER BEFORE the actual teaching begins, with the exception of Elementary Education in which case admission should be sought the SPRING BEFORE.

4. A T.B. skin test is required. Anyone who shows a positive result must follow up with a chest x-ray. Evidence of the examination and its findings, completed within three months of the date of application, must be filed with the Directors of Secondary or Elementary School Student Teaching at the time application is made.
5. Achieved a grade-point average of at least 2.3 in all courses attempted in the major teaching area. Some departments require a higher grade-point average.

6. Completed satisfactorily all prerequisites for student teaching listed in the current University catalog.

7. Planned a total semester schedule of no more than 15 hours of course work, including student teaching. (A course load of 12 hours is highly recommended.) Elementary student teachers must be available the entire school day during one semester of the junior year and the entire school day during one semester of the senior year. Secondary student teachers must have a minimum block of three hours daily (between 8:30 a.m. and 3:00 p.m.) clear for assignment in the schools.

8. Arranged their personal schedule in order to be available to start an assignment in the fall when public school students report for the start of school (usually late in August or early September). When applying for student teaching assignments in the spring, students should carefully check starting dates with an adviser.

9. Filed application for degree in the office of the Dean of the College.

10. Have on file in College Records a completed and signed program of studies (major and minor).

**Special Requirements for Secondary Student Teachers:**

The student must have:

1. Submitted recommendations from three faculty members indicating that the student is believed ready for student teaching.

2. Completed a major portion of work in his teaching major and minor.

3. Attained at least a 2.5 grade-point average in a major (teaching) concentration and at least a 2.2 grade-point average overall.

4. Students enrolled in secondary student teaching may be required to comply with a modified Academic Calendar.

**Special Requirements for Physical Education Student Teachers:**

The student must have:

1. Submitted recommendations from three faculty members, including their adviser, indicating that the student is believed ready for student teaching.

2. As determined by their advisor in consultation with the student teaching personnel, students must have successfully completed a major portion of their theory course work.

3. Completed all of the following pre-requisites: Ed. Fdn. 290, 300, and 310; P.E. 319, 301, 302, 309, 310, 245, 444, 489, and P.E. (Biol.) 326L.

4. Removed all D's and F's in their major field.

5. Attained at least a 2.5 grade point average in their field and at least a 2.2 grade point average overall.
6. Students enrolled in physical education student teaching may be required to comply with a modified Academic Calendar.

Special Requirements for Elementary Student Teachers:

The student must have:

1. Completed at least one semester or summer session in residence study. Those not in the regular modular program must have completed at least one course in the Department of Elementary Education.

2. Attained at least a 2.2 grade-point average overall prior to entering the Junior Module courses; attained at least a 2.5 grade-point average in all Junior Module courses prior to entering the Senior Module.

3. Students enrolled in the Junior and Senior Modules may not follow the regular University Academic Calendar. These are considered professional semesters and the student may be required to comply with a modified Academic Calendar.

ELEMENTARY EDUCATION. The modular program in elementary education combines student teaching, methods courses, and foundations courses in a single time unit consisting of full days during one semester of the junior year and one semester of the senior year. The courses that are included in these modules are clearly indicated in the curriculum for Elementary Education. Students enrolled in elementary student teaching will receive a grade of CR (credit is awarded) or NC (no credit is awarded) in the course El Ed 400, Student Teaching. The hours for this course are not computed in the scholarship index. The methods courses in the modules will be graded with the usual A, B, C, D, or F grades.

A $10.00 laboratory fee is charged each student enrolled in the Junior Methods Module and the Senior Internship Module.

Students are responsible for planning their programs so that the junior module is taken during the junior year and the senior module is taken during the senior year. In some instances where program scheduling difficulties are evident, students may be permitted to take both modules during the senior year. In these special instances the student must petition the director of student teaching no later than the first semester of the junior year to have the request considered.

Most of the students will be assigned to schools that have been designated as student teaching centers. In these centers a student teacher is placed with each classroom teacher in the building. Thus as many at 15-20 student teachers are scheduled in each center.

Students may be permitted to take student teaching apart from the modular program. In these cases the student must meet all the requirements for entry into student teaching and must petition the director of student teaching to have the request considered.

Special Facilities Located in the College of Education

LEARNING MATERIALS CENTER. The Learning Materials Center serves the educational needs of students, teachers, and faculty members by providing a comprehensive collection of materials and media to be used in the teaching-learning process. The library collection includes textbooks, courses of study, curriculum
guides, resource units, films and filmstrips, tapes and other teaching materials. The center also provides an audio-visual laboratory equipped with the latest media materials and equipment. A production center is available for the design and production of all forms of graphic materials.

MANZANITA CENTER. Manzanita Center is an observation and laboratory facility for College of Education and other University students. They may observe a model nursery or kindergarten in session, an individual student or teacher engaged in specific activity, diagnostic tests being administered, or remedial teaching. Students may also be directly involved in supervised teaching, remedial activities, counseling individuals or groups, or in practicing skills. The Center has closed circuit television and video feedback capabilities.

INDUSTRIAL EDUCATION LABORATORIES. Industrial Education laboratories are maintained for the use of students in various Industrial Education courses in woods, metals, welding, power mechanics, electricity, and drafting.

HOME ECONOMICS LABORATORIES. Modern food and clothing laboratories are available to both undergraduate and graduate students.

THE HUMAN PERFORMANCE LABORATORY. The laboratory, administered by the Department of Physical Education, is located in Johnson Gymnasium (hypobaric facilities in Carlisle Gymnasium). It occupies some 3,000 square feet and is equipped to serve faculty and student research and instructional needs in the areas of environmental (hypobaric) physiology, cardiovascular, metabolic and neuromuscular aspects of physical activity, kinesiology, and perceptual-motor learning and performance.

THERAPEUTIC PHYSICAL EDUCATION LABORATORY. This laboratory encompasses some 4000 square feet and has all of the necessary equipment to provide special physical education and exercise therapy for the students and staff of the University of New Mexico. A major responsibility of the laboratory involves training of Corrective Therapists, Special Physical Educators, Athletic Trainers, and pre-Physical Therapy students. Research regarding the motor skill learning of handicapped children is carried out.

THERAPEUTIC PHYSICAL EDUCATION PLAYGROUND. This two acre playground has been developed to investigate the play patterns and recreation needs of handicapped children.

SPECIAL PHYSICAL EDUCATION POOL. Adjacent to Johnson Gymnasium and the Department of Health, Physical Education and Recreation’s olympic size pool is the smaller special pool. This smaller pool will be utilized to enable undergraduate and graduate students to learn about the handicapped child in an aquatic and therapy setting. The pool will be additionally used for recreation and instruction.

DEGREES AWARDED BY THE COLLEGE OF EDUCATION

Upon the completion of all specified requirements, including approval by the general faculty, candidates will be awarded the following degrees in the College of Education:
Associate of Arts in Education for those who concentrate in paraprofessional training in education.

Bachelor of Science in Education for those who major in business education, elementary education, mathematics, or a science;

Bachelor of Science in Home Economics with a major in dietetics;

Bachelor of Science in Home Economics Education with a major in home economics education;

Bachelor of Science in Health Education for those who major in health education;

Bachelor of Science in Physical Education for those who major in physical education;

Bachelor of Arts in Recreation for those who major in recreation;

Bachelor of Science in Industrial Education for those who major in industrial education;

Bachelor of Music Education for those who major in music education;

Bachelor of Arts in Education for majors in all other subjects.

REQUIREMENTS FOR GRADUATION

1. Completion of an application for final degree check immediately after completion of 92 semester hours. The application can be obtained from the Department or Office of the Dean.

2. Completion of a minimum of 128 semester hours. No more than 5 semester hours of credit earned in workshops may be used towards any bachelor's degree. (See course 429 listed with each of the Education departmental offerings).

3. A scholarship index of 2.0 or higher on the 128 semester hours being counted for graduation, at least a 2.0 grade-point average on all work attempted at the University of New Mexico, and at least a 2.3 grade-point average in the major teaching fields.

DIVIDENDS AND PENALTIES. For every 15 semester hours of A, or for every 30 semester hours of B, the hours required for graduation are reduced by one. The maximum of such dividends allowed is four. Dividends may not be applied toward the residence requirement. For every 15 semester hours of D, the hours required for graduation are increased by one. Dividends and penalties are awarded or assessed only on work done in residence at the University of New Mexico.

4. Completion of 40 semester hours in courses numbered 300 or above.

5. For minimum residence requirements, see "General Academic Regulations" section.

6. Completion of the prescribed curriculum which leads to the desired degree (see Curricula, pp. 108-133). The student is solely responsible for completing all requirements for graduation, as described in this catalog.

7. Students who plan to teach in the State of New Mexico must complete the Application for New Mexico Certificate form available from the Graduation Clerk in the COE Records Office.

8. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior
year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

NOTE: Students who plan to teach in the secondary schools must complete a teaching major or minor in subjects usually taught in secondary schools. See description of programs in Secondary Education for details. Students who plan to teach in the elementary schools must complete a major or minor of at least 24 semester hours in a subject area. They must follow the curriculum as outlined on pp. 112-114.

GENERAL (LIBERAL) EDUCATION REQUIREMENTS

All prospective educational personnel should be broadly educated as a foundation for a successful professional career. It is required, therefore, that UNM students expecting to get degrees from the college include in their preparation program a well-balanced plan of study in general education. Students must satisfy minimum requirements in six of the following ten areas of study:

1. Behavioral Sciences
2. Communication Arts
3. Multicultural Studies
4. Fine and Practical Arts
5. Foreign Language
6. Humanities
7. Mathematics
8. Natural Sciences
9. Health Education, Physical Education and Recreation
10. Social Sciences

Students should consult their major department to plan a program which satisfies specific departmental general education requirements. A program plan must be on file in the department for each student.

NROTC students may substitute certain naval science courses in several of the curricula when approved by the appropriate department chairman.

PROFESSIONAL EDUCATION REQUIREMENTS

Most students pursuing teacher education curricula must complete the three professional education courses listed below:

1. Ed Fdn 290: Foundations of Education
2. Ed Fdn 300: Human Growth and Development*
3. Ed Fdn 310: Learning and the Classroom*

In addition to these three courses (the professional core) all students must take other professional education courses as prescribed in the curriculum they are following. A minimum of 24 semester hours in professional education is required. In some programs Ed Fdn 300 and 310 are part of a module. Students should check with the appropriate department for further information.

CURRICULA

Curricula are outlined on the following pages under the respective departments for the purpose of directing students in their chosen fields of work.

* Or approved substitute.
Descriptions of the courses offered will be found, listed by departments, in the catalog section “Courses of Instruction.”

ART EDUCATION

MAJOR STUDY (TEACHER CERTIFICATION FOR ART AND PROVISIONAL SECONDARY CERTIFICATES)

A student may enroll in either the College of Education or the College of Fine Arts and satisfy requirements for teacher certification in grades K-12.

The candidate for the B.A. in Education must complete at least 40 semester hours in courses numbered 300 or above.

The student will develop in consultation with a departmental adviser a plan for meeting the General Education requirement which consists of a minimum of three hours in six or more of the areas of the College of Education General (Liberal) Education requirements.

There are two curricula that prepare the student to teach art in the public schools in New Mexico. The curriculum outlined in detail below qualifies students to apply for a special certificate endorsed for the teaching of art in grades K-12. In the case of these students requiring K-12 certification in Art Education, no minor is required, but the student must complete the required 51 hours in Art and Art History, 24 hours in Art Education and 12 hours in professional education courses.

K-12 CURRICULUM

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Freshman Year</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>Gen Educ Requirement</td>
<td>9</td>
<td>Gen Educ Requirement</td>
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<tr>
<td>Art St 123 Studio Fundamentals</td>
<td>6</td>
<td>Art Elective 200 level</td>
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<tr>
<td>General Elective</td>
<td>3</td>
<td>Art Hi 130 Contemp Art</td>
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<td>6</td>
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<tr>
<td>Sophomore Year</td>
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<tr>
<td>Art Ed 220 Pre-Tchg Exp in Art</td>
<td>3</td>
<td>Art Studio</td>
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<tr>
<td>†Gen Elect</td>
<td>6</td>
<td>Ed Fdn 290 Fdns of Ed</td>
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<tr>
<td>Art Studio</td>
<td>3</td>
<td>General Elective</td>
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<tr>
<td>Art Hi 201</td>
<td>3</td>
<td>Art Ed 211 Great Art in K-9</td>
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<td>9</td>
<td>15</td>
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<tr>
<td>Junior Year</td>
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<td>15</td>
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<tr>
<td>Ed Fdn 300 Hum Grwth &amp; Dev</td>
<td>3</td>
<td>Ed Fdn 310 Learn &amp; Classrm</td>
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<tr>
<td>†Art Ed 400 Student Tchg-Elem</td>
<td>3</td>
<td>Art Elective</td>
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<tr>
<td>†Art Ed 402 Children &amp; Art</td>
<td>3</td>
<td>Gen Elective</td>
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<tr>
<td>Art Studio</td>
<td>6</td>
<td>Art Studio</td>
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<tr>
<td>Art Electives</td>
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<td>Senior Year</td>
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<tr>
<td>Art Elect (above 300)</td>
<td>3</td>
<td>Art Ed 461 Student Tchg-Sec</td>
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<tr>
<td>Art Elect (above 300)</td>
<td>3</td>
<td>Art Ed 434 Tchg Art in Sec Sch</td>
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<tr>
<td>Gen Elect</td>
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<td>Gen Elect</td>
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<tr>
<td>Art Ed 210</td>
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<tr>
<td>Art Elective</td>
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<td>15</td>
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</table>

# Students with sufficient background and expertise in one or more of these areas may petition for exception to the above rule.
† Students enrolled in the College of Fine Arts must meet group requirements listed on pp. 158-160. This curriculum includes all but 3 hours, which should be taken at this time.
The second curriculum prepares the student to teach art and a second subject area in grades 7-12. Completion of a departmental minor is required and may be selected from the approved list. "Electives" in K-12 curriculum may be used to meet minor requirements for secondary teachers. Also, students selecting this curriculum will substitute general courses above 300 for Art Ed 400 and 402 in the curriculum outlined above. These are the only differences in the curricula.

The successful completion of this curriculum entitles the graduate to apply through the College of Education for the special Provisional Secondary Certificate endorsed for the teaching of art and the minor subject by the New Mexico State Department of Education.

**MINOR STUDY IN ART EDUCATION**

Elementary Education and Special Education students only: Art St 123, Art Hi 130, and Art elective (200 level), Art Ed 110, 115, 220, and 401.

Non-teaching minor is open to students in other than teacher training programs. Requirements are: Art St 123 Studio Fundamentals, 6 hrs; Art Studio (200 level—Beginning Studio Area), 3 hrs; Art Ed 285 Recrea Arts and Crafts, 3 hrs; 6 additional units to be determined with an Art Education adviser for a total of 18 hours.

**BUSINESS EDUCATION**

**COMPREHENSIVE CURRICULUM INCLUDING VOCATIONAL OFFICE EDUCATION**

(Leading to the degree of Bachelor of Science in Education)

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Sophomore Year</th>
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<tbody>
<tr>
<td>Engl 101 Wrtg w/Rdgs in Expos</td>
<td>Sp Com 256 Communications for Tchrs</td>
</tr>
<tr>
<td>Engl 102 Wrtg w/Rdgs in Lit</td>
<td>Engl (Lit)</td>
</tr>
<tr>
<td>†Laboratory Science</td>
<td>Ed Fdn 290 Found of Ed</td>
</tr>
<tr>
<td>†Math Elective</td>
<td>Econ 200 or 201 Prin and Probs; Prin</td>
</tr>
<tr>
<td>‡‡Bus Ed 112 Inter Typing</td>
<td>‡‡Bus Ed 114 Shorthand Dictation</td>
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<tr>
<td>‡‡Bus Ed 113 Shorthand Theory</td>
<td>‡‡Bus Ed 285 Shorthand Transcrip</td>
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<tr>
<td>Bus Ed 262 Adv Typing</td>
<td>Bus Ed 201 Intro to Data Proc for</td>
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<tr>
<td>Bus Ed 117 Office Mach and Filing</td>
<td>Bus Ed</td>
</tr>
<tr>
<td>Psych 102 Gen Psych II</td>
<td>†Accounting</td>
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<tr>
<td>Gen Elec or Minor</td>
<td>Electives</td>
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<td></td>
<td>32</td>
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<table>
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<tr>
<th>Junior Year</th>
<th>Senior Year</th>
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<tbody>
<tr>
<td>‡Ed Fdn 300 Human Growth &amp; Dev</td>
<td>Fine or Proc Arts (not Bus Ed)</td>
</tr>
<tr>
<td>‡Sec Ed 361 Pre-Student Teach Exp</td>
<td>†Soc Science</td>
</tr>
<tr>
<td>‡‡Ed Fdn 310 Learn &amp; Classroom</td>
<td>B&amp;AS 359 Law of Contracts</td>
</tr>
<tr>
<td>‡‡Sec Ed 362 Pre-Student Teach Exp</td>
<td>Bus Ed 462/463 Professional</td>
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<tr>
<td>Bus Ed 257 Sec’l Admin</td>
<td>Bus Ed Block</td>
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<tr>
<td>Bus Ed 265 Business Communications</td>
<td>Gen Electives or Minor</td>
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<tr>
<td>Bus Ed 350 Voc Office Lab</td>
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<tr>
<td>†Economics</td>
<td>9</td>
</tr>
<tr>
<td>Bus Ed Elective</td>
<td>12</td>
</tr>
<tr>
<td>Gen Elective or Minor</td>
<td>30</td>
</tr>
</tbody>
</table>

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† See Business Education Adviser.

‡‡ May be waived if student has had typewriting and shorthand in high school.

† Must be taken concurrently (Module I).

‡‡ Must be taken concurrently (Module II).
### General Business Curriculum

(Leading to the degree of Bachelor of Science in Education)

#### Freshman Year
- Engl 101 Wrtg w/Rdgs in Expos 3
- Engl 102 Wrtg w/Rdgs in Lit 3
- Laboratory Science 6
- Math Elective 3
- Bus Ed 112 Inter Typing 3
- Bus Ed 262 Adv Typing 3
- Psych 102 Gen Psych II 3
- Gen Elective or Minor 5

#### Sophomore Year
- Engl (Lit) 3
- Sp Com 256 Comm for Tchrs 3
- Econ 200 or 201 Prin & Prbs; Prin 3
- Ed Fdn 290 Founda of Ed 3
- Accounting 3
- Business Elective 3
- Bus Ed 201 Intro to Data Proc for Bus Ed 3
- Data Processing 3
- Gen Elective or Minor 6

#### Junior Year
- Ed Fdn 300 Human Grwth & Dev 3
- Sec Ed 361 Pre-Student Teach Exp 3
- Sec Ed 310 Learn & Classroom 3
- Sec Ed 362 Pre-Student Teach Exp 3
- B&AS 359 Law of Contracts 3
- Bus Ed 265 Business Communications 3
- B&AS 306 Behavior I 3
- Economics 3
- Major Electives 3
- Gen Elective or Minor 3
- Bus Ed 350 Vac Off Lab or Major Elec 3

#### Senior Year
- Fine or Prac Arts (not Bus Ed) 3
- Soc Science 3
- Bus Ed 462/463 Professional 12
- Bus Ed Block 3
- Gen Electives or Minor 12

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Majors in any Business Education Curriculum must earn a minor of 18 hours outside the field of business. (24 semester hours required for a teaching minor).

**Minor Study in Business Education (Comprehensive)**

- Bus Ed 253 and 262, and 15 additional hours in Business Education, Economics, and Business and Administrative Sciences courses.

**Minor Study in Business Education (General Business)**

- Accounting, Bus Ed 262, and 15 additional hours in courses in Business Education, Economics, and Business and Administrative Sciences courses.

**Graduate Courses**

See course listings under Education, Secondary. See also Department Chairman for course of study.

**Educational Administration**

See pp. 264-265 for course descriptions and the Graduate School Bulletin for all graduate programs.

**Educational Foundations**

See pp. 265-267 for course descriptions and the Graduate School Bulletin for all graduate programs.

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*† See Business Education Adviser.*
*‡‡ May be waived if student has had typewriting and shorthand in high school.*
*‡ Must be taken concurrently (Module I).*
*‡‡ Must be taken concurrently (Module II).*
ELEMENTARY EDUCATION
CURRICULUM FOR STUDENTS PREPARING TO TEACH IN ELEMENTARY SCHOOLS

All prospective elementary teachers are required to complete a minimum of 54 semester hours in general education. A program of studies in general education is to be designed by the student and an adviser. It shall include work in all of the following areas:

- Behavioral Sciences
- Communication Arts/Foreign Language
- Multicultural Studies (written agreement between student and adviser)
- Fine and Practical Arts
- Humanities and Social Sciences
- Mathematics
- Natural and/or Physical Sciences
- Health, P.E. and Recreation

At least four of the eight areas must be represented with a minimum of six semester hours for New Mexico State Certification.

Work in General Education may also count as part of minor study. Selected courses currently listed for the College of Arts and Sciences, the College of Fine Arts, and the College of Education will satisfy the General Education requirement. The student pursuing a degree in elementary education should contact the Department of Elementary Education for a list of suggested courses that satisfy these requirements. The student should contact an adviser in the Department of Elementary Education and develop with the adviser an individually profitable way to participate in Multicultural Studies. With consent of adviser and approval of department chairman, experience may be substituted for course work in any of the eight areas listed above.

RATIONALE

The Department of Elementary Education perceives the role of the elementary teacher in the Southwest as one that requires a broad education which is supportive to multicultural needs of Southwest communities. The eight areas listed above encompass all ten areas of the General Education Requirement for the College of Education. (See General Education Requirement for College of Education.) The intent of the Department of Elementary Education is: (1) to encourage learning in a wide range of study areas and (2) to encourage a pursuit of study somewhat unique to each individual student. Therefore, a number of options in each area is available. Selection may be based on the student’s background, goals in education, and interests.

In keeping with this viewpoint, the student in consultation with an adviser in Elementary Education must develop an individual plan of study for meeting Multicultural Studies requirement. Selecting courses clearly focused on multicultural study, developing fluency in a language spoken in the Southwest, participating in an independent study, or developing a field experience are among the options possible. The adviser will file a written statement of the student’s individual plan of study.

The flexibility provided by many options is conducive to study in the programs housed in the Department of Elementary Education; Associate of Arts
Programs, bilingual education, early childhood education, and elementary teacher education. This flexibility is also in keeping with educational practices which the Department of Elementary Education encourages students to develop in their own elementary classrooms.

PROCESSING ESTABLISHED BY THE DEPARTMENT OF ELEMENTARY EDUCATION FOR AIDING STUDENTS IN COMPLYING WITH THE REQUIREMENTS.

1. The Department will make available a list of suggested courses to students.

2. The Department will provide advisers who will explore with students options in courses and other relevant experiences which contribute to General Education.

3. The advisers will plan with students experiences in Multicultural Studies.

4. Prospective students will contact the Department of Elementary Education during the Freshman year or as soon as possible thereafter for information pertaining to bilingual education and early childhood education programs as well as elementary teacher education.

All prospective elementary teachers are required to complete a minimum of 38 semester hours of prescribed courses in professional education.* The following professional education courses are required:

<table>
<thead>
<tr>
<th>Pre-Module 8 semester hours</th>
<th>Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>Ed Fdn 290 Founda of Ed</td>
<td>3</td>
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<tr>
<td>El Ed 319 PE in El Sch</td>
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<tr>
<td>El Ed 441 Child Lit</td>
<td>2</td>
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<thead>
<tr>
<th>Junior Methods Module, 19 semester hours†</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed Fdn 300 Hum Growth &amp; Dev</td>
<td>3</td>
</tr>
<tr>
<td>Ed Fdn 310 Learn &amp; Classrm</td>
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<tr>
<td>El Ed 321L Tchg of Soc Studies in El Sch</td>
<td>3</td>
</tr>
<tr>
<td>El Ed 331L Tchg of Reading in El Sch</td>
<td>3</td>
</tr>
<tr>
<td>El Ed 333L Tchg Oral Wrtt Lang in El Sch</td>
<td>2</td>
</tr>
<tr>
<td>El Ed 333L Tchg of Science in El Sch</td>
<td>3</td>
</tr>
<tr>
<td>El Ed 361L Tchg of Math in El Sch</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior Internship Module, 15 semester hours†</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Ed 400 Stud Tchg in El Sch</td>
<td>6-15</td>
</tr>
<tr>
<td>El Ed 497 Rdg &amp; Res in Honors (for selected interns)</td>
<td>3</td>
</tr>
</tbody>
</table>

MINOR REQUIREMENTS FOR ELEMENTARY EDUCATION MAJORS

Elementary Education majors are required to obtain a minor by completing 24 semester hours in a subject area or a 30 semester hour composite minor approved by the Department of Elementary Education.

Students wishing to pursue a 24 semester hour minor in a subject area should consult the Minor Study requirements in the appropriate department in the "Courses of Instruction" section. Those interested in preparing to teach in special education classrooms will also find the Minor Study in Special Education under Department of Special Education in this section; this minor requires 25-28 hours.

*Because a number of the required professional education courses are graded on a credit/no credit basis, students should exercise caution in selecting credit/no credit grading options in the non-professional areas of the program. See p. 60 for restrictions on credit/no credit option.

† These are the Methods and Internship Teaching modules. The courses in each module are to be taken concurrently and students may not enroll in courses not a part of the module. Students must plan their programs so that Junior and Senior Modules do not fall in the same academic year.
Composite minors have been approved in Bilingual Education, Early Childhood Study, Science, and the Social Sciences.

COMPOSITE MINOR IN BILINGUAL EDUCATION—SPANISH/ENGLISH. This is designed for students wishing to prepare for teaching in Spanish/English bilingual classrooms. This minor has a 12 hour language requirement, 9 hour culture requirement, and 9 hour pedagogy requirement. The student interested in a Composite Spanish/English minor in Bilingual Education should contact the Chairperson of the Department of Elementary Education as early in his or her college career as possible to plan this program.

Following are the required courses:

A. Language Requirement (12 hours)
- Spanish 301 and 302 6
- Spanish 311 (linguistics) 3
- Spanish 420 (Spanish for Bilingual Teachers) 3

B. Culture Requirement (9 hours)
- Ed Fdns 383 3
- C&I 458 6

C. Pedagogy Requirement (9 hours)
- EI Ed 300 Bilingual Experience 9

A composite minor in Navajo/English Bilingual Education is also available. This minor follows the same basic structure as the Spanish/English Bilingual Education minor, with substitution of appropriate courses in the Navajo language and culture.

COMPOSITE MINOR IN EARLY CHILDHOOD EDUCATION. This is a 30 hour composite minor, designed for majors in Elementary Education and other education fields, who wish to prepare for teaching in the pre-school and primary years. However, this minor program leads to New Mexico Kindergarten Certification only when combined with the Elementary Education major program.

A. Development (9-15 hours)
- Home Ec 102L Infant Growth & Dev't
- Home Ec 408L Child Growth & Dev't
- Ed Fdns 300 Human Growth & Dev't
- Psych 320 Developmental Psych
- Com Dis 430 Dev't of Speech & Lang
- Anth 309 Comparative Studies of Childhd

B. Psychology (9-15 hours)
- Psych 101 General Psych
- Psych 102 General Psych
- Psych 230 Psych of Adjustment
- Psych 373 Cross Culture Psych
- Psych 432 Clinical Child Psych
- Psych 428 Cognitive Dev't

The courses selected from A and B above must total 24 hours.

C. Early Childhood Education (6 hours)
- *El Ed 305 Teaching Kindergarten Primary Years
- El Ed 405 Curriculum for Early Childhood

COMPOSITE MINOR IN SCIENCE. This is designed for students wishing to pursue a broad fields study of science. Acceptable fields include astronomy, biology, chemistry, geology, physical science, and physics.

The minor must include at least 12 semester hours of work in each of two departments (such as Biology and Geology) and at least 6 semester hours in a third department.

COMPOSITE MINOR IN THE SOCIAL SCIENCES. This is designed for students wishing to pursue a broad fields study of the social sciences. Acceptable fields include anthropology, economics, geography, political science, history, and sociology.

* Home Ec 408L and El Ed 305 are prerequisites for Senior Block Kindergarten Student Teaching.
The minor must include at least 12 semester hours of study in each of two departments (such as geography, political science, anthropology, and economics) and at least 6 semester hours in a third department.

Students who successfully complete the curriculum for elementary education and earn a bachelor's degree are eligible to apply for a Provisional Elementary Certificate. This is a four-year, grades 1-8 certificate, renewable only once.

By the end of the eight-year period of Provisional Certification the holder must qualify for either the Continuing Certificate, the Professional Certificate, or other special-fields certificates. For information regarding these certification programs see pp. 99-100.

The Department also offers a graduate program (Master's) in Elementary Education and a joint graduate program (Master's) with the Department of Educational Administration. Students wishing to pursue one of these programs should consult the Chairman of the Department and the Graduate School Bulletin for details.

GUIDANCE AND COUNSELING

This department offers work leading to the Master's degree in Guidance and Counseling. The Doctorate is offered in Pupil Personnel Services. Students may complete a planned program of 30 semester hours of work above the Master's degree leading to the certificate of Education Specialist. The Master's degree in counseling may be pursued in one of the following areas of emphasis: elementary school counseling, secondary school counseling, college personnel work, rehabilitation and community counseling, counseling in business and industry, or general counseling. Doctoral work in counseling provides emphases in counselor education, counseling research, counseling psychology, college personnel work, or pupil personnel services. Students wishing to pursue any of these programs should refer to the Graduate School Bulletin.

HEALTH, PHYSICAL EDUCATION & RECREATION

MAJOR STUDY IN HEALTH EDUCATION
(Leading to a Bachelor of Science in Health Education)

Two tracks are available to students majoring in health education. Track one is School Health Education which leads to teacher certification and prepares the student to teach Health in elementary and secondary schools. Track two, Community Health Education, is a non-teaching track. This track provides students with a broad based introduction to community and public health and prepares them for professional service in community health agencies. The community health emphasis also prepares students for graduate studies in community health education, at UNM or any of the many schools of public health in the United States.

SCHOOL AND COMMUNITY HEALTH EDUCATION

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Same for both tracks)</td>
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</tr>
<tr>
<td>*Biol 121L Prin of Biol</td>
<td>4</td>
</tr>
<tr>
<td>*H Ec 125 Intro Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>Chem 141L Elem Gen Chem</td>
<td>4</td>
</tr>
<tr>
<td>*Sociol 101 Intro Soc</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 171 Pers Comm Hlth</td>
<td>3</td>
</tr>
<tr>
<td>*Psych 102 Gen Psych II</td>
<td>3</td>
</tr>
</tbody>
</table>

* Courses to fulfill general education requirements.
### Sophomore Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>H Ed 301 Gen Safety Ed</td>
<td>3</td>
</tr>
<tr>
<td>*Anthro 102 Dev of Cult</td>
<td>3</td>
</tr>
<tr>
<td>Biol 136-139L Hum Anat &amp; Phys</td>
<td>4</td>
</tr>
<tr>
<td>H Ed 212 Fund Human Sex</td>
<td>3</td>
</tr>
<tr>
<td>Biol 253-254L Intro Micro</td>
<td>4</td>
</tr>
<tr>
<td>*Sp Comm 255 Pub Spk</td>
<td>3</td>
</tr>
<tr>
<td>Ed Fdn 290 Fdn of Educ</td>
<td>3</td>
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<tr>
<td>H Ed 345 Prof Lab Exp</td>
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<tr>
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</table>

### Community Health

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>*Anthro 102 Dev of Culture</td>
<td>3</td>
</tr>
<tr>
<td>Biol 136-139L Hum Anat &amp; Phys</td>
<td>4</td>
</tr>
<tr>
<td>*Math 102 Intro Statistics</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 495 Studies Comm Hlth</td>
<td>3</td>
</tr>
<tr>
<td>Biol 253-254L Intro Micro</td>
<td>4</td>
</tr>
<tr>
<td>Journ 100 Intro Mass Comm</td>
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<tr>
<td>Electives</td>
<td>32</td>
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</tbody>
</table>

### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Ed Fdn 300 Hum Gr &amp; Dev</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 333 Ment-Emot Hlth in Classroom</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 495 Studies Comm Hlth</td>
<td>3</td>
</tr>
<tr>
<td>C&amp;I 432 Prd of Inst Mat</td>
<td>3</td>
</tr>
<tr>
<td>pshH Ed 469 Elem Sch Hlth</td>
<td>3</td>
</tr>
<tr>
<td>*Fine Arts Electives</td>
<td>3</td>
</tr>
<tr>
<td>pH Ed 442 Emerg Hlth Care</td>
<td>3</td>
</tr>
<tr>
<td>*Soc Electives</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>33</td>
</tr>
</tbody>
</table>

### Community Health

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Psy 210 Educ Psych</td>
<td>3</td>
</tr>
<tr>
<td>*Psy 371 Soc Psych</td>
<td>3</td>
</tr>
<tr>
<td>*Sp Comm 215 Prob of Interper Comm</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 345 Prof Lab Exp</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 301 Gen Safety Educ</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 495 Studies Comm Hlth</td>
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<tr>
<td>Electives</td>
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### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>H Ed 400 St Tch Elem Sch</td>
<td>6</td>
</tr>
<tr>
<td>H Ed 475 Att Appr in Drug Ed</td>
<td>3</td>
</tr>
<tr>
<td>pshH Ed 470 Sec Sch Hlth &amp; H Ed</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 461 St Tch Sec School</td>
<td>6</td>
</tr>
<tr>
<td>*Multiculture Electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>30</td>
</tr>
</tbody>
</table>

### Community Health

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc 321 Soc of Med Pract</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 458 Field Exp I</td>
<td>3</td>
</tr>
<tr>
<td>H Ed Health Behavior</td>
<td>3</td>
</tr>
<tr>
<td>H Ed 459 Field Exp II</td>
<td>3</td>
</tr>
<tr>
<td>*Sp Comm 420 Small Grp Comm</td>
<td>3</td>
</tr>
<tr>
<td>H Ed Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>15</td>
</tr>
<tr>
<td>Electives</td>
<td>33</td>
</tr>
</tbody>
</table>

### General Education for Health Education Majors

Students must develop a written plan of study for General Education in consultation with a Health Education Faculty adviser. The plan shall consist of a minimum of 36 hours including courses and electives designated by the (*) in the major programs, plus a total of six hours selected from Mathematics, Foreign Languages, Humanities, Physical Education and Recreation and Fine and Practical Arts.

### Minor Study in Health Education

A minor in School Health or Community Health consists of a minimum of 24 hours. Minor programs must be planned with a Health Education faculty adviser.

### Major Study in Physical Education

**High School Preparation.** It is important that the high school student who wishes to pursue a program of studies in professional physical education at the University of New Mexico orient his subject selection in appropriate directions as early as possible. The student properly prepared will be able to follow the regular pattern of studies without the necessity of making up scholastic deficiencies.

* Courses to fulfill general education requirements.
φ Juniors-Seniors Only.
† See adviser for course content.
p Prerequisite: Competency in standard First Aid.
Students intending to study professional physical education should prepare themselves adequately in high school with courses in biology, algebra, chemistry, and physics.

CURRICULA FOR STUDENTS PREPARING TO TEACH PHYSICAL EDUCATION. These curricula leading to the degree of Bachelor of Science in Physical Education are designed to prepare the student to teach Physical Education in elementary and/or junior and senior high schools. Students completing the program are eligible to apply for a four-year Provisional Teaching Certificate in New Mexico.

A 24-hour minor is required. Possible minors include: Health, Biology, Science, Social Science, Early Childhood Study, Bilingual Education, Psychology, Special Education, and Recreation.

PREREQUISITES. The following courses are prerequisites to the physical education curriculum. Respective requirements may be satisfied with ACT and/or entrance test scores which allow advanced placement, by validating credit through the special examination procedure (see p. 58), or by completing the courses on a corequisite basis during the Freshman Year.

**Math 120 Intermed Algebra 3
**Biol 110 or 111 Life Sci for non-Majors 3
**Phys 102 Intro to Physics 3
Chem 141L Elem of Gen Chem 4

Hours required for Graduation: 128.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Engl 101 or equivalent</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Psych 102 Gen Psych II</strong></td>
<td>3</td>
</tr>
<tr>
<td>†<strong>PE 106 Water Safety Inst (or current certificate)</strong></td>
<td>2</td>
</tr>
<tr>
<td>PE 209 Physical Fitness &amp; Body Mechanics</td>
<td>2</td>
</tr>
<tr>
<td>PE 245 Prof Lab Exp</td>
<td>2</td>
</tr>
<tr>
<td>PE 260 Officiating</td>
<td>2</td>
</tr>
<tr>
<td>PE 273 Intro-Athltr</td>
<td>2</td>
</tr>
<tr>
<td>Electives</td>
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<tr>
<td><strong>Total</strong></td>
<td>33</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore Year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 136 Anat &amp; Physiology</td>
<td>3</td>
</tr>
<tr>
<td>Biol 139L Anat &amp; Physiology Lab</td>
<td>2</td>
</tr>
<tr>
<td>Ed Fdn 290 Found of Educ</td>
<td>3</td>
</tr>
<tr>
<td>PE 211 Competency in Spts and Dance</td>
<td>4</td>
</tr>
<tr>
<td>PE 245 Prof Lab Exp</td>
<td>2</td>
</tr>
<tr>
<td>PE 319 PE in Elem Sch</td>
<td>3</td>
</tr>
<tr>
<td>PE 326L Physiology of Exercise</td>
<td>3</td>
</tr>
<tr>
<td>PE 388 Motor Lrn &amp; Perf</td>
<td>3</td>
</tr>
<tr>
<td>PE 398 Prin of PE</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
</tr>
</tbody>
</table>

* Must be completed by time of graduation.
† May count as one activity course.
** May count for General Education.
§ Biology minors must take 121L and 122L.
† The Department of Health, Physical Education and Recreation will not recommend an individual for certification in physical education unless said individual has completed all departmental requirements for graduation as a physical education major. This includes completing a minor.
Screening by the HPER Department is a prerequisite for admission into a teacher certification program. Certification with a teaching major (or minor) in Physical Education requires the completion of the Physical Education major (or minor) program as defined in the catalog which was current when the student completed the departmental screening process. Students who, for any reason, interrupt their progress in the physical education program at UNM for more than two consecutive semesters must be re-screened.

MINOR STUDY IN PHYSICAL EDUCATION

The Physical Education area offers minors with emphasis in elementary physical education, secondary physical education, and athletic coaching. Students wishing to minor should see the Department.

ATHLETIC TRAINING OPTION

(Leading to the degree of Bachelor of Science in Physical Education)
Hours required for graduation: 138.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eng 101 or Equivalent</strong></td>
<td><strong>Biol 136-139L Anat &amp; Physiol/Lab</strong></td>
</tr>
<tr>
<td><strong>Psych 102 Gen Psych II</strong></td>
<td><strong>Chem 101-102L Gen Chemistry</strong></td>
</tr>
<tr>
<td><strong>Biol 121-122L Prin of Biology</strong></td>
<td><strong>Biol 371L Invertebrate Zoology</strong></td>
</tr>
<tr>
<td>Phys 151-152 General Physics</td>
<td><strong>Sp Com 255 Public Speaking</strong></td>
</tr>
<tr>
<td><strong>H Ed 164 First Aid</strong></td>
<td><strong>Ed Fdn 290 Found of Educ</strong></td>
</tr>
<tr>
<td>PE 209 Physical Fitness</td>
<td><strong>H Ed 171 Per &amp; Comm Health</strong></td>
</tr>
<tr>
<td>PE 210 Folk Dance</td>
<td><strong>PE 203 Teaching of Wrestling</strong></td>
</tr>
<tr>
<td>#PE 273 Intro Athl Trng</td>
<td><strong>PE 245 Prof Lab Exp</strong></td>
</tr>
<tr>
<td>PE 245 Prof Lab Exp</td>
<td><strong>PE 398 Prin of PE</strong></td>
</tr>
<tr>
<td>†PE 106 Water Saf Inst</td>
<td>- PE Activity Electives</td>
</tr>
<tr>
<td>(or current certificate)</td>
<td>2</td>
</tr>
<tr>
<td>PE 117 Apparatus Stunts</td>
<td>1</td>
</tr>
<tr>
<td>Gen Education Electives</td>
<td>3</td>
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<tr>
<td>PE Activity Electives</td>
<td>2</td>
</tr>
<tr>
<td>37</td>
<td>35</td>
</tr>
</tbody>
</table>

† To be taken only if student desires Elem Sch Certification.
# Corrective therapy students substitute Psych. 240, 320, 260.
* Must be completed by the time of graduation.
† May count as one activity course.
** May count as General Education.
Leading to a teaching certificate in physical education with a minor in biology, national certification in athletic training and corrective therapy.

### Junior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 326L Phys of Exercise</td>
<td>3</td>
</tr>
<tr>
<td>Biol 421L Comp Verteb Anatomy</td>
<td>5</td>
</tr>
<tr>
<td>Psych Elective</td>
<td>3</td>
</tr>
<tr>
<td>#PE 373 Adv Athletic Training</td>
<td>3</td>
</tr>
<tr>
<td>PE 397 Kinesiology</td>
<td>4</td>
</tr>
<tr>
<td>PE 301 Teach Team Spts</td>
<td>2</td>
</tr>
<tr>
<td>PE 302 Teach Ind and Dual Spts</td>
<td>2</td>
</tr>
<tr>
<td>PE 309 Teach Gymnastics</td>
<td>2</td>
</tr>
<tr>
<td>PE 310 Folk Dance in Sch Prg</td>
<td>2</td>
</tr>
<tr>
<td>PE 444 Teach of PE</td>
<td>4</td>
</tr>
<tr>
<td>PE 245 Prof Lab Exp (Jr. Bl.)</td>
<td>4</td>
</tr>
<tr>
<td>#Ed Fdn 310 Learning in Classrm</td>
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<td><strong>Total</strong></td>
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### Senior Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>H Ec 125 Intro to Nutrition</td>
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<tr>
<td>PE 489 Test &amp; Meas in PE</td>
<td>3</td>
</tr>
<tr>
<td>PE 399 Org &amp; Adm of PE</td>
<td>3</td>
</tr>
<tr>
<td>PE 452 Org of Spts Program</td>
<td>3</td>
</tr>
<tr>
<td>PE 466 Spec PE</td>
<td>3</td>
</tr>
<tr>
<td>PE 494 Clin Prog for Corrective Therapy or Athl Trng</td>
<td>6</td>
</tr>
<tr>
<td>PE 461 Stu Tchg Sec School</td>
<td>6</td>
</tr>
<tr>
<td>PE Activity Electives</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

### GENERAL EDUCATION FOR PHYSICAL EDUCATION MAJORS

Students must develop a written plan of study for General Education in consultation with an adviser from the Department of Health, Physical Education, and Recreation. This plan must include as a minimum one course taken from each of six of the ten following areas:

1. Behavioral Sciences
2. Communication Arts
3. Multicultural Studies
4. Fine and Practical Arts
5. Foreign Language
6. Humanities
7. Mathematics
8. Natural Sciences
9. Health Education and Recreation
10. Social Sciences

### MAJOR STUDY IN RECREATION

(Leading to the degree of Bachelor of Arts in Recreation)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Engl 102 Wrtg w/Rdgs in Lit</td>
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</tr>
<tr>
<td>Bus Ed 265 Bus Communications</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science</td>
<td>6-8</td>
</tr>
<tr>
<td>Recrea 175 Found of Recrea</td>
<td>3</td>
</tr>
<tr>
<td>Fine and Practical Arts Elective</td>
<td>2-3</td>
</tr>
<tr>
<td>H Ed 164 First Aid</td>
<td>2</td>
</tr>
<tr>
<td>Psych 102 Gen Psychology II</td>
<td>3</td>
</tr>
<tr>
<td>Recrea 290 Creat and Soc Arts for Recrea</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>6</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>30-33</strong></td>
</tr>
</tbody>
</table>

# Corrective therapy students substitute Psych. 240, 320, 260.
Junior Year
Recrea 378 Outdoor Recreation 3
Sp Com 277 Prob Solv, Creat, & Commun 3
Recrea 454 Dev of Recrea Programs 3
Recrea 458 Field Experience 3-6
Psychology Elective 3
Social Science Elective 3
Fine and Practical Arts Elective 3
Recrea Program Options 3
Directed Recrea Elective 3
Electives 3
_______
30-33

Senior Year
Recrea 459 Field Experience 3-6
Recrea 480 Admin of Recrea Progs 3
Multi-Cultural Education 3
Social Science Elective 3
Recrea Program Option 6
Directed Recrea Elective 3
Electives 8-11
_______
29-35

TOTAL 128

MINOR STUDY IN RECREATION
Recrea 175 Fdns of Recrea 3
Recrea 290 Creat and Soc Arts for Recrea 3
PE 319 PE in Elem School 3
Recrea 321 Recrea Leadership 3
Recrea 345 Prof Lab Experience in Recrea 3
Recrea 454 Dev of Recrea Program 3
Electives 6
_______
TOTAL 24

GENERAL EDUCATION

Students must develop a written plan of study for General Education in consultation with an adviser from the Recreation Program, Department of Health, Physical Education and Recreation. This plan must satisfy the following requirements:

Behavioral Science 9 Hours
Psych 102 (General Psych II) 3
plus 6 hours of Psych electives (200 level or above) 6

Communicative Arts 12 Hours
Engl 102 3
Sp Com 255 (Public Speaking) 3
Sp Com 277 (Prob Solv, Creat, & Commun) 3
Bus Ed 265 (Business Communications) 3

Fine and Practical Arts 6 Hours
Natural Sciences 6 Hours
Social Sciences 9 Hours
Health Education or Physical Education 3 Hours
Multicultural Education 3 Hours

Total 48 Hours

HOME ECONOMICS

MAJOR STUDY IN COLLEGE OF EDUCATION CURRICULUM FOR STUDENTS PREPARING TO TEACH HOME ECONOMICS

This curriculum leading to a degree of Bachelor of Science in Home Economics Education is designed to prepare the student to teach Home Economics in mid-
school, junior, and senior high schools, for Home Economics Extension work, Home Economics in social services, and for a career in Home Economics in business. The curriculum is approved by the State Department of Vocational Education for Vocational Certification.

At least 40 hours of home economics subject-matter is required for a major. A composite of 54 hours is encouraged for those planning to teach semester courses. Students desiring another teaching field will need a 24 hour minor.

HOME ECONOMICS EDUCATION

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 102 Dev of Culture</td>
<td>3</td>
</tr>
<tr>
<td>§Communication elective</td>
<td>3</td>
</tr>
<tr>
<td>§Communication elective</td>
<td>3</td>
</tr>
<tr>
<td>Psych 101 or 102 Gen Psych I, II</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective</td>
<td>4-6</td>
</tr>
<tr>
<td>Soc 101 Intro</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 101 Freshman Seminar (Fall)</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 102 Infant Growth &amp; Dev</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 120L Food Science</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 150L Clothing Const</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>29-31</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc and/or Psych Elective</td>
<td>6</td>
</tr>
<tr>
<td>Econ 201 or 200</td>
<td>3</td>
</tr>
<tr>
<td>Humanities elective</td>
<td>3</td>
</tr>
<tr>
<td>§Communication Elective</td>
<td>3</td>
</tr>
<tr>
<td>Art Ed 130 Tech of Design Ed (fall)</td>
<td>3</td>
</tr>
<tr>
<td>Ed Fdn 290 Founda of Ed</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 125 Intro Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 250 Clothing &amp; Human Behavior (spring)</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 252 Textiles</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 218 Marriage and Pers Dev</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>32</td>
</tr>
</tbody>
</table>

**Junior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc and/or Psych Elective</td>
<td>3</td>
</tr>
<tr>
<td>Econ, Hist, or Geog</td>
<td>3</td>
</tr>
<tr>
<td>§Multi-cultural elective</td>
<td>3</td>
</tr>
<tr>
<td>Ed Fdn 300 Hum Growth &amp; Devel</td>
<td>3</td>
</tr>
<tr>
<td>Ed Fdn 310 Learning &amp; Classroom</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 341 House &amp; Its Environment</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 443 Family Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>H Ec Ed 437 Tch of H Ec (spring)</td>
<td>3</td>
</tr>
<tr>
<td>H Ec Ed 361 Pre Stu Tch in H Ec (spring)</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
</tr>
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**Senior Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soc and/or Psych Elective</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 408L Growth &amp; Devel of Preschool</td>
<td>3</td>
</tr>
<tr>
<td>Child</td>
<td>2-3</td>
</tr>
<tr>
<td>H Ec 418 Family Relationships</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 444 Family Finance (spring)</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 445L Home Management Lab</td>
<td>4</td>
</tr>
<tr>
<td>H Ec Ed 461 Student Teaching in Sec Sch</td>
<td>6</td>
</tr>
<tr>
<td>H Ec Ed 465 H Ec Seminar</td>
<td>1-2</td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
</tr>
<tr>
<td>§Multi-cultural elective</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>31-33</td>
</tr>
</tbody>
</table>

12 hours selected from Sociology and/or Psychology, 3 hours 300 level or above.

CURRICULUM FOR MEDICAL DIETETIC NUTRITIONIST

This curriculum leads to a Bachelor of Science degree in Home Economics-Medical Dietetics. Persons completing this program are members of the health team in hospitals, clinics, public health and community health programs. Upon graduation they are eligible to take the examination to become registered members of the American Dietetic Association.

COORDINATED COMMUNITY DIETETIC PROGRAM

**Freshman Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 101L, 102L Inorganic</td>
<td>8</td>
</tr>
<tr>
<td>Biol 121L, 122L</td>
<td>8</td>
</tr>
<tr>
<td>H Ec 101 Freshman Sem. (Fall)</td>
<td>2</td>
</tr>
<tr>
<td>H Ec 120L Food Science</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 102 Infant Growth</td>
<td>3</td>
</tr>
<tr>
<td>General Education</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>33</td>
</tr>
</tbody>
</table>

**Sophomore Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 301, 303L, 302, 304L Organic</td>
<td>8</td>
</tr>
<tr>
<td>Biol 253, 254L Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Biol 136 Physiology (Fall)</td>
<td>4</td>
</tr>
<tr>
<td>H Ec 125 Introductory Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 222L Meal Management (Fall)</td>
<td>3</td>
</tr>
<tr>
<td>H Ec 218 Marriage &amp; Per Dev</td>
<td>3</td>
</tr>
<tr>
<td>General Education</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>34</td>
</tr>
</tbody>
</table>

§ Approval of Department needed.
### Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\text{Math } 102$ or $401L$</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>H Ec 325, 326L Inter Nutri (Spring)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>H Ec 408 Growth &amp; Dev of Pre Sch</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 427 Quantity Foods (Fall)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 434 Org &amp; Mgmt (Spring)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Community Health elective</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Biol 429L Cellular Physiology</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Total:** 32-33

### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>H Ec 418 Family Relations or Guidance 431</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 426 Clinical Nutri. (Fall)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>H Ec 404 Community Practicum (Fall)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>H Ec 403 Hospital Practicum (Spring)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>H Ec 425 Clinical Nutrition (Spring)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>H Ec 405 Eval Pract in Com Nutr (Spring)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>H Ec 406 Seminar Community Nutri</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>General Education</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Total:** 30

### GENERAL EDUCATION FOR COORDINATED DIETETIC PROGRAM

Students must develop a written plan for study for General Education in consultation with an adviser from the Department of Home Economics. This plan must include a minimum of 28 hours taken from six of the following areas:

1. Communication Arts
2. Multicultural Studies
3. Fine and Practical Arts
4. Foreign Languages
5. Humanities
6. Health Education & Recreation
7. Social Science

### MAJOR STUDY IN ARTS AND SCIENCES

A major study in Home Economics in the College of Arts and Sciences prepares the student for a career in Home Economics in business or in the home.

This curriculum would be a minimum of 34 hours in Home Economics. The student will select six hours in each of the 4 areas:

1. H Ec 120L, 125, 222L, 325, 326L
2. H Ec 150L, 250, 252, 254L, 456L
3. H Ec 101, 102, 218, 408L, 418
4. H Ec 341, 443, 444, 445L

Ten additional hours approved by the student's adviser in Home Ec. Twelve of the 34 hours must be upper division.

### MINOR STUDY

A total of 24 hours, at least 9 hours numbered above 300, chosen from the following 4 areas and from the following courses:

1. Family Relations and Child Development, 6 hours: H Ec 102, 218, 408L, 418.
2. Clothing and Textiles, 6 hours: H Ec 150L, 250, 252, 254L, 456L.
3. Foods and Nutrition, 6 hours: H Ec 120L, 125, 222L, 325.
4. Housing, House Furnishings, and Home Management, 6 hours: H Ec 341, 443, 444.

Any substitutions must be approved by the Chairman of the Department.

---

§ Math department will test for placement in appropriate department.
FOOD SERVICE MANAGEMENT

(Tourism, Hospitality, Hotel, and Restaurant Industries)

Committee in Charge: UNM—Jack Lockett, Assistant Director, Auxiliaries and Services, Food Services, Coordinator.

Professors: W. B. Runge (Education), E. A. Scholer (Recreation), E. M. Snell (Home Economics), Associate Professor Lee Zink (Economics), and representatives of the New Mexico State Department of Development, Tourism Division, and the State Hotel-Motel and Restaurant Associations.

Students wishing to include in their bachelor's degree work preparation for careers in the field of hotel, motel, restaurant, tourism, and recreation industries may enroll in selected courses for which they are eligible already being offered in Business and Administrative Sciences; Computing and Information Science; Economics; Home Economics; Health, Physical Education, and Recreation; and Speech. Such courses may be used toward the degree, Bachelor of University Studies, or in some cases may be used as electives toward other bachelor's degrees now being offered at the University.

Courses now available closely related to career goals in these occupational clusters are listed below. See committee members for detailed advisement and planning.

H Ec 125—Nutrition (3)
H Ec 427—Large Quantity Food Production (3)
H Ec 434—Organization & Management-Food Service (3)
H Ec/Rec 458-459—Directed Studies-Field Work-Internships (3)
HPER 311—Man and Leisure (Education for Leisure) (3)
HPER 378—Outdoor Recreation (3)
HPER 447—Tourism and Recreation (3)

INDUSTRIAL EDUCATION

CURRICULUM FOR STUDENTS PREPARING TO TEACH INDUSTRIAL EDUCATION

This curriculum leading to the degree of Bachelor of Science in Industrial Education is designed to prepare the student to teach Industrial Arts in junior and senior high schools. This major requires a composite of 58 hours of instruction to receive recommendation for certification from the University. The professional education requirements are met with 27 hours of instruction. The general education requirements are met with a minimum of 39 hours. A minimum of 4 hours of elective are required.

Intended majors in Industrial Education must meet with an IEd. adviser upon completion of six (6) hours in Industrial Education for the purpose of advisement and/or the planning of a program of studies.

Required Courses

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Sophomore Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Ed 101 Technical Math</td>
<td>I Ed 230L Power Mechanics</td>
</tr>
<tr>
<td>I Ed 105 Intro to I E</td>
<td>I Ed 265L Finishing &amp; Maint</td>
</tr>
<tr>
<td>I Ed 110L Machine Woodworking</td>
<td>I Ed 280L Elect &amp; Electronics</td>
</tr>
<tr>
<td>I Ed 111L Ind Graphics &amp; Design I</td>
<td>I Ed. 285L Welding</td>
</tr>
<tr>
<td>I Ed 112L Ind Graphics &amp; Design II</td>
<td>Ed. Fdn 290 Found of Ed</td>
</tr>
<tr>
<td>I Ed 120L Machine Metalworking</td>
<td>SP 256 Comun for Tch</td>
</tr>
</tbody>
</table>
Junior Year

I Ed 335L Int Power Mechanics 3
I Ed 350L Cabinet Making 3
I Ed 312L Arch Dftng 2
I Ed 365L Adv Machine Metalwrkg 3
I Ed 380L Elect & Electronics 3
I Ed 386L Metal Fabrication 3
*Ed Fdn 300 Hum Growth & Dev 3
#Ed Fdn 310 Learn & Classrm 3
*Sec Ed 361 Pre-Stu Tchg Exp 3
#Sec Ed 362 Pre-Stu Tchg Exp 3

Senior Year

I Ed 415L Hot Processes 3
I Ed 433 Tchg of Ind Subj 3
I Ed 466 Theory & Org of I E 3
I Ed 470L Carpentry 3
I Ed 461, 462, Stu Tchg 3-12
I Ed Tech Electives 5

MUSIC EDUCATION

NASM MEMBERSHIP

The University of New Mexico is a member of the National Association of Schools of Music. Requirements for entrance and for graduation as set forth in this catalog are in accordance with the published regulations of the National Association of Schools of Music.

CURRICULUM FOR STUDENTS PREPARING TO TEACH MUSIC IN GRADES 1-12 (128 hours) See pp. 162-163.

(Leading to the degree of Bachelor of Music Education)

MUSIC EDUCATION

(8-semester plan)

Semester I

Psych 101 3
Music Theory I 2
Eartraining I 2
Social Science 3
Mus Ed 194 1
Applied music 3
Ensemble 1

Total: 15

Semester II

Engl 101 3
Music Theory II 2
Eartraining II 2
Social Science 3
Sp Com 256 3
Applied music 3
Ensemble 1

Total: 17

Semester III

Mus Ed 294 2
Music 261 3
Music Theory III 2
Eartraining III 2
Engl 102 3
Applied music 3
Ensemble 1

Total: 16

Semester IV

Ed Fdn 290 3
Mus Ed 262 3
Humanities elect 3
Music Theory IV 2
Eartraining IV 2
Applied music 3
Ensemble 1

Total: 17

Semester V

Mus Ed 313 2
Mus Ed 444 2
Music 309 3
Natural Science 4
Music 363 2
Applied Music 3
Ensemble 1

Total: 17

Semester VI

Music Ed 446 2
Ed Fdn 300 3
Mus Ed 366 2
Music 364 (365) 2
Natural Science 4
Applied Music 3
Ensemble 1

Total: 17

* Must be taken concurrently (Modül I).
# Must be taken concurrently (Module II).
All students pursuing the curriculum listed above are also subject to all requirements pertaining to Music Education listed on pp. 162-163.

MINOR IN MUSIC EDUCATION

10 hours minimum in which each of the following areas is represented: music history or appreciation, music education, electives in music or music education.

PHYSICAL EDUCATION

See Health, Physical Education, and Recreation.

SECONDARY EDUCATION

STATEMENT OF PURPOSE AND OBJECTIVES

The Department of Secondary Education is deeply involved in developing quality educational programs for all young adults. This effort is a cooperative endeavor with the New Mexico State Department of Education and the secondary school districts of New Mexico. In order to help achieve the goal of quality education, the department carries on three major programs:

1) the preparation of teachers in curriculum areas of the secondary schools, culminating in a Bachelor of Arts in Education degree;

2) Post-bachelor's education for teachers of adolescents and adults in appropriate areas of curriculum and instruction, usually culminating in a Master of Arts degree;

3) A program of educational research in the theory and practice of adolescent and adult education led by members of the department working with outstanding educators who are pursuing advanced graduate programs leading toward Educational Specialist certification or doctoral degrees.

UNDERGRADUATE PROGRAM

The undergraduate program of the department is based on a broad general education which the students pursue primarily in their first two years at the University. Its major goal is the students' development of the human values and the qualities of excellence in scholarship and interdisciplinary relationships which will serve as a base for their entrance into the professional education program.

The professional education program involves both the students' pursuit of knowledge in two areas of study in which they propose to become competent to teach in the secondary schools, and the experiences and course work in the foun-
edations of education, secondary education curriculum and structure, and methods of teaching in the secondary schools. The goal of the department is to continually aid the students in their efforts to integrate the work in all of these areas which must contribute to competency as a teacher.

CERTIFICATION REQUIREMENTS

Successful completion of any of the following programs prepares the graduating senior for application for a four-year, provisional teaching certificate issued by the New Mexico State Department of Education. University departmental approval is given to all students successfully completing the following programs. Non-degree students and students already holding their bachelor's degrees but taking work in Professional Education may or may not be on approved programs. All students working towards certification should consult with advisers in Professional Education if they are interested in meeting certification requirements.

Certification beyond the four-year provisional certificate depends upon additional academic and professional course work. See pp. 99-100 for a description of teaching certificates.

Since it is possible to earn a master's degree in Secondary Education without meeting certain certification requirements related in some instances to undergraduate preparation, graduate students need to consult with their advisers in Professional Education as do undergraduates. See Graduate School Bulletin for further details.

PROGRAMS FOR TEACHERS IN SECONDARY SCHOOLS

The following curricula, leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Education, are designed for students preparing for junior and senior high school teaching. Students should select one of these curricula no later than four semesters prior to their expected date of graduation. The general conditions under which students may select these curricula are to be found under "Degree Requirements" of the "General Academic Regulations" section of the catalog.

Students who are working toward degrees in colleges other than the College of Education and who expect to gain certification should consult with advisers in the Secondary Education Department for approval of their programs.

For graduation from the College of Education in Secondary Education the candidate must have successfully completed, in conformity with the regulations prescribed for the several major and minor concentrations, not less than one departmental major concentration and one departmental minor concentration (except in the composite teaching areas). These concentrations shall total at least 51 semester hours of credit.

Because degree minors and certain patterns of course work in degree majors do not always meet certification requirements, students' programs must be approved by an adviser in Secondary Education. No minor of less than 24 hours, for example, will suffice for certification.

Acceptable as major or minor concentrations are: Biology, Chemistry, English, French, Geography, Geology, German, History, Mathematics, Mathematics Education, Physics, Political Science, Psychology, Sociology, Spanish, Speech Communication, Teaching of English as Second Language and Theatre Arts.
Acceptable as minor concentrations only are: Anthropology, Astronomy, Business and Administrative Sciences, Economics, Journalism, Latin, Library Science, Philosophy, Portuguese, Special Education, and Teaching of Reading in Secondary School. All teaching minors must include at least 24 semester hours.

Students who wish to elect teaching major and minor concentrations not listed above will consult with the Chairman of the Department of Secondary Education for detailed information and requirements (e.g., Humanities, American Studies, Latin American Studies, etc.).

**SPECIAL FIELDS FOR TEACHING**

2. Business Education: For details see pp. 110-111.
3. Home Economics: For details see pp. 120-123.
6. Physical Education: For details see pp. 117-119.
8. Special Education: For details see pp. 131-134.

**GENERAL EDUCATION.** To meet the general education requirements in Secondary Education, students must demonstrate that they have had appropriate experiences in a minimum of six of the following areas:

1. Behavioral Sciences
2. Communicative Arts
3. Multicultural Studies
4. Fine and Practical Arts
5. Foreign Language
6. Humanities
7. Mathematics
8. Natural Sciences
9. Health, Physical Education and Recreation
10. Social Sciences

Work taken by students in these areas will be designed to supplement, augment, or extend work in the major field.

To insure understanding of, and compliance with, the general education requirements, a file must be established by the student in the department prior to the beginning 300 level professional education courses. The folder will include a form which will list: (1) the areas to be included in the student’s general education component; and, (2) the experiences selected to fulfill the requirements in those areas. The form will be signed by both the student and the department adviser.

**DEPARTMENTAL REQUIREMENTS FOR STUDENT TEACHING.** Students under jurisdiction of this department must present an over-all grade-point average of at least 2.2 and a grade-point average in a major (teaching) concentration of at least 2.5 at the time of enrollment in student teaching.
### Professional Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ed Fdn 290</td>
<td>Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td><strong>Module I: Pre-student Teaching I, 6 semester hrs.</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed Fdn 300</td>
<td>Human Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>Sec Ed 361</td>
<td>Pre-student Teaching Exp. in Sec Ed I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Module II: Pre-student Teaching II, 6 semester hrs.</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ed Fdn 310</td>
<td>Learning and the Classroom</td>
<td>3</td>
</tr>
<tr>
<td>Sec Ed 362</td>
<td>Pre-student Teaching Exp. in Sec Ed II</td>
<td>3</td>
</tr>
</tbody>
</table>

Students must complete Pre-student Teaching Modules I and II with satisfactory competency development and recommendation from the Pre-student Teaching Module faculty before being admitted to Module III: Student Teaching Preparation and Internship.

Sec Ed 430-445, Special Methods of Teaching in Secondary Schools, or approved education substitute. 3-6**

**Module III: Student Teaching Preparation and Internship, 6 to 15 semester hours.**

Module III ranges from six to fifteen semester hours, depending upon the particular program in which the student is enrolled. One semester is the basic time framework for Module III, though two semesters may be required in experimental or pilot programs. Characteristics of Module III are: performance heavily on site (in a school) regardless of the number of hours; team endeavor involving University faculty and students and secondary school students, faculty, supervisors and administrators; development and implementation of teaching plans; and continued translation of theory into practice.

Sec Ed 461, 462, 463, Student Teaching

**Total Professional Education**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sec Ed 461, 462, 463</td>
<td>Student Teaching</td>
<td>6-15</td>
</tr>
</tbody>
</table>

Total Professional Education: 24-36

Over-all, the teacher preparation program in Secondary Education may require from two to four semesters. Students are required to consult their advisers in Secondary Education for a planned program filed in advance of completing Module I.

### Composite Teaching Areas

The composite teaching major area is designed to enable the prospective teacher to acquire unified learning within a broad field of closely related subject matter disciplines which would not be possible in a single subject-matter major teaching area.

The application of this unified knowledge to the teaching of currently unified or generalized secondary school subjects (e.g., Communication Arts, General Science, Social Studies) is an avowed purpose of this form of preparation.

The composite is also designed to prepare students to teach adequately in several closely related subjects. This type of preparation will be of particular advantage to novice teachers beginning their careers in small secondary schools in which they must expect multiple rather than single subject teaching assignments.

### Composite in Social Studies in Secondary Education

The composite major in general social studies shall consist of at least 54 hours, including freshman courses, of which at least 24 hours must be in the Department of History, including 2 courses in United States and 2 courses in European or World History; 9 hours in the Departments of Political Science or Economics; 12 hours in the Departments of Anthropology, Geography, Philosophy, or Sociology; and 9 hours in electives from these departments. No minor is required with the general social studies major, but one is strongly recommended.

* The pre-student teaching modules form a two-semester block program. The courses in each semester must be taken concurrently and they will be taught in a block of time on campus with additional hours of field experiences required each week.

** Students must take Special Methods in those fields for which they wish the Department's recommendation for certification.
COMPOSITE IN SCIENCE. The composite major in Science shall consist of at least 54 hours in the broad fields of Science and Mathematics. No minor is required, but one is strongly recommended. Three areas of concentration are available in the composite major.

Physical Science: This program requires 8 hours of Math 162 and above, 30 hours selected from the combined areas of Physics and Chemistry (a minimum of 11 hours from each field). Courses in Industrial Education may be selected with consent of adviser. The balance of the 54 hours may be selected from Chemistry, Physics, Mathematics, Geology, Astronomy, or Biology. Eight hours of Biology are recommended.

Earth Science: This program requires 8 hours of Math 162 and above, 3 hours of Astronomy, 8 hours of Chemistry, 11 hours of Physics (including 103), Geog 351, and 20 hours of Geology. The balance of the 54 hours may be selected from any of the areas above or from Biology.

Life Science: This program requires 4 hours of Mathematics, 8 hours of Chemistry, 24 hours of Biology. Six hours may be selected from Anth 307L, Psych 240 and 441. The balance of the 54 hours can be selected from Chemistry, Biology, Physics, or Geology.

COMPOSITE IN COMMUNICATION ARTS IN SECONDARY EDUCATION. The composite major in Communication Arts is designed to prepare a teacher of English who will be able to meet the communicative needs of secondary school students, both now and in their future lives as adults and citizens.

Students in the Communication Arts Composite Major will be required to meet periodically for program advisement and counseling with an adviser in the Dept. of Secondary Education beginning no later than the first semester of the sophomore year. With the guidance of faculty on campus and cooperating teachers in the field, each student will develop attitudes, understandings, and competencies through a variety of experiences and course work.

The Composite Major will consist of at least 54 hours of interdisciplinary study including course work in each of these areas: linguistics, English, communication arts, and cultural diversity.

In addition to the 54 hours in the major, all Communication Arts students are required to pursue the Professional Education Program in Secondary Education including Sec Ed 430 (Teaching of Communication Arts).

Since the composite contains 24 hours of English, students are strongly urged to add 9 hours of work in English courses to complete a regular English major meeting the requirements of the English Department.

No minor is required with the Communication Arts Composite Major, but it is strongly recommended that students add a second teaching field of at least 24 semester hours in a related area such as Reading, Teaching English to Speakers of Other Languages, Speech, Drama, Journalism, Linguistics, Spanish, Navajo, etc.

MAJOR IN MATHEMATICS EDUCATION

Students who propose to major in mathematics education are required to plan a program which will enable them to develop proficiencies in the following areas of mathematics: calculus; algebra; geometry; probability and statistics; computing; applications of mathematics; history of mathematics. In addition to
the required areas, students will be encouraged to develop proficiency in other areas of mathematics, such as topology, number theory, and advanced analysis. A variety of means (e.g., course work, field experiences, independent study) may be appropriate for individual programs. **STUDENTS MUST MEET WITH AN ADVISER IN SECONDARY EDUCATION AS SOON AS POSSIBLE TO PLAN THEIR PROGRAM.** The aim is to develop a program such that the various components (general education, mathematics, professional education, electives) will enhance each other and other activities of the student so as to provide an integrated series of experiences which will serve as the basis of a successful career in education.

**PROGRAM IN SECONDARY EDUCATION LEADING TO CERTIFICATION IN TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES**

The Department of Secondary Education offers an approved major or minor course of study leading to certification in Teaching of English to Speakers of Other Languages. The general and professional education requirements of the college and the department must be met. Candidates for admission into this program should apply for special screening at the time they apply for admission into the College of Education.

**Major:** The major consists of a minimum of 36 semester hours of interdisciplinary study which includes 12 hours of a second language (preferably Spanish or a Native American language) and courses in Linguistics, English, and Professional Education.

**Minor:** The minor consists of 24 hours of interdisciplinary study which includes 6 hours of a second language (preferably Spanish or a Native American language) and courses in Linguistics, English, and Professional Education.

**Broad Field Certification:** A student may elect to work toward certification in Teaching English to Speakers of Other Languages under the broad field concept. It is recommended that the applicant then augment the major of 36 hours with 21 additional hours in foreign language and English for a total of 57 semester hours; foreign language (preferably Spanish or one of the Indian languages), 12 hours; English, 9 hours including American literature, creative or informative writing (upper division course), speech communication (upper division course).

**Professional Education:** The student must pursue the professional education program of 24 hours, including appropriate pre-student teaching and student teaching experiences in the application of approaches, methods, and techniques in teaching English to speakers of other languages in the Southwest.

**PROGRAM IN TEACHING OF READING IN THE SECONDARY SCHOOLS**

Students in the Department of Secondary Education may apply for admission into a minor program leading to certification in the Teaching of Reading in the Secondary Schools. The general and professional education requirements of the college and the department must be met, and the student must also pursue a program in another major teaching field. Candidates for admission into the minor in the reading program should apply for special screening at the time they apply for admission into the College of Education. The minor in Teaching Reading in the Secondary Schools consists of 24 semester hours which includes each of these areas: reading in the secondary school, psychology of reading,
diagnosis of reading, tests and measurements, linguistics, adolescent literature, methods of TESOL, and practicum.

PROGRAM IN BILINGUAL EDUCATION

Students interested in Bilingual Education should consult the Departmental adviser at an early time in their university career. The program requires proficiency in English and another language, two certifiable teaching fields, and intensive study in Bilingual Education.

SPECIAL EDUCATION

GENERAL EDUCATION REQUIREMENTS

All prospective educational personnel should be broadly educated as a foundation for a successful professional career. It is required, therefore, that all UNM students expecting to receive a baccalaureate degree from the College of Education include in their preparation a program of general education. The College of Education requires all its graduates to complete the general education requirements as follows:

Each student must satisfy minimum requirements of 48 hours in six of the ten listed areas of study. Students must consult the appropriate COE Department with which the student is associated for specific area standards.

REQUIRED AREAS:

1. Behavioral Sciences
2. Communication Arts
3. Multicultural Studies
4. Fine and Practical Arts
5. Foreign Language
6. Humanities
7. Mathematics
8. Natural Sciences
9. Physical Education
10. Social Sciences

Work in General Education may also be applied to a double major or minor program of studies. The student pursuing a degree in special education should contact the Department of Special Education for the list of requirements needed before being accepted in the Special Education Teacher Training Program. All special education students shall be assigned an adviser and should have a contract on file of their program of studies. This contract shall be signed by both the adviser and the student. Processes Established for all Special Education Students by the Department of Special Education.

1. The Department of Special Education requires Spc Ed 210 and Spc Ed 211 (with a grade of "B" or better in both courses) before screening into the Special Education Teacher Training Program.
2. The Department will provide advisers for each student accepted in the Special Education Teacher Training Program.
3. Students shall write a contract for their program of studies and it shall be on file with both major and minor advisers.

* Combined as one (six (6) hours required).
4. Each student is required upon acceptance into Special Education to complete the Data Accumulation Form (DAF-Blue) at the end of each semester and this shall be on file with the program of studies.

5. Each student shall complete a Pre-Student Teaching, Special Education 300 Form (Green), one semester before enrolling in Pre-Student Teaching.

6. Each student shall complete a Student Teaching Application Form (Yellow), one semester before enrolling in Special Education 400 or Special Education 462.

7. The student shall complete degree check requirements for the College of Education, Department of Special Education, upon completion of 92 hours.

PROFESSIONAL EDUCATION REQUIREMENTS

All students in special education shall have a total of 12 hours in the professional education area.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Foundations 290</td>
<td>3</td>
</tr>
<tr>
<td>Educational Foundations 300 or Psychology 320 “Developmental Psychology”</td>
<td>3</td>
</tr>
<tr>
<td>Educational Foundations 310 or Psychology 260 “Psychology of Learning”</td>
<td>3</td>
</tr>
<tr>
<td>Media (AV)—Course approved by major adviser</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

SPECIAL EDUCATION MAJORS

The Department of Special Education provides the student the opportunity to major in Special Education. The major program at the undergraduate level emphasizes a Teaching Training Program for the Educable and Trainable Mentally Retarded Children in self-contained and integrated classrooms. Students wishing to pursue a Special Education major are referred to “Processes Established for all Special Education Teacher Training Programs.”

The Department of Special Education encourages cooperation among other Departments in the College of Education and will accept, where amenable, a double major—i.e., a major in Elementary Education and Special Education; Secondary Education and Special Education.

In order for students to double major they shall receive written consent from both departments and a written contract (Program of Studies) shall be filled out with both departments and shall have signatures of major advisers:

COURSES REQUIRED FOR MAJOR IN SPECIAL EDUCATION

(Courses required for Major Program of Studies.)

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spc Ed 210 Introduction to Special Education</td>
<td>2</td>
</tr>
<tr>
<td>Spc Ed 211 Education of Exceptional Children</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 221 Nature and Needs of Mentally Retarded</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 300 Pre-Student Teaching</td>
<td>6</td>
</tr>
<tr>
<td>Spc Ed 317 Methods and Materials in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 322 Teaching the Mentally Retarded</td>
<td>3</td>
</tr>
<tr>
<td>or Spc Ed 362 Teaching the Severely Retarded</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 400 Student Teaching in Elementary (Special Education)</td>
<td>6</td>
</tr>
<tr>
<td>or Spc Ed 462 Student Teaching in Secondary (Special Education)</td>
<td>6</td>
</tr>
<tr>
<td>Spc Ed 410 Undergraduate Seminar in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>Special Education Electives:</td>
<td>6</td>
</tr>
</tbody>
</table>
Spc Ed 404 Techniques of Teaching Children with Learning Problems 3
Spc Ed 415 Social and Psychological Problems in Special Education
Spc Ed 431 Characteristics of Children with Behavior Disorders
C&I 435 Remedial Reading (Required)
Com Ds 430 Development of Speech and Language

Recommended Semester Outline

Freshman:
2nd Semester, *210, *211

Sophomore:
1st Semester, *221
2nd Semester, 322 or 362

Junior:
1st Semester, *415
2nd Semester, *300-317 (See major or minor adviser one semester before enrolling.)

Senior:
1st Semester, 400-410 (See major or minor adviser one semester before enrolling.)
or
2nd Semester, 400-410

MINOR: TEACHING SPECIAL EDUCATION

The Department of Special Education offers a teaching Special Education Minor for students screened into the College of Education and the Department of Special Education.

The teaching minor requires that the student earn a "B" or better in Special Education 210, 211 and 221. Upon completion of these courses (8 hours), the student shall file a program of studies (contract) to the College of Education and the Department of Special Education. The program of studies (contract) shall be established by the students and their major adviser. This program generally limited to elementary or secondary education majors.

Required Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spc Ed 210</td>
<td>2</td>
</tr>
<tr>
<td>Spc Ed 211</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 221</td>
<td>3</td>
</tr>
<tr>
<td>†Spc Ed Electives</td>
<td>6</td>
</tr>
<tr>
<td>Spc Ed 322</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 317</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 400</td>
<td>6</td>
</tr>
<tr>
<td>C&amp;I 435 (Required)</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 404</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 431</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 415</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 383</td>
<td>3</td>
</tr>
</tbody>
</table>

MINOR (Minimum 18 hours): EXCEPTIONAL CHILDREN, NON-TEACHING

The Department of Special Education offers a non-teaching minor in Exceptional Children designed to provide students from other departments with a basic understanding of the educational, social, psychological, and medical characteristics and needs of exceptional children. The minor is not designed, and will not lead to, teaching certification in Special Education.

The minor in Exceptional Children requires that students earn a grade of "B" or better in Special Education 210, Special Education 211, Special Education 221, and complete 10 hours selected from the following listed courses (total 18 hours).

All students desiring a non-teaching minor must contact a Special Education adviser and a Contract (Program of Studies) must be on file with both major and minor advisers.

* Screening Stages.
† Approved by major adviser.
Spc Ed 302 Communicative Disorders  
Spc Ed 351 Problems  
Spc Ed & Ed Fdn 383 Education of the Mexican American  
Spc Ed 405 Special Education in a Regular Classroom  
Spc Ed 427 Problems of the Hearing Impaired  
Spc Ed 431 Characteristics of the E.D. Child  
Spc Ed 467 Survey of Physical Defects  
Spc Ed 429 Workshop in Special Education  
Com Ds 426 Manual Communication  
*PE 466 Special Physical Education  
*PE 486 Principles of Therapeutic P.E.  
*PE 488 Motor Learning and Performance  
Rec 477 Recreation in Special Education  
*Psych 332 Abnormal Psychology  
*Psych 432 Child Clinical Psychology  
*Com Ds 330 Speech Pathology in the Schools

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spc Ed 302 Communicative Disorders</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 351 Problems</td>
<td>1-3</td>
</tr>
<tr>
<td>Spc Ed &amp; Ed Fdn 383 Education of the Mexican American</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 405 Special Education in a Regular Classroom</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 427 Problems of the Hearing Impaired</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 431 Characteristics of the E.D. Child</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 467 Survey of Physical Defects</td>
<td>3</td>
</tr>
<tr>
<td>Spc Ed 429 Workshop in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>Com Ds 426 Manual Communication</td>
<td>1</td>
</tr>
<tr>
<td>*PE 466 Special Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>*PE 486 Principles of Therapeutic P.E.</td>
<td>3</td>
</tr>
<tr>
<td>*PE 488 Motor Learning and Performance</td>
<td>3</td>
</tr>
<tr>
<td>Rec 477 Recreation in Special Education</td>
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<td>3</td>
</tr>
<tr>
<td>*Com Ds 330 Speech Pathology in the Schools</td>
<td>3</td>
</tr>
</tbody>
</table>

* Course may not be duplicated for major and minor program.
COLLEGE OF ENGINEERING

ENGINEERS are creators and builders. They direct their imagination, ingenuity, resourcefulness, and intelligence to the economical usage of our natural resources. Few professions offer the individual greater challenge, stimulation, and satisfaction of creative accomplishment. In these days, when breathtaking technological advances are commonplace, the engineer requires ever greater breadth and depth of mathematical and scientific cognition. Of increasing importance is the ability for clear self-expression and a sympathetic appreciation of the social, economic, and human values of the world in which we live. Engineers are not only interpreters of science and mathematics to the producers of human material needs, but they also are managers of men, money, materials, and machines in effecting the satisfaction of these needs.

The several curricula of the College of Engineering are designed to give the students suitable education, attitudes, and motivations for their entry into successful careers as practicing engineers, administrators, researchers, or educators. The undergraduate programs are solidly founded on mathematics and the natural sciences with additional emphasis being placed upon human values and relations. This broad grounding in itself is not sufficient; however, and these curricula strive to develop the beginnings of sound judgment, perspective, and a penetrating curiosity. Many graduates continue their formal education at the postgraduate level and work toward the master's or doctor's degree. The student must realize, however, that education does not stop with the completion of college. More truthfully, this is when education really begins. True professional engineers never stop learning; they are continually broadening their intellectual horizons. One indication of continued growth and development is registration as a professional engineer. Every state has established criteria of education and experience which must be met before an engineer can enjoy this status.

In the College of Engineering, the students are afforded an opportunity for scholarly study, laboratory exercise, and research participation. They daily rub shoulders with engineers nationally recognized in their fields. The University of New Mexico strongly believes that engineering teachers must be competent engineers in their own right, and faculty members are encouraged to participate actively in professional practice and research. This experience keeps the faculty informed on new developments, increases their understanding of subjects taught, and gives the student the benefit of their findings and personal experiences. Faculty and students work side by side in research and instructional laboratories.

The College of Engineering maintains a Bureau of Engineering Research. For details of the Bureau's purposes and activities, contact College of Engineering office.

HIGH SCHOOL PREPARATION

It is important that high school students wishing to pursue professional engineering studies at the University of New Mexico orient their subject selection in the proper directions at the earliest possible moment. Students properly prepared will be able to follow the regular pattern of studies without the necessity of making up scholastic deficiencies. Students inadequately prepared in mathematics or English are required to take remedial work for no credit to remove
these subject deficiencies. Students with particularly high scores in the English area of the ACT are excused from Engl 101 (3 hours); those who are placed in Math 163 are excused from Math 162 (4 hours).

Students intending to study engineering should take in high school all of the mathematics and English possible as well as chemistry and physics. The mathematics should include a minimum of 2 units of algebra, 1 unit of geometry, and \( \frac{1}{2} \) unit of trigonometry or college-preparatory mathematics.

**ADMISSION**

All freshman students are admitted to the University College. A detailed statement of entrance requirements to University College is in the "Admission" section of this catalog. All freshman engineering students, during their residence in University College, take the prescribed freshman engineering course of study as set forth on p. 140.

**ADMISSION FROM UNIVERSITY COLLEGE**

To be eligible for transfer to the College of Engineering from the University College, the student must meet the requirements listed below:

1. Completion of 26 semester hours of acceptable credit.
2. (a) A scholarship index of at least 2.0 on all hours attempted; or
   (b) A scholarship index of at least 2.0 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.0 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.

**TRANSFERS**

Students will be eligible for transfer to the College of Engineering from other degree-granting colleges of the University or from other accredited institutions if they have a grade-point index of 2.0 or better on all work attempted in the other degree-granting colleges or institutions, and if they have completed 26 semester hours of acceptable credit.

**COURSES OF STUDY**

**FOUR YEAR PROGRAMS**

The College of Engineering is a member of the American Society for Engineering Education. The curricula in Civil, Electrical, and Mechanical Engineering are accredited by the Engineer's Council for Professional Development.

The College of Engineering offers the degrees of Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering and the Bachelor of Engineering degree with several options. These four-year curricula are designed for students who enter without deficiencies and who are capable of carrying the required scholastic loads indicated under the respective departmental programs. Otherwise, students should plan on spending more than eight regular semesters to complete requirements for their degree.
SPECIAL FIELDS

In addition to the four major professional fields of study listed above, in which the Bachelor of Science degree is offered, three options are currently available in the Bachelor of Engineering degree program. These three options are: Biomedical Engineering Option, Computer Science Option, and Energy and Power Systems Option. It is expected that in the future additional options will be available within the Bachelor of Engineering degree program, hence, the student should consult with the Dean's office. In addition, it is possible to specialize to some degree by choosing appropriate elective courses within the basic curriculum of one of the major departments.

ASSOCIATE OF SCIENCE IN PRE-ENGINEERING

The College of Engineering offers the Associate of Science in Pre-Engineering. This two year program includes the basic mathematics, basic science, and pre-engineering courses from a regular four year engineering program.

MEDICAL ENGINEERING TECHNOLOGY

The College of Engineering offers a two-year program of study leading to the degree of Associate of Science in Medical Engineering Technology.

INSTRUMENTATION ENGINEERING TECHNOLOGY

The College of Engineering also offers a two-year associate degree program at the Northern New Mexico Branch of the University of New Mexico which leads to the degree of Associate of Science in Instrumentation Engineering Technology. The program is supervised by the Department of Mechanical Engineering. Information on this program may be obtained from the Director of the Northern New Mexico Branch or the Department of Mechanical Engineering.

DEGREE IN COMBINATION WITH OTHER COLLEGES

If students wish to secure a degree in another college together with their engineering degree, they are urged to seek advice early in their college careers from the deans of the colleges concerned. With care in selecting their program of studies, it is possible for students to secure two degrees in one additional year.

AEROSPACE STUDIES, NAVAL SCIENCE

It is possible for students enrolled in the Air Force ROTC or the Naval ROTC to complete their degree program in four years. However, students may need an extra semester to complete the requirements for both a degree and a commission. Students should consult the department chairman concerned in planning their program.

COOPERATIVE EDUCATION PROGRAM

The College of Engineering offers a Cooperative Education Program (Co-op) for students majoring in Chemical, Civil, Electrical and Computer Science, or Mechanical Engineering. The Co-op curriculum is a 5 year work-study program which alternates a semester of full-time academic study with a semester of full-time employment in industry. Co-op students gain industrial experience which helps provide career guidance and helps make their academic
study become more meaningful. Also, Co-op students earn a substantial part of their educational expenses.

Students who are interested in the Co-op Program may apply to the Engineering Co-op Director soon after being admitted to the University. Co-op students normally must finish the first semester of the freshman year with at least a 2.5 grade average before beginning interviews for a Co-op job with industry. Thus, Co-op students normally begin their first work phase at the end of their freshman year.

The Engineering Co-op Program has a number of pre-freshman summer jobs and freshman scholarships for qualified high school graduates. These special co-op positions are normally reserved for outstanding high school graduates, minorities, or women who show promise in Engineering. Students interested in these pre-co-op positions should apply for admission to the University and to the Co-op Program by January 30 during their senior year in high school.

While on each work phase co-op students must register in Engineering 100 and pay a $10.00 fee. This registration maintains the students’ academic status including eligibility for dormitory, activity card, library, insurance, and health services. After completing each work phase, the co-op student registers in one of the Engineering courses, Evaluation of Co-op Work Phase, for 1 credit hour. The academic credit earned from the co-op work phase may be counted as technical elective credit toward the students’ Engineering degree.

GRADUATE STUDY

A program of graduate studies is offered by the College of Engineering leading to the Master of Science degree with a major in Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Nuclear Engineering. A fifth year of study leading to the Master’s degree is strongly recommended for students of more than usual ability who believe that they can profit from the additional study.

A program of graduate study in Mechanics is offered jointly by the Departments of Civil and Mechanical Engineering. Also available in the College of Engineering is a graduate program in Science of Materials.

A program of graduate study in Computer Science is available in the Engineering College. Graduate students should consult the engineering departmental listings in the Graduate School Bulletin for additional information on the computer study options available in that department. Descriptions of the computer and computer related courses offered by the several engineering departments will be found in the “Courses of Instruction” section of this catalog.

The College of Engineering offers through the Graduate School a program leading to the degree of Doctor of Philosophy in Engineering, under which study concentrations may be pursued in a variety of engineering fields. Consult the current Graduate School Bulletin for details of these programs.

SCHOLASTIC REGULATIONS

The student should become familiar with the general academic and scholastic rules which apply to all students enrolled in the University (see pp. 56-59). Special attention is called to the rules on probation and suspension.
COURSES NUMBERED 300 OR ABOVE
Students may be admitted to courses numbered 300 or above in the College of Engineering (1) if they are not more than 8 hours short of completing all freshman and sophomore requirements, (2) if they have completed all prerequisites for the course in question, (3) if the remaining lower-division requirements appear on their program, or (4) at the discretion of the Dean of the College. If a student fails a required lower-division course while enrolled in a 300-level course, the student will not be eligible to enroll in additional 300-level courses until all required freshman and sophomore courses have been completed.

The College of Engineering will not accept 300-level or above engineering courses which have been taken by extension or correspondence.

MAXIMUM SEMESTER HOUR LOAD
The maximum semester hour load for students in the College of Engineering is 20 hours, including physical education. Only in exceptional cases and with approval of the Dean of the College will a student be permitted to carry 21 hours.

GRADUATION REQUIREMENTS
Specific graduation requirements are as follows:

1. Candidates for the Bachelor of Science in any of the engineering departments must complete all of the work outlined in their respective curricula. The student is solely responsible for completing all requirements for graduation.

2. Students must file applications for degree with their department chairperson during the second semester of their junior year, but in no case later than when they have completed 100 semester hours acceptable toward the degree.

3. Each candidate for a degree must have at least a 2.0 grade-point average on work taken at the University of New Mexico which is counted toward graduation. Three-fourths of the semester hours offered toward a degree must be of C grade or better.

4. For minimum residence requirements, see p. 59.

5. If a beginning student is placed in Math 163 because of high ACT scores in that area and completes the course with a grade of C or better, the hours required for graduation will be reduced by four.

6. If a student is placed in Engl 102 because of high ACT scores in that area and completes the course with a grade of C or better, the hours required for graduation will be reduced by three.

CURRICULA REQUIREMENTS IN THE COLLEGE OF ENGINEERING
The degree programs offered by the several departments are listed, in alphabetical order, on the following pages. Following these departmental listings, the programs of studies for the three options available under the Bachelor of Engineering program and for the two-year Medical Engineering Technology and Instrumentation Engineering Technology Programs are listed.
Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction."

COURSE OF STUDY FOR ALL ENGINEERING STUDENTS

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Hrs.</th>
<th>Cr. Lect.-Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chem 101L Gen</td>
<td>4 (3-3)</td>
<td>15 (11-9)</td>
</tr>
<tr>
<td>Engl 101 Wrtg w/Rdgs in Expos</td>
<td>3 (3-0)</td>
<td></td>
</tr>
<tr>
<td>Engr 101L Intro to Engr</td>
<td>4 (1-6)</td>
<td></td>
</tr>
<tr>
<td>Math 162 Calculus I</td>
<td>4 (4-0)</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>16 or 17 (15-7)</td>
</tr>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Hrs.</th>
<th>Cr. Lect.-Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engr 102L Engr Comp Meth</td>
<td>3 (2-4)</td>
<td></td>
</tr>
<tr>
<td>Physcs 160 Gen</td>
<td>3 (3-0)</td>
<td></td>
</tr>
<tr>
<td>Math 163 Calculus II</td>
<td>4 (4-0)</td>
<td></td>
</tr>
<tr>
<td><strong>Science Elective</strong></td>
<td>3 or 4 (3-3)</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:
1. High school preparation for Math 162 should include at least 2 units of algebra, 1 of geometry, and ½ of trigonometry or college preparatory mathematics. All students entering the Engineering program are required to take a placement exam administered by the Mathematics Department. Students who do not qualify for Math 162 on this placement exam will be required to take remedial mathematics.
2. Students with unsatisfactory scores in the ACT English area will be required to take remedial English.
3. The courses listed in this freshman year program by name and number are considered to be part of the student’s major and may not be taken on a credit (CR) basis (see p. 60 for an explanation of the grading system.)

CHEMICAL ENGINEERING

The chemical engineering program is offered under the administration of the Department of Chemical and Nuclear Engineering.

Chemical Engineering has long played a primary role in the nation’s energy resources—the extraction, refinement, and transportation of natural gas, crude oil and other fossil fuels. It will continue to play a vital role in energy resources for the future—nuclear, geothermal, solar and coal gasification. Chemical Engineering relates directly to the cleaning up of our water, air, and land, because separation processes and chemical reaction engineering form the basis of any attack on pollution. The chemical engineer will continue to play an important role in feeding, clothing, and housing an increasing population throughout the world. Participation of chemical engineers in artificial body organ development and other areas closely related to the medical field will continue to expand.

The goal of chemical engineering education is the development of the ability to apply the principles of chemical and certain physical changes of materials to the resolution of technological problems for the benefit of society. The course of study in chemical engineering is designed to afford students broad training in the fundamentals of mathematics, physics, chemistry and the engineering sciences, followed by the distinctly professional courses of Unit Operations and Unit Processes.

The graduate chemical engineer will find many avenues of opportunity in research and development; production, operation, and maintenance; design and construction; management and administration; technical service and sales;

§ Humanities or social science elective. Consult adviser.

*** Students who intend to major in Chem Engr or Biomed Engr are encouraged to take Chem 121 and must take Chem 102L or 122L for the science elective. Others should consult advisers.
and consulting. These opportunities are world-wide in industries which have produced an array of synthetic chemical products: antibiotics, fibers, fertilizers, paper, explosives, racket propellents, ceramics, pesticides, adhesives, detergents, paints, medical supplies, process foods, cosmetics, and synthetic rubbers.

LABORATORY FACILITIES. The Chemical Engineering Laboratory is equipped with pilot plant equipment for the study of unit operations such as evaporation, solvent extraction, distillation, absorption, filtration, and crystallization. The unit processes such as nitration, sulfonation, hydrogenation, etc., can be carried out in the Process Laboratory which is equipped for the study of small scale production of various chemical products. Teaching Laboratories for the engineering sciences fluid mechanics, and heat transfer are available in the Farris Engineering Center.

COMPUTER FACILITIES. Digital computers provide the basic computational tool for today's modern engineer. Freshman engineering students are introduced immediately to the University's IBM 360/67 computer. Numerical analysis and digital computation is an important part of each year's instruction in Chemical Engineering, and by the senior year students are encouraged to use many of the sophisticated computer codes available in industry.

COOPERATIVE EDUCATION. Chemical Engineering students may participate in the Cooperative Education Program. Excellent opportunities exist throughout the Southwest for undergraduate Chemical Engineering students. For further information contact the Department Chairman or the Director of Cooperative Education.

CURRICULUM IN CHEMICAL ENGINEERING

Hours required for graduation: 130*

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Sophomore Year</th>
<th>Second Semester</th>
<th>Hrs.</th>
<th>Lect.-Lab.</th>
<th>Hrs.</th>
<th>Lect.-Lab.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 264 Calculus III</td>
<td>4 (4-0)</td>
<td>Math 316 App Ord Diff Eq</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 161 Gen</td>
<td>3 (3-0)</td>
<td>Physics 262 Gen</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chem 301 &amp; 303L Organic</td>
<td>4 (3-3)</td>
<td>Physics 163L or 264L Gen Lab</td>
<td>1 (0-3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ch E 251L Chem Calc</td>
<td>3 (2-2)</td>
<td>Ch E 252 Intro Trans Phen</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Econ 200 Prin and Probs</td>
<td>3 (3-0)</td>
<td>Ch E 301 Thermodynamics</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>H&amp;S Elective</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17 (15-5)</td>
<td></td>
<td>16 (15-3)</td>
<td></td>
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</tr>
</tbody>
</table>

| Junior Year | | | |
|----------------|----------------|----------------|------|------------|------|------------|
| Ch E 311 Unit Ops I | 3 (3-0) | Ch E 302 Ch E Thermo | 3 (3-0) | | |
| Ch E 314L Chem Eng Lab I | 2 (0-6) | Ch E 312 Unit Ops II | 3 (3-0) | | |
| EECS 203 Intro to EE I | 3 (3-0) | Ch E 315L Chem Eng Lab II | 2 (0-6) | | |
| Chem 311 Physical | 4 (4-0) | Ch E 370 Eng Mat Science | 3 (3-0) | | |
| Chem 331L Adv Lab I | 2 (0-6) | Chem 312 Physical | 4 (4-0) | | |
| Tech Elective | 3 (3-0) | Tech Elective | 3 (3-0) | | |
| Total | 17 (13-12) | | 18 (16-6) | | |

| Senior Year | | | |
|----------------|----------------|----------------|------|------------|------|------------|
| Ch E 450 Chem Eng Econ | 3 (3-0) | Ch E 452 Senior Seminar | 1 (1-0) | | |
| Ch E 454L Proc Dyn & Con | 3 (2-3) | Ch E 495L Ch E Design | 3 (2-3) | | |
| Ch E 461 Ch E Kinetics | 3 (3-0) | H&S Elective | 3 (3-0) | | |
| Ch E 493L Intro to Design | 1 (0-3) | H&S Elective | 3 (3-0) | | |
| H&S Elective | 3 (3-0) | Tech Elective | 3 (3-0) | | |
| Tech Elective | 3 (3-0) | Adv Chem Elective | 3 (3-0) | | |
| Total | 16 (14-6) | | 16 (15-3) | | |

* Reduced for students placed ahead in freshman mathematics and/or English.
NOTES:
1. At least 15 hours of electives are to be taken in the humanities and social sciences (H&SS).
2. Technical electives chosen from upper division courses in engineering, mathematics, and science must be approved by the department chairman.
3. Students enrolled in the ROTC programs may, with the approval of the department chairman, substitute Aerospace Studies or Naval Science for up to 6 hours of technical electives.
4. Prior to completion of 95 semester hours, the student must obtain departmental approval for the remainder of his degree program.

CIVIL ENGINEERING

Civil Engineering is an extremely broad professional field. Areas of interest include such seemingly diverse subjects as the theory of traffic flow, electronic computations, microbiology, the chemistry of polymers, network theory, earth physics, the stresses and strains induced in aerospace structures, the psychology of automobile driver behavior, the problems of air and water pollution, and the effects of earthquakes on structures. Civil Engineering problems involve the physical, mathematical, life, earth, social and engineering sciences, and may involve many other professional areas. However, Civil Engineering does have a unique and unified role. In particular, Civil Engineering is concerned with the engineering (planning, design and construction) of systems of constructed facilities related to man’s basic needs and desires. The facilities are often large or extensive and must be engineered as operational systems involving the complex interaction of many components with each other as well as with the physical and social environment. Typical Civil Engineering facilities include transportation systems, water conservation and distribution systems, pollution control and waste disposal projects, and various structural systems such as buildings, bridges, and aerospace vehicles and launching facilities.

The scope and complexity as well as the interdisciplinary involvement of Civil Engineering continues to increase rapidly with the development of modern science and technology, and the population growth with its spiraling demands upon the air-land-water environment. The future challenges to the profession are immense. The preparation of the Civil Engineering student is aimed toward meeting these challenges through innovative application of known principles, creative research to discover new approaches, and imaginative design to fulfill society’s needs. Civil Engineers with advanced education beyond the baccalaureate are in increasing demand. Students with sufficiently high grades should continue to the master's degree or beyond.

CONSTRUCTION OPTION. R. H. Clough, Adviser. Students who are interested in careers in the construction industry can elect to follow the construction option which is offered by the Department of Civil Engineering. This option, which culminates in a bachelor's degree in Civil Engineering, allows the student to take courses in accounting, economics, construction management, labor relations, and other construction-related courses. Students who wish to take the construction option must enter the program at the start of their sophomore year, and they will be encouraged to take jobs in the construction industry during the summer months.

HONORS PROGRAM. Eligible freshmen and upperclassmen in the Department
of Civil Engineering are urged to enroll in the Honors Program. Civil Engineering students may graduate with General Honors (Honors in General Studies) or with Departmental Honors, or with both. Information is available from University College Advisers, Departmental Advisers, and the University Honors Center.

COOPERATIVE EDUCATION PROGRAM. The Department of Civil Engineering offers a Cooperative Education Program which alternates classroom study with a planned program of related work experience (see p. 137 for further details). In some cases it is possible for a student to work in engineering practice under the program during the summer immediately after graduation from high school. Additional information may be obtained from the Chairman of the Department of Civil Engineering.

COMBINED BSCE-MBA PROGRAM. A combined program is available in which a student may earn both a B.S. in Civil Engineering and a Master of Business Administration degree within five years. The student should begin planning for a combined program during the sophomore year since at least one summer session of study is necessary. Details are available from the Department of Civil Engineering and the School of Business and Administrative Sciences.

CIVIL ENGINEERING LABORATORIES. The Civil Engineering Laboratories have been designed to be an integral part of the educational process as well as an introduction to modern industrial laboratory practice in materials quality control, design, and research. Well-equipped instructional laboratories are provided for engineering measurements, mechanics of materials, concrete and bituminous materials, soil mechanics, fluid mechanics, and sanitary engineering. Modern experimental equipment and techniques are utilized in all laboratories.

COMPUTATIONAL FACILITIES. Freshman engineering students are introduced to the use of the digital computer, and upper division classes make use of it as a computational tool. The College of Engineering computer facilities are interfaced with the University IBM 360 Computer and are available for use by all engineering students. In addition, the Civil Engineering Department provides analog computer facilities. The use of modern digital and analog computers is an integral part of the instruction at all levels.

CURRICULUM IN CIVIL ENGINEERING

Hours required for graduation: 130*

<table>
<thead>
<tr>
<th></th>
<th>Sophomore Year</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Math 264 Calculus III</strong></td>
<td>4 (4-0)</td>
<td><strong>Math 316 Appl Ord Diff Equa</strong></td>
</tr>
<tr>
<td><strong>Physics 161 Gen</strong></td>
<td>3 (3-0)</td>
<td><strong>Physics 262 Gen</strong></td>
</tr>
<tr>
<td><strong>Physics 163L Gen Lab</strong></td>
<td>1 (0-3)</td>
<td><strong>CE 270L Constr Mater</strong></td>
</tr>
<tr>
<td><strong>CE 202 Engr Statics</strong></td>
<td>3 (2-3)</td>
<td><strong>CE 282L Engr Surveys</strong></td>
</tr>
<tr>
<td><strong>CE 281L Engr Meas</strong></td>
<td>3 (2-3)</td>
<td><strong>ME 206L Dynamics</strong></td>
</tr>
<tr>
<td><strong>Engl Elective or Sp Com 255 Pub Spkg</strong></td>
<td>3 (3-0)</td>
<td><strong>EECS 203 Intro to EE I</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17 (14-9)</td>
<td><strong>Total</strong></td>
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</table>

* Reduced for students placed ahead in freshman mathematics and/or English.
## Junior Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hrs.</th>
<th>Second Semester</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 265 Vector Analysis</td>
<td>4 (4-0)</td>
<td>CE 360L Soil Mech</td>
<td>Cr. Lec.-Lab.</td>
</tr>
<tr>
<td>or Math 345 Statistical Methodology</td>
<td>3 (3-0)</td>
<td>CE 306 Struc Anal II</td>
<td>3 (3-0)</td>
</tr>
<tr>
<td>CE 302 Mech of Materials</td>
<td>3 (3-0)</td>
<td>CE 332 Water Res &amp; Hydr E I</td>
<td>3 (3-0)</td>
</tr>
<tr>
<td>CE 303L Mech of Mater Lab</td>
<td>1 (0-3)</td>
<td>CE 324L Struc Des in Metals</td>
<td>3 (2-3)</td>
</tr>
<tr>
<td>CE 305 Struc Anal I</td>
<td>2 (2-0)</td>
<td>CE 336L Sanitary Engr I</td>
<td>3 (2-3)</td>
</tr>
<tr>
<td>CE 331L Fluid Mech</td>
<td>3 (2-3)</td>
<td>Elective</td>
<td>3 (3-0)</td>
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<tr>
<td>CE 382 Transp Engr</td>
<td>2 (2-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17 or 18 (15-6)</td>
<td></td>
<td>18 (15-9)</td>
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</table>

### Senior Year

<table>
<thead>
<tr>
<th></th>
<th>Hrs.</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CE 411 Reinf Concr Des</td>
<td>3 (3-0)</td>
<td>Econ 200 Prin and Probs</td>
<td>3 (3-0)</td>
</tr>
<tr>
<td>CE 370 Engr Mater Science</td>
<td>3 (3-0)</td>
<td>Technical Electives</td>
<td>9 (9-0)</td>
</tr>
<tr>
<td>CE 490 Prof Probs in Engr</td>
<td>2 (2-0)</td>
<td>Elective</td>
<td>3 (3-0)</td>
</tr>
<tr>
<td>ME 301 Thermodynamics</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>2 or 3 (3-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3 (3-0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16 or 17 (17-0)</td>
<td></td>
<td>15 (15-0)</td>
</tr>
</tbody>
</table>

**NOTES:**
- Electives are to be chosen from the humanities and social sciences. See Department Chairman for list of approved courses.
- See Department Chairman for list of approved technical electives. Students enrolled in the ROTC programs may, with approval of the Department Chairman, substitute Aerospace Studies or Naval Science for up to 6 hours of technical electives.

## Electrical Engineering and Computer Science

Electrical Engineering technology is changing very rapidly. Standard practice one year becomes obsolete the next. For these reasons the curriculum in Electrical Engineering and Computer Science stresses fundamental concepts as well as current application methods. Thus the student is prepared to understand new developments in this dynamic technical field.

### Areas of Specialization.
The curriculum provides considerable freedom in choice of electives, particularly during the senior year. The student can pursue interests in such areas as computers, control systems, communications, electronics, microwaves, solid state, energy conversion, and systems. The student may also choose to develop a strong supporting program in such areas as business administration, life sciences, and mathematics.

An increasing number of students are continuing their studies beyond the bachelor’s degree. Such students should select their elective courses in the senior year so that they form a coherent pattern with the graduate courses in their area of specialty.

### Computer Science.
A student may concentrate electives in computer science courses or may pursue the Computer Science Option which leads to a Bachelor of Engineering degree.

### Minor Studies.
- a) A minor in computer/computing science is offered in conjunction with the Division of Computing and Information Science for non-engineering majors.
- b) A minor in Electrical Engineering and Computer Science is available for students in the College of Arts and Sciences who are majoring in Mathematics.
HONORS PROGRAM. Students with a B+ average in the Department of Electrical Engineering and Computer Science are encouraged to enroll in the Honors Program. EECS students may graduate with General Honors (Honors in General Studies) or with Departmental Honors, or with both. Information is available from University College Advisers, Departmental Advisers, and the University Honors Center.

SPECIAL 5-YEAR PROGRAMS. This department participates in the College of Engineering Cooperative Education Program. It is a five-year curriculum which offers during alternate semesters (including the summer session) classroom study and during off semester a planned program of related engineering work experience in industry.

For students who wish to combine a B.S. Degree in engineering with a Master's Degree in Business Administration, there is available in cooperation with the School of Business and Administrative Sciences a "three-two" program. The student must satisfy the academic requirements of both entities, and early consultation on the curricula is encouraged.

Students interested in Nuclear Engineering may arrange their undergraduate electives so that a Master's degree in Nuclear Engineering may be obtained within an additional year.

ELECTRICAL ENGINEERING LABORATORIES. Laboratories are available in the major specialty areas of Electrical Engineering. Laboratory courses are organized around design and the solution of engineering problems rather than a pattern of routine experiments.

COMPUTER FACILITIES. The department has eight computers available for student use. These computers are a PDP-11/40, three PDP-8/E machines, IBM 1620 Model II, Honeywell H-21, and two EAI Analog machines. These machines are equipped with a variety of peripherals including graphic displays, digital plotters, teletypewriters, printers, card readers, disks and DEC TAPES. All computers are operated by students in the department. In addition, the College of Engineering has a PDP-11 that can operate standalone or as a remote job entry station to the University IBM 360/67.

CURRICULUM IN ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

<table>
<thead>
<tr>
<th>Hours required for graduation: 130*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sophomore Year</strong></td>
</tr>
<tr>
<td><strong>First Semester</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Hrs.</td>
</tr>
<tr>
<td>Cr. Lect.-Lab</td>
</tr>
<tr>
<td>Physics 161 Gen Physics</td>
</tr>
<tr>
<td>EECS 203 Intro to EE I</td>
</tr>
<tr>
<td>EECS 206L EE Lab I</td>
</tr>
<tr>
<td>EECS 231 Digit Comp</td>
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<td>Math 316 Diff. Equations</td>
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<td>†Elective</td>
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<tr>
<td><strong>Total</strong></td>
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<tr>
<td><strong>Second Semester</strong></td>
</tr>
<tr>
<td><strong>Hrs.</strong></td>
</tr>
<tr>
<td>Cr. Lect.-Lab</td>
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<tr>
<td>EECS 207L EE Lab II</td>
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<td>EECS 213 Circs &amp; Sysms I</td>
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<td>Physics 262 Gen Physcs</td>
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<td>Math 264 Calculus III</td>
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<td>†Elective</td>
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<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

NOTE:† At least 18 hours of electives are to be taken in the Humanities and Social Sciences. See approved list of electives.

* Reduced for students placed ahead in freshman mathematics and/or English.
### College of Engineering

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Hrs.</th>
<th>Second Semester</th>
<th>Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cr.</td>
<td>Lect.-Lab</td>
<td>Cr.</td>
</tr>
<tr>
<td>CE 202L Engr Statics</td>
<td>3 (2-3)</td>
<td>ME 206L Dynamics</td>
<td>3 (2-3)</td>
</tr>
<tr>
<td>EECS 313 Cirs &amp; Sysms II</td>
<td>4 (4-0)</td>
<td>EECS 322 Electronics II</td>
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<tr>
<td>EECS 321 Electronics I</td>
<td>3 (3-0)</td>
<td>EECS 326L Elect Lab II</td>
<td>2 (1-3)</td>
</tr>
<tr>
<td>EECS 325L Elect Lab I</td>
<td>2 (1-3)</td>
<td>EECS 340 Stat Mths in EE</td>
<td>3 (3-0)</td>
</tr>
<tr>
<td>EECS 361 Electromag Fields and Waves I</td>
<td>3 (3-0)</td>
<td>EECS 362 Electromag Fields and Waves II</td>
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<tr>
<td></td>
<td>15 (15-6)</td>
<td>Physics 330 Atomic &amp; Nuclear</td>
<td>3 (3-0)</td>
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<table>
<thead>
<tr>
<th>Senior Year</th>
<th>Hrs.</th>
<th>Second Year</th>
<th>Hrs.</th>
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</thead>
<tbody>
<tr>
<td>ME 301 Therodynamics</td>
<td>3 (3-0)</td>
<td>**EECS Electives</td>
<td>6 (6-0)</td>
</tr>
<tr>
<td>**EECS Electives</td>
<td>6 (6-0)</td>
<td>**EECS Elective Lab</td>
<td>2 (1-3)</td>
</tr>
<tr>
<td>**EECS Elective Lab</td>
<td>2 (1-3)</td>
<td>*Electives</td>
<td>9 or 10 (9-0)</td>
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<td>*Electives</td>
<td>6 (6-0)</td>
<td>or</td>
<td>(10-0)</td>
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<tr>
<td>17 (16-3)</td>
<td>17 or 18 (16-3) or (17-3)</td>
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<td></td>
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</tbody>
</table>

NOTES:
* At least 18 hours of electives are to be taken in the Humanities and Social Sciences. See approved list of electives.
** Approved by EECS advisor.

### Mechanical Engineering

**Profession**

Mechanical Engineering is a very diversified branch of engineering. It is broadly concerned with energy, dynamic systems and manufacturing processes. Mechanical engineers conceive, plan, design and direct the manufacture, distribution and operation of a wide variety of devices, machines and systems for energy conversion, environmental control, material processing, transportation, materials handling and other purposes. Mechanical engineers do creative design, applied research, development and management. The demand for mechanical engineers by industry is consistently high at all levels.

**Curriculum**

In order to meet the challenge of a changing technological society, Mechanical Engineering students are prepared for broad fundamentals in analysis, design, experiments, and computer utilization. Many technical electives permit students to develop further according to their interest and aptitude.

**Advanced Study**

Mechanical Engineering students seeking continuing education may go to Graduate School, School of Business and Administrative Science, Law School, and Medical School. The Mechanical Engineering Department has M.S. and Ph.D. programs. Our undergraduate program is good preparation for graduate study. More information on graduate programs may be found in the "Graduate Bulletin."

The Faculty of the Mechanical Engineering Department has arranged with the School of Business and Administrative Science for a "three-two" program. Students who complete the program receive both a BS in Mechanical Engineering and an MBA at the end of their fifth year.
COOPERATIVE EDUCATION PROGRAM

Mechanical Engineering students may elect a Cooperative Education Program in which they are employed full-time by an industry or governmental agency for a part of the year and in which they are full-time students for a part of the year. Students who need financial aid or who wish to gain engineering experience will find this program attractive.

FINANCIAL AID

There is a substantial number of scholarships available to Mechanical Engineering students, as well as loans. In addition to the Co-op Program, there are opportunities for Mechanical Engineering students in the Mechanical Engineering Department, part-time employment in the Computing Center, Kirtland AFB, and elsewhere in Albuquerque. In case of need, you should consult the Chairman of the Mechanical Engineering Department.

STUDENT ACTIVITIES

Mechanical Engineering is not all work and study. There are many social opportunities available within the department and elsewhere on campus. Student organizations of the department allow students to develop lasting friendships and unity. Students have always enjoyed close relationships with the faculty in the department. The available combination of academic and recreational activities are personally rewarding and satisfying.

CURRICULUM IN MECHANICAL ENGINEERING

Hours required for graduation: 130*

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Sophomore Year</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 264 Calculus III</td>
<td>4 (4-0)</td>
<td>Math 265 Vector Analysis</td>
</tr>
<tr>
<td>Physcs 161 Gen</td>
<td>3 (3-0)</td>
<td>Physcs 262 Gen</td>
</tr>
<tr>
<td>Econ 200 Prin and Probs</td>
<td>3 (3-0)</td>
<td>ME 206L Dynamics</td>
</tr>
<tr>
<td>ME 201L Intro to Design</td>
<td>3 (2-3)</td>
<td>EECS 203 Intro to EE I</td>
</tr>
<tr>
<td>CE 202L Engr Statics</td>
<td>3 (2-3)</td>
<td>Elective</td>
</tr>
<tr>
<td><strong>16 (14-6)</strong></td>
<td></td>
<td><strong>16 (15-3)</strong></td>
</tr>
</tbody>
</table>

| Junior Year |
|----------------|----------------|
| ME 300 Mech Engr Anal | 3 (3-0) | ME 302 Thermochem & Gas Dyn | 3 (3-0) |
| ME 301 Thermodynamics | 3 (3-0) | ME 320 Heat Transfer | 3 (3-0) |
| ME 317 Fluid Mech | 3 (3-0) | ME 357 Intro to Mech | 3 (3-0) |
| ME 314L Dyn of Mech Sys | 3 (2-3) | Vibrations | 3 (3-0) |
| EECS 204 Intro to EE II | 3 (3-0) | ME 318L ME Lab I | 2 (0-6) |
| CE 302 Mech of Materials | 3 (3-0) | ME 370 Engr Mater Science | 3 (3-0) |
| Elective | 3 (3-0) | | 3 (3-0) |
| **18 (17-3)** | | **17 (15-6)** |

| Senior Year |
|----------------|----------------|
| ME 358L Design of Sol Sys | 3 (2-3) | Elective | 6 (6-0) |
| ME 363L Anal of Fluid Sys | 3 (2-3) | Technical 'Elective | 9 (9-0) |
| ME 351L ME Lab II | 2 (0-6) | Basic Science or Technical | |
| Elective | 3 (3-0) | Elective | 2 or 3 (2-0) |
| Technical Elective | 3 (3-0) | | |
| **14 (10-12)** | | **17 or 18 (17-0)** |

NOTES:

Electives are to be chosen from the humanities and social sciences, with the approval of the Department Chairman.

Technical electives may be chosen from the following courses: ME 341, 350, 352L, 355, 356, 359L, 365, 373, 401, 402, 414, 451-2, 455, 461-2, 480, 482, and other engineering and science courses, with approval of the Department Chairman. Students enrolled in the ROTC programs may, with approval of the Department Chairman, substitute Aerospace Studies or Naval Science for up to 6 hours of technical electives.

* Reduced for students placed ahead in freshman mathematics and/or English.
NUCLEAR ENGINEERING

The nuclear engineering program is offered under the administration of the Department of Chemical and Nuclear Engineering.

Nuclear Engineering is concerned with the release, control and utilization of energy from all types of nuclear processes; and with the control and utilization of radiation. It is a relatively new branch of engineering with rapid changes and frequent breakthroughs which requires engineers capable of developing new ideas and new concepts.

Graduate nuclear engineers find many challenging opportunities in projects concerned with fission reactors, controlled nuclear fusion, space propulsion, direct energy conversion, water desalination, etc. In order to prepare students to develop new ideas and new concepts in accord with the ever changing needs, the nuclear engineering curriculum emphasizes an advanced background in the fundamental areas of mathematics, science and engineering, as opposed to emphasis on current technology.

Elective courses in nuclear engineering are available as a minor option for bachelor's degree programs in all of the undergraduate engineering departments and in the Bachelor of Engineering degree options. Nuclear engineering graduate programs are available leading to a Master of Science and to a Doctor of Philosophy. Students expecting to do graduate work in nuclear engineering should concentrate on physics, mathematics, and nuclear engineering in their undergraduate course work in addition to acquiring a high degree of competence in one of the other branches of engineering.

NUCLEAR ENGINEERING LABORATORIES. The principal equipment in the Nuclear Engineering laboratories includes the following: AGN-201M critical reactor; power plant simulator; Febetron flash x-ray machine, 20,000 curie Co-60 facility, activation analysis cell; pulsed neutron generators; natural uranium, sub-critical reactor; gamma-ray spectrometer; multi-channel analyzers; graphite pile; and supporting radiation counting equipment.

In addition to the well-equipped laboratories on campus, the advanced reactors and radiation equipment of the Sandia Laboratory and Los Alamos Scientific Laboratory are utilized for both instruction and research.

UNDERGRADUATE COURSE WORK. Undergraduate course work in the following areas is highly recommended for the student expecting to do graduate work in nuclear engineering:

- Physics 330 Atomic and Nuclear Physics
- Math 312 & 316 Adv Engr Math I and Ord Diff Equations
- ChE or ME 301 Thermodynamics
- ME 320 Heat Transfer
- ME 317 or CE 331L Fluid Mechanics
- ChE or ME 370 Engineering Materials Science
- EECS 203 & 204 Intro to EE I, II
- EECS 336 Intro to Digital Computer Programming

In addition, it is recommended that senior year electives be chosen from the following:
Nucl E 420 Fund of Nucl Engr
Nucl E 423L Radiation Measurements and Analysis
Nucl E 430 Intro to Nucl Engr
Nucl E 466 Nuclear Environmental Safety Analysis

BACHELOR OF ENGINEERING OPTIONS

Students who wish to pursue a Bachelor of Engineering degree, instead of the Bachelor of Science in one of the departments previously listed, must report this intention to the Engineering College office at the time they transfer into the college. The college office will assign these students an advisory committee appropriate for the option which the students plan to pursue. The students will work with this committee, rather than a specific department, in planning their program, selecting their electives, etc. It is anticipated that the number and types of options available under this degree program will increase in the near future. The curriculum requirements in the three options now available are listed in the following pages.

BIOMEDICAL ENGINEERING OPTION

Biomedical engineering is a relatively new and rapidly growing profession which combines the concepts and techniques of many related disciplines. With the aid of the necessary supporting knowledge of chemistry, physics, mathematics, and biology, many of the theoretical and experimental methods of engineering can be applied directly to the solution of numerous challenging problems in the life sciences and in clinical medicine. For example, research-oriented biomedical engineers may wish to participate in the design of advanced clinical patient-monitoring systems, or in the development of artificial limbs and internal organs, or in the application of modern neurology to the design of more intelligent machines. Expanding national health care delivery systems, and new priorities for the quality of life in future economic planning, are providing new employment opportunities for practice-oriented biomedical engineers. The graduate biomedical engineer interested in eventual clinical practice may wish to apply for admission to a school of medicine, dentistry, or veterinary medicine. Opportunities are also available to qualified biomedical engineering graduates to pursue further graduate study in engineering, biology, biochemistry, pharmacology, physiology, and microbiology.

CURRICULUM IN BIOMEDICAL ENGINEERING OPTION

Hours required for graduation: 130*

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td></td>
<td>Sophomore Year</td>
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<td>Cr. Lect.-Lab</td>
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<tr>
<td>Hrs.</td>
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<tr>
<td>Biol. 121L Prin Biol</td>
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<tr>
<td>Chem 301 Org Chem</td>
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<td>Chem 303L Org Chem Lab</td>
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<td>Physcs 161 Gen Physics</td>
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</tr>
<tr>
<td>CE 202L Statics</td>
<td>3 (2-3)</td>
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<tr>
<td>Math 264 Calc III</td>
<td>4 (4-0)</td>
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<td>18 (15-9)</td>
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</tbody>
</table>

* Reduced for students placed ahead in freshman mathematics and/or English.
The Computer Science Option is a program of study which covers both the hardware and software aspects of computers. The course work offered toward the degree is supplemented by laboratory experiments in which students not only gain practical experience in the use of the existing college and university computer facilities, but also actively participate in the development of new computer structures and interface equipment. Using engineering problem solving methods, students of computer science also gain expertise in the development and application of modern computing techniques.

Students in Computer Science may elect a number of courses in the junior and senior year and hence, have an opportunity to select supporting work from many disciplines. These elective courses should be chosen in consultation with an adviser to provide the student a comprehensive education with a selected specialization.

Research in Computer Science is being actively pursued within the College of Engineering. Current research includes the development of an artificial ear, pattern recognition, and hybrid computer designs. Computer Science students may have the opportunity to contribute to similar research projects. An active colloquium series is held in the College as part of Computer Science research. Students are expected to attend and participate in these colloquiums.

In addition to the research activities, students are afforded the opportunity to operate the several laboratory computers themselves. This hands-on experience is limited only by the time available on the various machines, and all students are encouraged to do computer experimentation. Students have an opportunity to use several types of computers during their college careers.

**CURRICULUM IN COMPUTER SCIENCE OPTION**

Hours required for graduation: 130*

* Reduced for students placed ahead in freshman mathematics and/or English.
** Unrestricted Elective.
*** Technical Electives: These electives will be developed in consultation with an option committee adviser to comprise a meaningful sequence for a stem specialization (e.g., sanitary bioengineering, medical instrumentation, biomechanics and prosthesis design, biomedical systems and analysis, radiological engineering, biomaterials development, biochemical engineering, clinical engineering). These 23 hours will include 10 hours from engineering science courses.
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<tr>
<th></th>
<th>Sophomore Year</th>
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<th>Second Semester</th>
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<td>Cr. Lect.-Lab</td>
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<td><strong>First Semester</strong></td>
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<tr>
<td>EECS 335 Intro Dig Comp</td>
<td>3 (3-0)</td>
<td>EECS 337 Intro Comp Sci</td>
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<td>Math 316 Diff Equations</td>
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<td>Math 264 Calculus III</td>
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</tr>
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<td>EECS 203 Intro to EE I</td>
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<td>Physcs 262 Gen Physics</td>
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<td>EECS 206L EE Lab I</td>
<td>2 (1-3)</td>
<td>CE 202L Statics</td>
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<td>Physcs 161 Gen Physics</td>
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<td>EECS 213 Circs Sysms I</td>
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<td>EECS 336 Dig Comp Progm</td>
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<td><strong>Hrs.</strong></td>
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<td><strong>Hrs.</strong></td>
<td>17 (16-3)</td>
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<td><strong>Junior Year</strong></td>
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<tr>
<td>EECS 435 Intro Assem Design</td>
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<td>Cp Sci 356 Compiler Const</td>
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<tr>
<td>EECS 321 Electronics I</td>
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<td>EECS 437 Operat Sysms</td>
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<td>Elective§</td>
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<td>Math 321 Linear Algebra</td>
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<tr>
<td>Sp Com 255</td>
<td>3 (3-0)</td>
<td>H&amp;SS Elective</td>
<td>3 (3-0)</td>
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</tr>
<tr>
<td>EECS 207L EE Lab II</td>
<td>2 (1-3)</td>
<td>Elective</td>
<td>3 (3-0)</td>
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<tr>
<td>Cp Sci 355 Progm Lang</td>
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<tr>
<td><strong>Hrs.</strong></td>
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<td><strong>Hrs.</strong></td>
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<td><strong>Senior Year</strong></td>
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<tr>
<td>EECS 438 Logic Design</td>
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<td>EECS 434L Logic Lab</td>
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<td>H&amp;SS Elective</td>
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<td>EECS 498 Seminar</td>
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<td><strong>Hrs.</strong></td>
<td>17 (16-3)</td>
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</table>

**ENERGY AND POWER SYSTEMS OPTION**

With the continuing world-wide growth in population and the growth in automation and appliance use in industrialized and developing countries, the demand for energy and power production is expected to continue to grow at increasingly greater rates. Concurrent with the growth in demand for energy and power is the widespread demand to improve and maintain the environment. The Energy and Power Systems Option will prepare students to meet the challenges of these often conflicting demands through employment with the utility and manufacturing industries, architectural engineering firms, research laboratories, and state and federal regulatory agencies. Opportunities are also available for qualified graduates to pursue graduate study in many areas of energy and power systems engineering.

Some of the current research interests in the College of Engineering are: energy conversion devices including nuclear reactors, engines, and their components; energy sources including fossil fuels, solar energy, geothermal energy, and nuclear energy; and energy and power system analysis.

The Energy and Power Systems Option curriculum permits development of a variety of supporting work areas through selection of technical electives, including: energy conversion and power generation, nuclear, mechanical, electrical, and chemical engineering, systems analysis and control, environmental impact, management and economics, and legal and professional problems. Each student has an opportunity to develop at least two supporting work areas in addition to the basic core curriculum.

§ Unrestricted Elective.

**Technical Electives:** These electives will be developed in consultation with an option committee adviser to comprise a meaningful sequence for a stem specialization.


## ASSOCIATE OF SCIENCE IN PRE-ENGINEERING

The two year Associate of Science in Pre-Engineering program is basically the freshman and sophomore pre-engineering program. It requires completion of the general background courses in mathematics and the sciences, and an introduction to the concepts and methods of engineering. It represents a halfway point for those seeking to obtain the professional bachelor degree in engineering or one of the engineering disciplines. This program can serve as a useful part of the preparation of students who plan to study law, business, medicine, or other fields where the general concepts and thought processes of engineering are applicable. The student may also continue his studies in the more specialized areas of engineering, leading to one of the bachelor's degrees in engineering.

This associate program is not a professional degree and does not prepare one for specific job opportunities. Rather it provides a broad educational foundation on which to build a future career through further education or work experience. It will be useful to those studying part-time, and for those who have substantial pre-college work to accomplish. The student who is interested in a two year program that will provide specific work skills should consider an appropriate program in technology.

**ADMISSION** The admission requirements for this program are the same as those for the College of Engineering, p. 136.

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* Reduced for students placed ahead in freshman mathematics and/or English.

§ Unrestricted Elective.

** Technical Electives: these electives will be developed in consultation with an option committee adviser to comprise a meaningful sequence for a stem specialization.
DEGREE REQUIREMENTS

a) Completion of all courses in the curriculum (or equivalent), a total of 62 hours.

b) A grade point average of 2.0 or better on all work taken at the University of New Mexico which is counted towards this degree.

c) Recommendation for the degree by the appropriate faculty at the University of New Mexico.

CURRICULUM FOR THE ASSOCIATE OF SCIENCE IN PRE-ENGINEERING

<table>
<thead>
<tr>
<th></th>
<th>First Year</th>
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<tr>
<td><strong>Semester I</strong></td>
<td><strong>Hrs</strong></td>
<td><strong>Hrs</strong></td>
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<tr>
<td>Cr</td>
<td>Lect-Lab</td>
<td>Cr</td>
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<tr>
<td>Engl 101 wrtg w/Rdgs</td>
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<td>Engr 102L Engr Comp Meth 3</td>
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<tr>
<td>in Expos</td>
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<td>Physics 160 Gen</td>
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<td>Chem 101L Gen</td>
<td>4 (3-3)</td>
<td>Math 163 Calculus II</td>
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<td>Engr 101L Intro to Engr</td>
<td>4 (1-6)</td>
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<td><strong>Second Year</strong></td>
<td><strong>Hrs</strong></td>
<td><strong>Hrs</strong></td>
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<tr>
<td>Math 264 Calculus III</td>
<td>4 (4-0)</td>
<td>Math 316 App Ord Diff Eq</td>
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<tr>
<td>Physics 161 Gen</td>
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<td>Physics 262 Gen</td>
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<tr>
<td>CE 202 Engr Statics</td>
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<td>16 (16-0)</td>
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MEDICAL ENGINEERING TECHNOLOGY

The Medical Engineering Technology Program at the University of New Mexico is a two-year program leading to an Associate Degree. Students completing the Medical Engineering Technology Program will be trained to work in the field as follows: a) The MET solves complex installation and maintenance biomedical equipment problems by analyzing layout drawings, technical specifications and operating characteristics. b) Conducts preoperational tests of biomedical equipment systems to determine consistency with required specifications. c) Repairs, calibrates and modifies biomedical equipment systems. d) Develops preventive maintenance programs for biomedical equipment and is knowledgeable in the problems of electrical safety and hazards. e) Is available to assist in inservice training of other hospital personnel to effectively and safely use biomedical equipment systems. Graduates of Medical Engineering Technology are encouraged to seek certification in their profession with the Association for the Advancement of Medical Instrumentation, 1500 Wilson Blvd., Suite 417, Arlington, Virginia 22209.

ADMISSION. The Medical Engineering Technology Program is open to men and women who:

a) Meet the admission requirements described under “Admission” in the University of New Mexico bulletin,

b) Are personally interviewed by the Director of the Medical Engineering Technology Program.

* Selected from Departmental required courses.
A limited number of students will be selected for admission to the Medical Engineering Technology Program. Selection will be on the basis of the student's aptitudes, prior academic training, personal references, and the interview with the Director. The Medical Engineering Technology Program is open to high school graduates, to persons with technical electronics education, and to persons with life science training. Special examinations for advanced standing may be arranged so that skills already mastered by the student will not be duplicated in the Medical Engineering Technology Program.

ASSOCIATE DEGREE REQUIREMENTS. To complete the requirements for the Associate of Science Degree in Medical Engineering Technology the candidate must:

a) Complete all of the work outlined in the curriculum,

b) Maintain a grade average of at least 2.0 on all course work related to the Medical Engineering Technology Program,

c) Be recommended for the degree by the appropriate faculty at the University of New Mexico.

A student in the Medical Engineering Technology Program may consider academic work beyond the Associate Degree level and desire to work for a bachelor's degree in engineering, biology, or some other area. In this event the student should make his plans known to the Director of the Medical Engineering Technology Program as soon as possible so suitable substitutes can be made to the curriculum below in order to assist the student in his bachelor degree goals.

CURRICULUM IN MEDICAL ENGINEERING TECHNOLOGY

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tbody>
<tr>
<td>**Chem 141L Elements of General Chemistry</td>
<td>**Chem 141L Elements of General Chemistry</td>
</tr>
<tr>
<td>Biol 121L Principles of Biology</td>
<td>**Chem 141L Elements of General Chemistry</td>
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<td>Engr T 150 Introduction to MET</td>
<td>**Chem 141L Elements of General Chemistry</td>
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<tr>
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<tr>
<td>Credit 2</td>
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<tr>
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<table>
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<tr>
<th>Third Semester</th>
<th>Fourth Semester</th>
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<tbody>
<tr>
<td>***Physics 152 General Physics</td>
<td>EECS 335 Introduction to Digital Computers</td>
</tr>
<tr>
<td>Hum &amp; Soc Sci Elective</td>
<td>Technical Elective (see note)</td>
</tr>
<tr>
<td>Engr T 251 Electronics</td>
<td>Engr T 253 Medical Instrumentation</td>
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<td>Engr T 254L Medical Instrumentation Lab</td>
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<tr>
<td>Credit 2</td>
<td>Credit 2</td>
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<td>16 hrs.</td>
<td>16 hrs.</td>
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</table>

Note: Technical electives are to be selected from mathematics, physics, biology, chemistry or engineering.

* Or Math 162-163, Calculus, I & II.
** Or Chem 101L General Chemistry.
*** Or Physcs 160-161, General Physics.
**INSTRUMENTATION ENGINEERING TECHNOLOGY**

The Instrumentation Engineering Technology program is a two-year program leading to an Associate Degree. The program is offered at Los Alamos as a part of the Northern New Mexico Branch of The University of New Mexico. Courses are offered in the late afternoon and evening so that a student can work and still participate in the program. Class size is kept small enough to assure that each student can get the individual attention which is needed.

A graduate of the program will have acquired skills in the application of electrical and mechanical principles needed to implement projects designed by an engineer or a scientist. Emphasis is placed on practical applications of physical principles. The degree granted upon completion of this program is Associate of Science in Instrumentation Engineering Technology.

Most graduates of the program are likely to seek full-time employment. Some may wish to continue their studies toward a BS degree in engineering or some other field, but it should be recognized that only a fraction of the credit for this program is applicable to another degree.

**ADMISSION:** Each year a limited number of students will be selected for admission to the program. For details of admission procedures and requirements, a prospective student should contact the director of the Northern New Mexico Branch.

**INSTRUMENTATION ENGINEERING TECHNOLOGY PROGRAM**

<table>
<thead>
<tr>
<th>First Semester</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Course</strong></td>
<td><strong>Course</strong></td>
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<tr>
<td>Engr T 132L Intro to Engr Tech</td>
<td>Math 150 Alg, Trig, &amp; Calc</td>
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<tr>
<td>Engr T 133L Meas Lab</td>
<td>Engr T 142 Mechanics</td>
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<td>Engr T 134L Drawing Interp</td>
<td>Engl 101 Wrtg w/Rdgs in Expos</td>
</tr>
<tr>
<td>Engr T 135L Basic Elect</td>
<td>Engr T 145L Machine Skills</td>
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<tr>
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<td>Engr T 146L Instru w/Appl Electronics</td>
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<td><strong>Total Credit</strong></td>
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<tr>
<th>Third Semester</th>
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<tbody>
<tr>
<td><strong>Course</strong></td>
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<tr>
<td>Math 151 Alg, Trig, &amp; Calc</td>
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<td>Engr T 232 Heat</td>
<td>ME 201L Intro to Engr Design</td>
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<td>Engr T 233L Instru w/Appl Data Collection</td>
<td>Engr T 241L Instru w/Appl Control Sys</td>
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<td>Econ 200 Principles and Problems</td>
<td>Engr T 244L Fabrica &amp; Materials</td>
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<td>Social Science Elective</td>
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</table>
COLLEGE OF FINE ARTS

THIS SECTION of the catalog is designed to provide information about the College of Fine Arts and to be of help to the student who plans to major in art, music, or theatre arts.

The nature of the arts is such that people choose to enter these fields for a variety of reasons and with many goals in mind. Recognizing this, we have designed a number of different programs. Our basic approach is to describe alternatives rather than to state requirements. Some programs are necessarily more structured than others. An example would be the major in music education, for in order to qualify to teach in the public schools, a number of specific courses must be taken. Other programs are entirely open and flexible. Your choice of a curriculum will determine the degree you receive when you complete it. The name of the degree thus serves to describe the kind of program you have taken.

Programs offered by the College are described below. If you feel you need advice in selecting a program of studies, we encourage you to talk to your department chairman or to an adviser in the College Counseling Office. If you have special problems you may also wish to seek the help of the professional counselors in the University Counseling Center (see p. 44).

You should also read carefully the General Academic Regulations of the University (pp. 52-64) and the listing of courses offered, by the College. These are under nine headings:

- Art Studio p. 223
- Art History p. 226
- Dance p. 437
- Film p. 438
- Fine Arts p. 322
- Music p. 390
- Music Education p. 395
- Theatre Arts p. 435

In reading the course descriptions, note carefully the prerequisites that are specified, for these determine the sequence in which courses may be taken. Also note that not all courses are offered every semester. The listings in this catalog indicate the general pattern in which the courses are offered, but you will still need to consult the current Schedule of Classes in order to find out specifically what is to be given each semester.

ADMISSION

Due to limitations of facilities and faculty, enrollment in certain curricula offered by the College of Fine Arts is limited. Since the number of well qualified students seeking admission to these curricula considerably exceeds the number that can be accommodated, successful completion of the minimum requirements as stated below is no guarantee of admission. Applications for admission in some fields of study are screened on the basis of auditions, interviews and/or evaluation of portfolios, and selection of successful applicants is made on a competitive basis.

If you come to the University as a freshman, you will first be enrolled in the University College. The purposes of this College and the procedures you must follow in order to transfer to a degree-granting college, such as the College of Fine Arts, are described on p. 67.
ADMISSION FROM UNIVERSITY COLLEGE

To be eligible for transfer to the College of Fine Arts, you must meet the requirements listed below:

1. Completion of 26 hours of earned credit.

2. (a) A scholarship index of at least 2.5 on all hours attempted; or

   (b) A scholarship index of at least 2.5 on all hours attempted in your previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.5 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring your total hours attempted to at least 30.

3. Competency in English writing as demonstrated by

   (a) Achieving a score of 20 or higher on the English section of the ACT examination; or

   (b) Passing the College English Placement Test (CEPT) with a score equivalent to 20 on the ACT; or

   (c) Passing the Cooperative English Examination with an equivalent score.

If you plan to major in one of the departments in the College of Fine Arts you should transfer from University College as soon as the above requirements have been completed. Upon making application for transfer in the University College offices, you will be referred to the College of Fine Arts for initiation of the screening procedures described in the opening paragraph above.

TRANSFER FROM OTHER COLLEGES IN THIS UNIVERSITY

Transfer to the College of Fine Arts from another degree-granting college of the University of New Mexico requires a scholarship index of 2.5 on all work attempted while you were enrolled in the other degree-granting college(s), in addition to satisfaction of all requirements for transfer from the University College.

TRANSFER FROM OTHER ACCREDITED INSTITUTIONS

If you are transferring to the University of New Mexico after having studied at another college or university, you may be eligible for admission directly into the College of Fine Arts. In general, the screening procedures and admission requirements are the same as those described above for admission from University College. Some students transferring from other institutions known for their rigorous grading standards may, however, be admitted upon the basis of a scholarship index above 2.0 but below 2.5.

SPECIAL ADMISSION

A limited number of gifted students (never in excess of 5% of the College's total enrollment) may be admitted without regard to the above listed requirements upon special recommendation of a department chairman and with approval of the Dean of the College of Fine Arts and its Committee on Student Standing. If you feel that you might qualify for special admission, please inquire in the College of Fine Arts offices.
GRADUATION REQUIREMENTS

Most of the requirements for graduation are listed under the specific curricula described below. A few requirements, however, are common to all of the College’s programs, and these are stated here:

1. A minimum of 128 hours is required in all curricula. Of these, at least 40 hours must be completed in courses numbered 300 or above.

2. To receive a degree, you must have a scholarship index of 2.0 or higher. You must also have achieved a grade average of 2.0 or higher on all hours attempted while enrolled in the College of Fine Arts.

3. No more than 4 hours of physical education activity courses may be counted toward a degree.

4. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

At the beginning of the first semester of your senior year, you should complete an application for a degree. This application is made in the office of the Assistant Dean of the College. If you fail to file an application, you may be delayed in receipt of your degree.

SCHOLASTIC STANDARDS

The curricula that lead to the degrees of Bachelor of Fine Arts and Bachelor of Music are pre-professional curricula. They are designed for students who plan to enter graduate school for the professional study of the fine arts. Most graduate schools require a grade average of 3.0 in the student’s major field of study as a condition of admission. For this reason, you should enter one of these curricula only if you are willing to make a firm commitment to work rigorously and intensively at the highest level of your creative and intellectual capacities. The faculty reserves the right to require any student whose grades fall substantially below 3.0 in his major to transfer to another program.

No student may undertake a program in excess of 20 hours without prior written permission of the Dean of the College. Enrollment in more than 20 hours without such prior permission will lead to disenrollment.

If your grades are low, if you have had academic difficulties in the past, or if you are holding down a job in addition to your studies, we strongly advise you to limit your program to no more than 12 or 15 hours.

If your grades are high, you might wish to consider enrolling in a departmental honors program. For general information about these programs, see pp. 61-62; for specific information about the program in your department consult your department chairman.

CURRICULA

ART

The majors in studio, art history, and art education offered by the College of
Fine Arts are described below. The major and minor in art offered by the College of Arts and Sciences are described elsewhere in the catalog.

Most of the requirements in these majors are set forth below. Please note that in all programs you must also satisfy general College and University requirements for graduation.

PRE-PROFESSIONAL CURRICULUM

The pre-professional curriculum leading to the Bachelor of Fine Arts degree is designed for students who anticipate further study at the graduate level. If you enroll in this program, you should read carefully the paragraph on p. 158 (Scholastic Standards) which permits the faculty to exclude from the program any student whose grade average in his major field of study falls substantially below 3.0. Both the studio courses and the art history courses are part of the major field of study.

If you wish to take studio courses without making the professional commitment that is implicit in this curriculum, you are probably best advised to follow a program of studies leading to the B.U.S. degree (see p. 68). Alternatively, you may take a number of studio courses as a part either of the general (liberal arts) curriculum or the art education curriculum leading to teacher certification. If you are uncertain which program best suits your needs, you should talk to the department chairman or a faculty adviser.

The program leading to the B.F.A. is as follows:

1. Courses outside the major. Of these, at least 30 hours must be selected from courses offered by departments of the College of Arts and Sciences, of which at least 6 hours must be in English, including 102; and at least 6 hours must be selected from courses in architecture, dance, film, fine arts, music, or theatre arts.

2. Major in art:
   (a) 18 hours in art history courses, including 130 (which should be taken in the Freshman year); and
   (b) 52 hours in studio courses, including 123, and 6 hours in courses numbered 400 or above in a single studio field.

3. Additional courses in any field.

   48 hours

   70

   10

   Total 128 hours

GENERAL (LIBERAL ARTS) CURRICULUM

A major in art history is offered under the general curriculum. This program, which leads to the degree of Bachelor of Arts in Fine Arts, is described below:

1. Courses outside the major. Of these, at least 39 hours must be selected from courses offered by departments of the College of Arts and Sciences, including at least 6 hours of English, Hist 101 and 102, and as many semesters of one foreign language as are necessary for completion of the fourth semester course in that language; and 6 hours must be selected from courses in architecture, dance, film, fine arts, music, or theatre arts.

   60 hours
2. Major in art:
   (a) 33 hours in art history courses, including 130, 201, 202, and a minimum of 24 hours in courses numbered 300 or above; and
   (b) 15 hours in studio courses, including 123.

3. Additional courses in any field.

Total 128 hours

CURRICULA IN TEACHER EDUCATION

If you are planning to become a teacher of art in the public schools, two alternative programs are offered. The College of Education offers a curriculum leading to the degree of Bachelor of Arts in Education (see p. 101); the College of Fine Arts offers a pre-professional curriculum leading to the degree of Bachelor of Fine Arts. In the program leading to the B.F.A. (see above) you must complete a total of 70 hours in art courses, as well as all courses necessary for certification. For this reason it is essential that you consult a faculty adviser as soon as possible. Only with careful planning is it possible to complete a B.F.A. with certification within a four-year period.

Please also note that all students entering teacher certification programs, regardless of the college in which they may enroll, are required to meet the screening requirements for admission to such programs, as described in the College of Education section of this catalog.

MUSIC

NASM MEMBERSHIP

The University of New Mexico is a member of the National Association of Schools of Music. Requirements for entrance and graduation as set forth in this catalog are in accordance with published regulations of the National Association of Schools of Music.

MUSIC MAJORS

Majors in music are described below. Note that in addition to stated course requirements you must also satisfy general College and University requirements for graduation. For minor study in music, refer to p. 390.

DEPARTMENTAL HONORS

Work in departmental honors is available to qualified students who wish to pursue special individual projects. Details should be discussed with the Honors Council of the department. Consult the office of the music department for further information.

PRE-PROFESSIONAL CURRICULUM

Programs in music performance or music pedagogy are available leading to the Bachelor of Music degree and comprising a total of 128 hours. If you enroll in any one of these programs, read carefully the paragraph on p. 158 (Scholastic Standards) which permits the faculty to exclude from the program any student whose grade average in his major field falls substantially below 3.0. Furthermore, the faculty reserves the right to disqualify from further enrollment or participation in departmental programs:
1. Students who fail to demonstrate reasonable progress in their personal professional development in music; and/or

2. Students whose conduct reveals a persistent inability to work effectively with others or an unwillingness to adhere to generally recognized standards of professional behavior.

A handbook describing specific departmental requirements relating to recitals, special examinations, auditions, and similar matters may be obtained from the music department office.

All students in any program leading to the B.M. degree must complete the following curriculum:

1. Courses outside the major: Of these, at least 30 hours must be selected from courses offered by departments of the College of Arts & Sciences; and 6 hours selected from courses in architecture, art, art history, dance, film, fine arts or theatre arts. (Note: Majors in vocal performance and vocal pedagogy must complete 18 hours in some combination of French, German, and Italian.)

2. Major in music, including:
   (a) 24 hours in applied music;
   (b) 23 hours in music theory, including 105, 106, 107, 108, 205, 206, 207, 208, 309, 453, and either 405 or 406;
   (c) 8 hours in music history, including 261, 262, and 449;
   (d) 2 hours in conducting;
   (e) 8 hours in ensemble (see Departmental Handbook); and
   (f) 15 additional hours (the distribution of these hours will vary according to your major, such as keyboard performance, instrumental performance, etc.; specific requirements are given below).

   

   Total 128 hours

Keyboard Performance: 4 hours in applied music; 2 hours in music theory (counterpoint); and 9 hours in music electives.

Instrumental Performance: 8 hours in applied music; 2 hours in ensemble; and 5 hours in music electives.

Vocal Performance: 4 hours in applied music; 2 hours in music history (473); 2 hours in diction for singers; and 7 hours in music electives.

Keyboard Pedagogy: 4 hours in applied music; 4 hours in music pedagogy; and 7 hours in music electives.
Instrumental Pedagogy: 8 hours in applied music; 2 hours in music pedagogy; and 5 hours in music electives.

Vocal Pedagogy: 6 hours in applied music; 4 hours in music pedagogy; 2 hours in diction for singers; and 3 hours in music electives.

For majors in theory and composition, the number of hours in applied music (par. 2(a) above) is reduced from 24 to 14. Additional hours (par. 2(f) above) are raised from 15 to 25, and distributed as follows:

- 8 hours in music theory;
- 2 hours in conducting;
- 4 hours in music history; and
- 11 hours in music electives.

GENERAL (LIBERAL ARTS) CURRICULUM

A major in music history and literature is offered leading to the Bachelor of Arts in Fine Arts degree. It includes a thorough preparation in music theory, a limited amount of applied music, and is designed for students who want a broad understanding of music in relation to other academic disciplines.

1. Courses outside the major: At least 39 hours must be selected from courses offered by departments of the College of Arts & Sciences, including as many semesters of one foreign language as are necessary for completion of the fourth semester course in that language; and 6 hours in architecture, art, art history, dance, film, or theatre arts. 60 hours

2. Major in music, including:
   (a) 23 hours in music theory (see curriculum p. 393);
   (b) 8 hours in music history (see curriculum p. 392); plus 10 hours of other courses in music history;
   (c) 8 hours in applied music, including 4 hours in piano and 4 elective hours;
   (d) 4 hours in ensemble; and
   (e) 15 hours in music electives. 68 hours

   Total 128 hours

CURRICULUM IN MUSIC EDUCATION

Prospective public school music teachers may enroll either in The College of Fine Arts or The College of Education. In either college the degree you will receive upon completion of requirements will be the Bachelor of Music Education. In addition to the specific curriculum given below, you must satisfy requirements for admission to a teacher education program appearing on pp. 101-102 of this catalog and the special requirements found in the departmental handbook. Completion of the degree qualifies you for the certificate to teach music in grades 1 through 12.
1. Hours outside the major, including
   (a) 9 hours in Engl 101 and 102, and Sp Com 256 (or approved substitute)
   (b) *8 hours in biological and/or physical sciences
   (c) 3 hours in psychology
   (d) 9 hours in humanities and social sciences, including at least one course in English literature
   (e) 6 hours in fine arts electives (TA 315 and 316 are recommended)
   (f) 3 additional hours in any field
   (g) 6 hours in education: Ed Fdn 290 and 300

2. Major in music, including
   (a) 23 hours in applied music
   (b) 23 hours in music theory
   (c) 4 hours in conducting
   (d) 6 hours in music history
   (e) 8 hours in ensemble (see Departmental Handbook)

3. Courses in music education: 194, 294, 313, 366, 400, 444, 446, 451, and 461

   Total 44 hours

   64

20

Total 128 hours

THEATRE ARTS

The majors in theatre arts offered by the College of Fine Arts provide for emphasis in theatre, dance or film. For a description of the major in theatre arts for teacher certification, see p. 165, and for minor study requirements, refer to the "Courses of Instruction" section of this catalog.

In addition to the course requirements stated in the curricula below, students majoring in theatre arts will participate in all phases of production work. So far as possible, these productions are correlated to the work done in the classroom.

Please note that in addition to the specific course requirements outlined below you must satisfy all general College and University requirements for graduation and furthermore, the faculty reserves the right to disqualify from further enrollment or participation in departmental programs:

(1) Students whose grades fall substantially below 3.0 in their majors;
(2) Students who fail to demonstrate reasonable progress in their personal professional development in theatre arts; and/or
(3) Students whose conduct reveals a persistent inability to work effectively with others or an unwillingness to adhere to generally recognized standards of professional behavior.

PRE-PROFESSIONAL CURRICULUM

The major in theatre arts that is offered under this curriculum is designed for students who anticipate further study at the graduate level; it leads to the Bachelor of Fine Arts degree.

Within this curriculum two programs are offered: a major in theatre arts, and a major in theatre arts with an emphasis in dance.

*See College of Education section, for definitions of biological and physical sciences.
1. Major in theatre arts:
   a. Courses outside the major: Of these, at least 30 hours must be selected from courses offered by departments of the College of Arts & Sciences, and must include English 270 (when offered as Introduction to Drama), 352, 353, 470 (when offered as Contemporary Drama), and 487 (when offered as Comedy or Tragedy); and at least 6 hours must be selected from courses in architecture, art, art history, film, fine arts or music.  
   b. Courses in the major:  
      Freshman year: TA 125, 126, 129, 165, 166 and 185 (18 hours)  
      (2) Sophomore year: TA 235, 236, 240 and 255 (12 hours).  
      (3) Junior and senior years: TA courses with emphasis in acting-directing or technical production (40 hours).  
   c. Additional courses in any field.

2. Major in theatre arts, with dance emphasis:
   a. Courses outside the major: As described in paragraph 1.a. above.  
   b. Courses in the major:  
      (1) Freshman year: TA 101, 102, 129 and 185; Dance 110 or equivalent (15 hours).  
      (2) Sophomore year: TA 115, 116, 240, 255; Dance 210 (15 hours).  
      (3) Junior and senior years: TA and Dance courses, including Dance 262 and 263 (40 hours).  
   c. Additional courses in any field.

GENERAL (LIBERAL ARTS) CURRICULUM
This curriculum leads to the degree of Bachelor of Arts in Fine Arts, and is a program of broader orientation than the Pre-Professional Curriculum, with less concentration in drama.

1. Courses outside the major: Of these, at least 39 hours must be selected from courses offered by departments of the College of Arts & Sciences, including English 352 and 353 and 3 hours chosen from English 453, 470, or 487; and at least 6 hours must be selected from courses in architecture, art, art history, film, fine arts or music.  

2. Major in Theatre Arts, including:
   a. TA 125, 126, 129, 165, 166 and 185.  
   b. Additional courses in area of specialization, e.g., acting and directing, technical production, and dance.  
      (Note: hours used as part of the major may not be used in satisfaction of requirements outside the major.)  

3. Additional courses in any field.

Total 128 hours
CURRICULUM IN TEACHER EDUCATION

This program leads to the degree of Bachelor of Arts in Fine Arts and certification to teach in the public schools. In addition to the specific curriculum stated below, you must 1) satisfy the requirements stated on pp. 101-102 of this catalog for admission to a teacher education program as well as those stated on pp. 103-104 for admission to student teaching; 2) meet the general education requirements of the Department of Secondary Education set forth on p. 104; and 3) include in your program of studies at least 39 hours in courses offered by departments of the College of Arts and Sciences; and 6 hours selected from courses in architecture, art, art history, film, fine arts, or music.

1. Courses outside the major:
(a) 6 hours in architecture, art, art history, film, fine arts, or music;
(b) 24 hours of courses to complete the requirements of a certifiable teaching minor in a field of Arts and Sciences;
(c) Psychology 102 and 320;
(d) Educational Foundations 290, and 6 hours in Educational Foundations 310 and Secondary Education 362 (Junior Year Module II);
(e) Secondary Education 461 (Student Teaching) 51 hours

2. Major in Theatre Arts:
(b) English 352-353 (Shakespeare) 57 hours

3. Additional courses in any field**#

Total 128 hours

TAMARIND INSTITUTE

Clinton Adams, Dean of the College of Fine Arts, Director

Tamarind Institute, founded in June of 1970 as a division of the College of Fine Arts, is a professional center for training, study, and research in the art of lithography. At the Institute distinguished artists are provided an opportunity to create original lithographs under conditions that fulfill the highest esthetic and ethical traditions of the art.

Fellowships and assistantships are available to qualified individuals who seek to enter careers as master-printers or as print curators in art museums, private galleries, or professional workshops. Artists, printers, and curators in the Institute have full access to the resources of the University, including the Fine Arts Library and the University Art Museum. The Library has considerable strength in the history and practice of lithography and the Museum has an

* TA 415-416 constitute 6 hours of the required 24 hours in teacher education.
** Students are strongly urged to consider electing courses to go beyond the requirements for a certifiable minor and complete a second teaching major, and to include a course in special methods of teaching in that field.
# Most students will need to use some of these hours to complete the general education requirements in Secondary Education (pp. 126-128).
extensive collection of original lithographs by major artists of the 19th and 20th centuries.

Courses in the economic and management techniques needed by artisans working in professional ateliers are offered in cooperation with the School of Business and Administrative Sciences. Courses in the history of the graphic arts and in the care and preservation of fine prints are offered by the Department of Art.

Tamarind Institute is successor to Tamarind Lithography Workshop, Inc., of Los Angeles, California.
THE GRADUATE SCHOOL

Graduate work leading to the master’s degree is offered in the following fields: Anthropology, Architecture, Art, Biology, Business Administration, Chemistry, Communicative Disorders, Comparative Literature, Computing and Information Science, Economics, Education (Administration, Art, Elementary, Foundations, Guidance, Health, Music, Physical, Recreation, Secondary, Special, Teaching Business Subjects, Teaching English, Teaching Home Economics, Teaching Industrial subjects, Teaching Mathematics, Teaching Science, Teaching Spanish), Engineering (Chemical, Civil, Electrical, Mechanical, Nuclear), English, French, Geography, Geology, History, Latin-American Studies, Mathematics, Medical Sciences, Music, Philosophy, Physics, Political Science, Portuguese, Psychology, Public Administration, Sociology, Spanish, Speech Communication. Also, the degree Master of Fine Arts is offered.

The degree of Doctor of Philosophy is offered in the following fields: American Studies, Anthropology, Art History, Biology, Business and Administrative Sciences, Chemistry, Economics, Education, Engineering, English, Geology, History, Ibero-American Studies, Mathematics, Medical Sciences, Philosophy, Physics, Political Science, Psychology, and Romance Languages.

In Education, the degree of Doctor of Education is also offered.

Applicants should contact the chairperson of the department concerned for information on these particular programs.

ADMISSION, FELLOWSHIPS, TRAINEESHIPS, AND ASSISTANTSHIPS

Graduates of any accredited college or university may apply for admission to the Graduate School. All communications regarding admission should be addressed to the Dean of the Graduate School.

A formal application is required of all students, including graduates of the University of New Mexico, who seek admission to the Graduate School. Application blanks and the Graduate School Bulletin may be obtained by writing to the Dean of the Graduate School. Applicants from institutions other than UNM must have two transcripts of all undergraduate and graduate work sent directly to the Graduate Office from each institution previously attended. Even though a master transcript may carry records from other institutions, University regulations require that these records be sent from each institution. Transcripts in the possession of students will not be accepted for entrance purposes.

In order to be assured of consideration for admission, students should have their applications, transcripts, and the $15.00 application fee on file in the Graduate Office at least two months in advance of the beginning date of the session in which they plan to enroll. The final deadlines for receipt of applications and all required credentials are: for fall semester, July 1; for spring semester, Nov. 15; for the summer session, April 15. No student is assured of admission until he has received an official offer of admission from the Dean of the Graduate School.

Although each application is reviewed individually, in general an overall average of at least B, in the last four semesters and in the intended major field, is required for admission and for consideration for financial aid.
Assistantships are available for some well-qualified, degree-seeking graduate students. Application deadline for financial aid is January 31.

While the Graduate School reserves the right to refuse admission to any student for scholastic or non-scholastic reasons, such refusal will in no case be based upon race, color, sex, or religion.

GRADUATE CREDIT FOR WORK TAKEN AS AN UNDERGRADUATE

Graduate credit for work taken as a senior may be granted only if the student:

1. is within ten hours of the baccalaureate degree;
2. is to complete all requirements for that degree during the semester in which the graduate credit is sought;
3. has a grade point average of at least 3.0 during his last four semesters;
4. seeks no more than nine hours of graduate credit during that semester (six during the summer session); courses must be listed in the Graduate School Bulletin;
5. obtains in advance the approval of the major department and the Dean of the Graduate School.

Although courses numbered above 500 are normally open only to graduate and professional students, exceptional undergraduate students may, with advance approval from the instructor and the Graduate School, take such courses for undergraduate credit.

GRADUATE CREDIT AND EXTENSION OR CORRESPONDENCE COURSES

A maximum of six hours of credit may be granted for graduate extension courses taken from the University of New Mexico, but no extension credit may be transferred from other institutions.

The University accepts no correspondence credit toward its advanced degrees.

OFF-CAMPUS RESIDENCE CENTERS

The University offers graduate credit for work taken at the University of New Mexico Graduate Center, at Los Alamos. For information concerning this center, see p. 204.

INFORMATION

For further information consult the Graduate School Bulletin, the Graduate School, or the department concerned.
SCHOOL OF LAW

THE STATE BAR of New Mexico having previously adopted a resolution to that end, and the Legislature of New Mexico having made financial provision, the Regents of the University of New Mexico, on March 31, 1947, as expressly authorized by Laws 1889, Ch. 138, Sec. 15, approved the establishment of a School of Law. The School is fully accredited; it was approved by the American Bar Association on February 24, 1948, and membership in the Association of American Law Schools was granted in December 1948. The School offers a curriculum leading to the degree of Juris Doctor (J.D.). A chapter of the Order of the Coif was established at the School in 1971.

Information concerning the School is found in the School of Law Bulletin which may be obtained by writing to the Dean of the School of Law, The University of New Mexico, 1117 Stanford NE, Albuquerque, New Mexico 87131.

ADMISSION

Information about the procedure of applying to the Law School is contained in the School of Law Bulletin. All applicants for admission to the School of Law are required to take the Law School Admission Test (LSAT), and to have a baccalaureate degree from an accredited college or university before registration. Application material is available after August 15; application deadline is February 15.

Final selection of applicants is made on the basis of the scholastic record in all college or university work attempted, scores received on the LSAT, and such other information as the Law School may require.

Beginning Law students will be admitted at the opening of the Fall semester only.

STUDENT AIDS

See the School of Law Bulletin for scholarships, awards, and loans available to law students.

ADDITIONAL EXPENSES

All students registered in the School of Law become members of the University of New Mexico Student Bar Association and are expected to pay, in addition to the University's tuition and fees for residents or for non-residents, membership dues for the Association. The current dues are $10.00 per year, payable to the School of Law at registration. Also payable at the beginning of each semester is a $5.00 materials fee.
SCHOOL OF MEDICINE

THE ESTABLISHMENT of a School of the Basic Medical Sciences was authorized by the Regents and the Faculty of The University of New Mexico in 1961. The first entering class was enrolled in September 1964 and progress to the full four-year program was approved by the New Mexico State Legislature in 1966. Full accreditation by the American Medical Association and the Association of American Medical Colleges was granted in 1968.

Additional information concerning the school is found in the School of Medicine Bulletin which may be obtained by writing to the Office of Admissions, The University of New Mexico School of Medicine, Health Sciences Center-North Campus, Albuquerque, New Mexico 87131.

ADMISSION

In general, the admissions requirements include a Bachelor's degree from an accredited institution. Students who major in the humanities or social sciences are given equal consideration with those who major in the sciences.

The following courses are required of all candidates for admission to the medical school:

- General Chemistry, including laboratory, one year;
- Organic Chemistry, including laboratory, one year;
- General Biology, including laboratory, one year;
- General Physics, including laboratory, one year;
- College Mathematics, one year. Mathematics through calculus is strongly recommended.

The courses taken to fulfill the specific requirements listed above should be those required of students majoring in the respective fields.

Applicants are required to take the Medical College Admission Test, preferably in May of their junior year. The examination is administered by the Testing Center, main campus, and applications may be obtained from that office.

A final selection of applicants is made on the basis of the scholastic record, scores on the Medical College Admission Test, recommendations from undergraduate professors, and impressions gained from personal interviews at the medical school.

Preference for admission is given to qualified applicants who are residents of New Mexico or regional states which do not have their own medical schools and which participate in the Western Interstate Commission for Higher Education Student Exchange Program.

The School of Medicine participates in the American Medical College Application Service (AMCAS), the Early Decision Program, the Coordinated Transfer System (COTRANS), and the Minority Applicant Registry (MED-MAR), operated by the Association of American Medical Colleges.

Application materials may be obtained by writing to the American Medical College Application Service, 1776 Massachusetts Avenue, NW, Washington, DC 20036. It is recommended that applications be filed not later than 1 November of the year preceding anticipated enrollment. Applications will not be accepted after December 15.
FEES
Application Fee $10. Non-refundable.
Tuition and Fees—See "Student Expenses."

INFORMATION REQUESTS
Inquiries are welcome and interested students may write or call the Office of Admissions, The University of New Mexico School of Medicine, Health Sciences Center-North Campus, Albuquerque, New Mexico 87131; (505) 277-3414.

MEDICAL LABORATORY SCIENCES PROGRAMS
The following Medical Laboratory Sciences Programs are offered through the UNM School of Medicine under the direction of the Allied Health Sciences Center.

1. a twelve month certificate program for Certified Laboratory Assistants;
2. a twelve month certificate program in Cytotechnology;
3. an integrated two year program for Medical Laboratory Technicians leading to the degree of Associate of Science in Laboratory Technology (see "University College");
4. a twelve month program in Medical Technology which satisfies the fourth year requirement of the curriculum leading to the degree of Bachelor of Science in Medical Technology (see "College of Arts and Sciences").

CERTIFIED LABORATORY ASSISTANT PROGRAM
A twelve month program is offered to high school graduates to prepare them for positions as technical assistants in clinical and hospital laboratories. They perform the less complicated chemical, hematological, and microbiological tests under the supervision of medical technologists, physicians, and other laboratory professionals. Six months of theory and student laboratory study at the UNM School of Medicine is followed by six months of supervised practical experience at an approved, affiliated hospital laboratory.

The class is limited to ten students and usually starts in January of each year. Students must be graduated from an accredited high school or possess acceptable GED equivalency. A Program Admissions Committee selects the class on the basis of educational records and vocational promise in the health career field as determined by personal interview.

Graduates of the program will be eligible and expected to take the national examination for Certified Laboratory Assistants administered by the American Society of Clinical Pathologists.

CURRICULUM
Md Lab 010—Theory and Practice of Laboratory Technology (Preclinical)
Md Lab 020—Practice in Laboratory Procedures (Clinical)
(Description of courses offered will be found in the catalog section "Courses of Instruction")
INFORMATION REQUESTS

Communications regarding application for the Medical Laboratory Assistant Program should be directed to the Director of Medical Laboratory Sciences Program, The Allied Health Sciences Center, UNM, Albuquerque, New Mexico 87131.

CYTOTECHNOLOGY PROGRAM

The Cytotechnology Program consists of twelve months of instruction in processing techniques and microscopic examinations of body cells to detect the presence of cancer. Cytotechnologists routinely screen cells taken from any body organ, especially from the cervix, to recognize minute abnormalities of cell appearance that may signal the presence of early stages of cancer. Suspicious smears are referred to the pathologist for confirmation. Six months of theory and student laboratory study at the UNM School of Medicine are followed by six months of supervised practical experience at an approved cytology laboratory.

This specialized class is limited to four students and usually starts in August of each year.

Applicants must have completed at least two years of study (60 semester hours) at an accredited college or university which must include 12 semester hours of science courses (at least 8 in biology).

INFORMATION REQUESTS

Communications regarding application for the Cytotechnology Program should be directed to the Director, Laboratory Sciences Program, Allied Health Sciences Center, The University of New Mexico, Albuquerque, New Mexico 87131.

MEDICAL LABORATORY TECHNICIAN PROGRAM

The degree of Associate of Science in Laboratory Technology is offered by the University College. This program includes academic subjects in biology and chemistry in conjunction with the prescribed curriculum for Medical Laboratory Technicians offered by the Laboratory Sciences division of Allied Health Sciences in the School of Medicine, which is approved by the AMA and the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Graduates of this program are eligible to take the examination for certification as Medical Laboratory Technicians (MLT) given by the Board of Registry of the American Society of Clinical Pathologists (ASCP). They are capable of performing many of the various medical laboratory procedures under the supervision of medical technologists. (See "University College" section of catalog for admission and degree requirements.)

CURRICULUM

(See also "University College" section of catalog.) The curriculum is designed not only to prepare the student for the MLT categorical certification but also to provide a liberal educational background which the student may apply toward a baccalaureate degree program if he chooses to do so. The following specific courses in Medical Laboratory Sciences are required: Med Lab Sci 100, 101, 101P, 102, 102P, 201, 202, 203, 204, 251P, 252P, 253P, and 254P. (Description of courses will be found in the catalog section "Courses of Instruction").
MEDICAL TECHNOLOGY PROGRAM

Medical Technologists are the professional laboratory workers whose broad background of college science and clinical laboratory training provide the ingredients necessary for their professional responsibilities. They perform the increasingly complex diagnostic procedures which aid the physician in his diagnosis, prevention of disease, patient surveillance during therapy, and research. Many opportunities exist in supervisory, teaching, and research assistant roles.

The twelve months Program in Medical Technology is approved by the AMA Council on Medical Education. It meets the requirements of the fourth year of study leading to a BS in Medical Technology degree as outlined at the following New Mexico colleges or universities: The University of New Mexico, The University of Albuquerque, Highlands University, Eastern New Mexico University, New Mexico State University, and College of Santa Fe. Students may also be accepted from other universities which agree to give full credit for the program toward a BS in Medical Technology degree. Parent institutions award the degree upon satisfactory completion of the Medical Technology Program.

Two additional categories may be accepted to the program that meet the following requirements:

1. Possess a baccalaureate or higher degree from an accredited college or university and meet the science requirements outlined below. This qualifies the candidate to sit for the national registry examination of the American Society of Clinical Pathologists to become a Registered Medical Technologist (MT, ASCP).

2. Students enrolled in the program leading to the degree of Bachelor of University Studies (BUS) at the University of New Mexico who meet the educational requirements outlined below and register their intent with the Director of Laboratory Sciences Program upon transfer from the University College into the BUS program.

REQUIREMENTS FOR ADMISSION TO THE MEDICAL TECHNOLOGY PROGRAM

Minimum educational requirements are three years (96 semester hours or 144 quarter hours) of collegiate training in any college or university approved by a recognized regional accrediting agency. The three years should be acceptable as the first three years of a baccalaureate program and upon completion of the Medical Technology Program should culminate in the award of the baccalaureate degree. Individual colleges and universities will vary in total credit hour requirements. See “College of Arts and Sciences” section of the catalog for UNM degree requirements.

During the above three years the following are required:

1. Chemistry—a minimum of 16 semester hours (24 quarter hours) shall be required. This must include a general college chemistry course, including lecture and laboratory, and one semester of quantitative analysis. The other courses to complete the requirements may be selected from organic chemistry or biochemistry, plus other chemistry courses having prerequisites of general chemistry.

2. Biological Sciences—a minimum of 16 semester hours (24 quarter hours)
acceptable towards a major in biological science is required. All required biological sciences must include lecture and laboratory. Survey courses are not acceptable. At least one semester of a basic bacteriology course, including lecture and laboratory, must be included. Other courses may be selected from the following subject areas: general biology, zoology, bacteriology, parasitology, histology, histologic technique, genetics or other courses acceptable toward a biological science major.

3. Mathematics—a minimum of one semester (one quarter) of college mathematics is required.

4. Physics—strongly recommended that a course in physics be included in the college courses taken.

5. Certification of the proficiency of a student by a college in any of the above required subjects may be accepted in lieu of these requirements; however, the student must still satisfy the three year requirement of 96 semester hours (144 quarter hours).

Students are advised to devote considerable thought to possible opportunities for graduate studies in this field when choosing their undergraduate program.

CURRICULUM
Md Lab 401-406—Theory and Practice of Medical Technology (Preclinical)
Md Lab 451P-455P—Practice in Medical Technology Procedures (Clinical)
(Description of courses offered will be found in the catalog section “Courses of Instruction”)

APPLICATION AND ADMISSION PROCEDURE
1. Entering freshmen and pre-professional transfer students should obtain information pertaining to admission to the University of New Mexico from the Dean of Admissions.

2. Those students possessing pre-professional requirements listed above and desiring to enter the Medical Technology Program at the University of New Mexico School of Medicine should communicate with the Director, Medical Technology Program for preliminary advisement.

3. All applications and credentials required for the Medical Technology Program must be submitted by January 15.

FINAL APPLICATION CHECK LIST
1. Send application and required credentials to the Director, Laboratory Sciences Program prior to the January 15 deadline. Official transcripts of collegiate training must be sent directly from each institution previously attended.

2. An appointment for personal interview with the Admissions Committee of the Laboratory Sciences program will be arranged after receipt of application and transcript and after the January 15 deadline.

3. Selection of applicants for the July class will be made by the Admissions Committee of the Laboratory Sciences program and all applicants will be notified of their acceptance or nonacceptance.
FEES
Tuition for pre-professional courses is listed in the catalog under "Student Expenses."

Tuition for the professional program in Medical Technology:

<table>
<thead>
<tr>
<th></th>
<th>N.M. Residents</th>
<th>Non-residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Md Lab 401-406</td>
<td>$228.00</td>
<td>$642.00</td>
</tr>
<tr>
<td>Md Lab 451P-455P</td>
<td>228.00</td>
<td>642.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$456.00</strong></td>
<td><strong>$1284.00</strong></td>
</tr>
</tbody>
</table>

In addition to tuition, housing, and books the students in all Laboratory Sciences Programs are required to pay laboratory fees and to purchase lab coats and supplies (approximate cost $75.00).

Various types of financial aid are available to University students through the Office of Student Aids. In addition, there are certain scholarships from local and national organizations specifically for students enrolled in the Laboratory Sciences Program. Information may be obtained at the Student Aids Office and the office of the Director of the Laboratory Sciences Programs.

Graduates of the program will be eligible and expected to take the national examination for Medical Technologists administered by the American Society of Clinical Pathologists.

AFFILIATED TEACHING HOSPITALS
The practical clinical rotation in the Medical Technology curriculum is provided by hospitals located in Roswell, Clovis, Santa Fe, Farmington, Espanola, Los Alamos, Gallup, and the following hospitals in Albuquerque: Bernalillo County Medical Center, Veterans Administration, Presbyterian Medical Center, St. Joseph, Bataan and Lovelace Clinic. Student assignments to hospitals will be made by the Director of the Laboratory Sciences Program. Student preferences will be given as much consideration as possible.

PHYSICAL THERAPY
The physical therapist performs evaluative procedures, plans and administers treatment programs, serves as a consultant, teaches patients and families to carry out home therapy and supervises the activities of physical therapy assistants and aides. They work with a wide variety of medical, neurological, neurosurgical, and orthopaedic conditions to assist patients to regain or maintain maximum function.

The Division of Physical Therapy in the Department of Orthopaedics offers a two-year professional program leading to a Bachelor of Science degree.

Following accreditation of the curriculum, students will be eligible for licensure by examination.

Theoretical and clinical education are combined to prepare the individual to function as a physical therapist in a wide variety of settings within the health care system.

REQUIREMENTS FOR ADMISSION TO PHYSICAL THERAPY
Minimum educational requirements are 60 semester hours of college level work which includes the following:
1. Biology—a minimum of 8 semester credits of general biology consisting of lecture and laboratory.
2. Chemistry—a minimum of 8 semester credits of general chemistry including laboratory.
3. Physics—a minimum of 8 semester credits of general physics including laboratory. A semester of college mathematics may be prerequisite for physics.
4. Psychology—a minimum of 9 semester hours in psychology including the Psychology of Adjustment.
5. Additional hours in communications, humanities, social sciences, foreign language or fine arts which fulfill group requirements of the College of Arts and Sciences.

A limited number of students will be selected for admission to the curriculum in physical therapy. A grade point index of 3.2 is recommended for applicants to this program. Students are admitted at the junior level.

Students may apply when they are enrolled in the courses which will complete requirements for admission and will be accepted pending satisfactory completion. Individuals applying from institutions of higher education other than the University of New Mexico may apply directly to the Division of Physical Therapy.

**Degree Requirements:** A Bachelor of Science degree will be awarded students who:

1. Complete 126 acceptable semester hours (grades below C not acceptable.)
2. Complete satisfactorily the final twelve weeks of clinical education.
3. Are recommended for the degree by the faculty.

**Affiliating Hospitals:** The physical therapy student receives his clinical education at many excellent facilities in New Mexico including Bernalillo County Medical Center, the Veterans Administration Hospital, Lovelace-Bataan Medical Center, St. Joseph Hospital in Albuquerque, the New Mexico Rehabilitation Center in Roswell and Carrie Tingley Hospital for Crippled Children in Truth or Consequences. Additional facilities will be added as needs are determined.

**CURRICULUM IN PHYSICAL THERAPY**

<table>
<thead>
<tr>
<th></th>
<th>First Year (Preprofessional)</th>
<th>Second Year (Preprofessional)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engl 101 Wrtg w/rdgs in Expos</td>
<td>3</td>
<td>Biol 122L Prin Biol</td>
</tr>
<tr>
<td>Biol 121 Prin Biol</td>
<td>4</td>
<td>Chem 102L Genl Chem</td>
</tr>
<tr>
<td>Chem 101L Genl Chem</td>
<td>4</td>
<td>Psych 102 Genl Psych</td>
</tr>
<tr>
<td>Math 121, 150 or 180¹</td>
<td>3-4</td>
<td>*Electives from College of Arts and Sciences Group Requirements</td>
</tr>
<tr>
<td>Psy 101 Genl Psych</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong> 17-18</td>
<td></td>
<td></td>
</tr>
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</table>

|                |                              |                               |
| **Second Semester**                                         |                              |                               |
| Phys 152 Genl Phys                                         | 3                            | Phys 154L Genl Phys Lab       | 1 |
| Phys 153L Genl Phys Lab                                     | 1                            | *Electives from College of Arts and Sciences Group Requirements | 12 |
| *Electives from College of Arts and Sciences Group Requirements | 9                            |                               | 16 |
| **Total:** 16                                              |                              |                               | 16 |

¹ Prerequisite for Physics 151.
*Recommend advisement for appropriate courses for physical therapy.
ASSOCIATE OF ARTS DEGREE IN COMMUNITY SERVICES

An Associate of Arts in Community Services is offered by the Department of Psychiatry through the School of Medicine. This two-year program prepares paraprofessionals to function in community agencies in a variety of new careers such as Community Mental Health Workers, School-Community Liaison Workers, Public Health Assistants, Clinic Interviewers.

The curriculum includes a variety of academic subjects which will enhance the students ability to understand and relate to psycho-socio-community dynamics of their clients/patients and to help them become competent central staff members of the health and mental health service teams.

The degree is available to persons enrolled in the UNM School of Medicine’s Community Service Worker Program.

For information concerning eligibility in this program, contact: The University of New Mexico School of Medicine’s Community Service Worker Program, 2701 Frontier NE, or call 277-5428.

ADMISSION

Total class enrollment in the CSW Program is limited to 75 students. Applicants. Applicants must complete Community Service Worker Program application forms as well as the regular UNM application.

Those applicants who are selected must

1. Be over 18 years of age.
2. Be interviewed by a staff member of the CSW Program.
3. Be interviewed by the director or a designated staff member of the participating community agency.

Clinical Education: 3 four-week affiliations
CURRICULUM

1st Year

Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CSW 010</td>
<td>Intro to Community Services</td>
<td>0</td>
</tr>
<tr>
<td>CSW 050</td>
<td>Clin Exper Comm Srvs</td>
<td>6</td>
</tr>
<tr>
<td>CSW 101</td>
<td>Survey of Inst</td>
<td>2</td>
</tr>
<tr>
<td>CSW 102</td>
<td>Principles of Interviewing</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>(Optional)</td>
<td>6</td>
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Total: 10-13

Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>Writing with Readings in Exposition</td>
<td>3</td>
</tr>
<tr>
<td>CSW 104</td>
<td>Prin of Human Behavior</td>
<td>3</td>
</tr>
<tr>
<td>CSW 051</td>
<td>Clin Exper Comm Srvs</td>
<td>6</td>
</tr>
<tr>
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<td>(Optional)</td>
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</tr>
</tbody>
</table>

Total: 12-15

Summer

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CSW 052</td>
<td>Clin Exper Comm Srvs</td>
<td>6</td>
</tr>
<tr>
<td>CSW 105</td>
<td>Group Dynamics</td>
<td>3</td>
</tr>
<tr>
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<td></td>
<td>3</td>
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Total: 12

2nd Year

Fall

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>CSW 200</td>
<td>Psychosocial Stu of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>CSW 109</td>
<td>New Techniques of Assessment and Intervention</td>
<td>3</td>
</tr>
<tr>
<td>CSW 150</td>
<td>Clin Exper Comm Srvs</td>
<td>6</td>
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<tr>
<td>Elective</td>
<td>(Optional)</td>
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Total: 12-15

Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSW 151</td>
<td>Clin Exper Comm Srvs</td>
<td>6</td>
</tr>
<tr>
<td>Engl 102</td>
<td>Writing with Readings in Literature</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>3</td>
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Total: 15

Summer

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSW 152</td>
<td>Clin Exper Comm Srvs</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>3-6</td>
</tr>
</tbody>
</table>

Total: 9-12

TOTAL 70 + hours

DEGREE REQUIREMENTS:

1. Enrollment in UNM School of Medicine-Community Service Worker Program
2. A UNM Scholarship Index of 2.0
3. A minimum of 70 hours of earned credit, including:
   a) CSW 101, 102, 104, 105, 109, 200 and 202 19 hours
   b) CSW 050-051-052 and 150-151-152 36 hours
   c) Eng 101 and Eng 102 6 hours
   d) Electives 9 hours
   70 hours

RADIOLOGICAL SCIENCES PROGRAMS

The following Radiological Sciences Programs are offered through the UNM School of Medicine under the direction of the Department of Radiology:

1. A two year program for Radiologic Technologists leading to an Associate of Science Degree in Radiologic Technology.
2. A one year program for Nuclear Medicine Technologists leading to an Associate of Science Degree in Nuclear Medicine Technology.

ASSOCIATE OF SCIENCE DEGREE IN RADIOLOGIC TECHNOLOGY

A twenty-four month program beginning in July of each year is offered to high school graduates and is limited to ten students per year. This program prepares the paraprofessional to perform complex radiographic procedures which assist the radiological physician in disease investigation and diagnosis. Both clinical and didactic phases of the curriculum are provided by the follow-
ing affiliated hospitals: Bernalillo County Medical Center and the Lovelace Clinic. Graduates are required to take the national examination for Radiologic Technologists prepared by the American Registry of Radiologic Technologists.

ADMISSION REQUIREMENTS
1. Be at least 18 years of age (AEC regulation).
2. Meet UNM entrance requirements.
3. Personal interview with the Program faculty.
4. Application on file with the Director, January 31 prior to the July entrance.

<table>
<thead>
<tr>
<th>CURRICULUM*</th>
<th>First Year</th>
<th>Second Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Summer</td>
<td>Summer</td>
</tr>
<tr>
<td>103</td>
<td>Professional Orientation &amp; Ethics</td>
<td>201</td>
</tr>
<tr>
<td>105</td>
<td>Medical Terminology</td>
<td>1</td>
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<tr>
<td>107</td>
<td>Radiologic Technology</td>
<td>4</td>
</tr>
<tr>
<td>205</td>
<td>Radiation Protection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fall</td>
<td>Fall</td>
</tr>
<tr>
<td>020</td>
<td>Film Critique</td>
<td>0</td>
</tr>
<tr>
<td>108L</td>
<td>Radiologic Tech Lab 1</td>
<td>0</td>
</tr>
<tr>
<td>151</td>
<td>Human Anatomy &amp; Physiology</td>
<td>3</td>
</tr>
<tr>
<td>161</td>
<td>Radiographic Positioning</td>
<td>3</td>
</tr>
<tr>
<td>162L</td>
<td>Radiographic Positioning Lab 1</td>
<td>4</td>
</tr>
</tbody>
</table>

**First Year**

<table>
<thead>
<tr>
<th>Spring</th>
<th>First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>010 Journal Club</td>
<td>0</td>
</tr>
<tr>
<td>020 Film Critique</td>
<td>0</td>
</tr>
<tr>
<td>101</td>
<td>Basic Radiological Physics</td>
</tr>
<tr>
<td>111</td>
<td>Radiologic Darkroom Chem</td>
</tr>
<tr>
<td>121</td>
<td>Radiological Nursing Procedures</td>
</tr>
<tr>
<td>163</td>
<td>Intermed Radiographic Positioning</td>
</tr>
<tr>
<td>164L</td>
<td>Inter Radiographic Positioning Lab</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Second Year</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>201 Interim Radiological Physics</td>
</tr>
<tr>
<td>209 Basic Radiological Math</td>
</tr>
<tr>
<td>211 Introduction to Nuclear Med</td>
</tr>
<tr>
<td>212L Nuclear Medicine Lab</td>
</tr>
<tr>
<td>281 Special Radiographic Procedures</td>
</tr>
<tr>
<td>291 Survey of Medical &amp; Surgical Disease</td>
</tr>
<tr>
<td>or Pharm 334 Clinical Pharmacy I</td>
</tr>
</tbody>
</table>

FEES
Tuition for the Radiological Sciences Program is listed in the catalog under "Student Expenses." In addition to tuition, required books and uniforms will cost approximately $150.00 for the two year period.

ASSOCIATE OF SCIENCE DEGREE IN NUCLEAR MEDICINE TECHNOLOGY

A twelve month program of study in Nuclear Medicine Technology begins in July of each year and is limited to six students per year. Clinical and laboratory training provide the student with the knowledge necessary to perform the complex diagnostic procedures involving the administration and tracing of radioactive materials within the human body. Graduates of the program are expected to take the national registry examination for Nuclear Medicine Technologists.

* These courses can be taken only by those enrolled in the Radiological Science Program.
ADMISSION REQUIREMENTS

1. At least 18 years of age (AEC regulation).
2. Meet UNM entrance requirements.
3. MT, RN, RT; or at least thirty hours of acceptable college work.
4. Personal interview with the Program Faculty.
5. Application on file with the Director on January 31 prior to the July entrance.

CURRICULUM

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Summer Credits</th>
<th>Fall Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>103 Professional Orient &amp; Ethics</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>201 Intermed Radio Physics</td>
<td>2</td>
<td>291 Survey of Medical &amp; Surgical Disease 3</td>
</tr>
<tr>
<td>205 Radiation Protection</td>
<td>1</td>
<td>or</td>
</tr>
<tr>
<td>309 Basic Nuclear Lab Procedures</td>
<td>1</td>
<td>301 Adv Radiological Physics 2</td>
</tr>
<tr>
<td>310L Basic Nuclear Procedures Lab</td>
<td>1</td>
<td>Pharm 334 Clinical Pharmacy 1 3</td>
</tr>
<tr>
<td>313 Clinical Nuclear Medicine</td>
<td>2</td>
<td>311 Intermed Nuclear Lab Procedures 1</td>
</tr>
<tr>
<td>314L Clinical Nuclear Med Lab</td>
<td>3</td>
<td>312L Intermed Nuclear Procedures Lab 1</td>
</tr>
</tbody>
</table>

The student will usually take two of the following courses in the Fall semester and four in the Spring, the order being determined by course load.

Fall or Spring

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>315L Clin Scint Camera Lab</td>
<td>3</td>
</tr>
<tr>
<td>316L Clin Single Probe Scin Scanner Lab</td>
<td>3</td>
</tr>
<tr>
<td>317L Clin Dual Probe Scin Scanner Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>352L Radioimmunoassay Lab</td>
<td>3</td>
</tr>
<tr>
<td>371 Clin Radionuclide Imaging Lab</td>
<td>3-5</td>
</tr>
<tr>
<td>391 Special Problems</td>
<td>1-3</td>
</tr>
</tbody>
</table>

FEES

Same as the Radiologic Technology Program except $100 for a one year period.

ASSOCIATE OF SCIENCE DEGREE IN MEDICINE FOR PHYSICIAN’S ASSISTANT

An Associate of Science degree in Medicine for physician’s assistant is offered through the UNM School of Medicine under the direction of the Department of Family and Community Medicine. This is a 24 month program conducted at the Gallup Branch and at facilities of the Gallup Indian Medical Center and at various clinical facilities of the Indian Health Service. The program was originally established and continues to be supported within the Indian Health Service as the Community Health Medic Training Program. It is accredited by the AMA. The course is designed to prepare health professionals for
certification as assistants to the primary care physician. The curriculum is oriented to provide knowledge and skills necessary to provide assistance in the broad array of fields of primary care medicine. It emphasizes the special requirements of care needed by the American Indian.

ADMISSION REQUIREMENTS

Class enrollment is usually 15 students per entering class. A variable number of slots are funded through the IHS and applicants must meet Civil Service requirements. For further information on eligibility, contact Director, CHM Training Program, Gallup Indian Medical Center, Gallup, New Mexico 87301 or call 505 863-6620.

All applicants must have at minimum:
1. High school graduate
2. At least three years of experience in a health field
3. Interview
4. Recommendation

CURRICULUM*

<table>
<thead>
<tr>
<th>First Year</th>
<th>Second Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Basic Concepts in Health &amp; Illness</td>
<td>301 Emerg Prob</td>
</tr>
<tr>
<td>103 Pedia Growth &amp; Dev, Nutri</td>
<td>303 Preventive Sci</td>
</tr>
<tr>
<td>105 Hum Surface Anat &amp; Organ Sys</td>
<td>305 Clin Prob in Ped</td>
</tr>
<tr>
<td>107 Orig Sign of Signs &amp; Symptoms</td>
<td>307 Clin Prob in Adult Med</td>
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<tr>
<td>109 Epidemiol &amp; Prevent Med</td>
<td>309 Clin Med Preceptorship</td>
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<td>111 Pharmacotherapeutics</td>
<td>311 Gen Prin of Manag</td>
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<td>113 Problem Oriented Med Record</td>
<td>313 Seminar</td>
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<td>015 Rdg &amp; Study Skills</td>
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<td>117 CHM (PA) Role Devel</td>
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<td>119 Adult &amp; ped Phys Exam</td>
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<td>121 Interview Tech</td>
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<td>125 Med Proc</td>
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<td>201 Adult &amp; Pediatric Clin Path</td>
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<td>211 Dentistry</td>
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<td>213 Internal Med</td>
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<td>215 Mental Hlth</td>
<td>2</td>
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<td>217 Obstetrics &amp; Gynecology</td>
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<td>219 Gen Surg, Orthopaedics</td>
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<td>221 Orthopaedics</td>
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<td>223 Otolaryngology</td>
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<td>225 Pediatrics</td>
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<td>227 Emerg Med Care</td>
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<td>229 Community Clinic</td>
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<tr>
<td>Total</td>
<td>48</td>
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<td>78 credit hrs</td>
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DEGREE REQUIREMENTS

1. Admission into the Physician’s Assistant Training Program, enrollment and payment of tuition.
2. Satisfactory completion of at least 72 credit hours in the curriculum of this program, including the entire second year curriculum.
3. Satisfactory completion of at least 6 semester credit hours of courses at the 100 level or higher in subjects other than the physical or biological sciences at an accredited college or university.

*These courses are open only to persons accepted into Physician’s Assistant Training Program. Transfer of credit toward BUS degree is limited.
COLLEGE OF NURSING

THE COLLEGE of Nursing, as an integral part of the University of New Mexico, promotes excellence in nursing through education, research and service. The College subscribes to the belief that optimum health care is a human right. Man functions as an integrated being in a complex and changing social system and his behavior has meaning. The professional nursing process synthesizes knowledge from the sciences and the humanities. To deliver nursing care in any setting, the professional nurse assesses biophysical, environmental, psychological, and socio-cultural cues which indicate man’s attempts to cope with his life situation; plans nursing care in accord with the effects that the life process has on responses and resources of the individuals or groups receiving care; applies comprehensive nursing in the provision of preventive maintenance and restorative aspects of physical and emotional care, and evaluates nursing care given. Nursing is implicated in the life process of man and evolves its practices in response to society.

The College predicates nursing education on the belief that learning is an individual, assertive, and life-long process.

PURPOSE OF THE COLLEGE

Graduates of the College of Nursing will be prepared as beginning practitioners with the ability to give patient and family-centered nursing care in a variety of settings in the health care field. Graduates of the College of Nursing will be qualified to apply for graduate study in a clinical specialty, in teaching or administration in nursing.

ACCREDITATION

The basic program in nursing is accredited by the National League for Nursing.

LICENSURE OF GRADUATES

Graduates of the College of Nursing are eligible to take the State Board Examinations by which they may be licensed to practice as registered nurses.

ADMISSION PROCEDURES

All students seeking acceptance to the College of Nursing must meet requirements for admission to the University.

Beginning freshman students and student transfers at the freshman level are admitted to University College. A detailed statement of admission requirements is in the “Admission and Registration” section of this catalog.

In addition to meeting University requirements for acceptance by the College of Nursing, applicants should submit a College of Nursing Application Form to the Student Affairs Office, College of Nursing, The University of New Mexico, Albuquerque, New Mexico, 87131. This form may be obtained from the above address and should be submitted by March 1 of the year preceding first enrollment in nursing courses.

Generally, the number of applicants exceeds the number of students that can be admitted to the College of Nursing. Since spaces are limited, an applicant whose plans change so that he cannot enroll should notify the College as
soon as possible to permit acceptance of an alternate. Applications received later than March 1 will not be processed in time for acceptance by the College of Nursing for the fall semester.

REQUIREMENTS FOR ADMISSION

The Admission, Progression, and Graduation Committee of the College of Nursing will review the applicant's educational records and all available information regarding university performance and suitability for nursing. Preference will be given to those applicants evaluated by the Committee to be best qualified to succeed in the nursing program. To be considered for acceptance into the College of Nursing the student must have:

1. Completed the foregoing prescribed by the College of Nursing.

2. Earned 26 hours of credit applicable to the nursing degree. Preference will be given to those students who have met or are completing the prerequisites for entry into this program.

3. Grade point averages required:
   a. Students transferring from University College:
      A grade point average of 2.0 or better on all hours attempted or a grade point average of 2.0 or better on all hours attempted in the previous two semesters of enrollment. If fewer than 26 hours were attempted in the previous two semesters, a grade point average of 2.0 or better shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.
   b. Students transferring from other degree granting colleges of this University:
      Scholarship index of 2.0 while enrolled in the other degree granting college.
   c. Transfer students from other accredited institutions:
      Student shall meet all University admission requirements.
   d. New Mexico residents will be considered to have priority over non-New Mexico residents.

The College of Nursing reserves the right to request the student to supply any additional information as necessary.

EXAMINATIONS TO ESTABLISH CREDIT

All students may request to establish or validate credit by examination for courses according to the policies stated under the "General Academic Regulations" section of this catalog.

REGISTERED NURSE STUDENTS

All registered nurse students seeking acceptance by the College of Nursing must first meet requirements for admission to the University and also the general requirements for entrance into the College of Nursing as stated above.

College credit earned in associate degree programs and hospital schools at the discretion of the College of Nursing may be applied toward a Bachelor of Science in Nursing.
Through 1975-76, credit for senior nursing courses in the current curriculum may be established by examination, a demonstration of clinical competence and/or other course requirements. No more than 16 weeks are allowed for completion of the examination to establish credit. Course outlines, bibliographies and other requirements for this course may be reviewed in the College of Nursing office. Students should consult this information before deciding to establish credit by examination in any course. Students may not enroll for examination in any nursing course without the instructor's permission, nor until they have successfully completed or established credit for all prerequisites. Students may petition the Admission, Progression, and Graduation Committee to enroll in and/or establish credit by examination in a senior nursing course at a time when they are completing, concurrently, non-nursing prerequisites for the course. Credit for more than one nursing course per semester may be established by examination. Such credits are considered residence credits.

GENERAL INFORMATION

Students in the nursing program are subject to the general policies and procedures described in the appropriate sections of this catalog and the specific regulations included in the section, "College of Nursing." All students are responsible for compliance with rules and regulations set forth in this catalog.

All services concerned with student welfare and activities are under the coordinating supervision of the Vice President for Student Affairs. For descriptions of services and programs see "Student Services" section in this catalog.

Athletic, cultural, recreational, religious, and social activities of the University are available to all students. Students in the College of Nursing are eligible for membership in the National Student Nurses' Association through the New Mexico Student Nurses' Association.

Academic advisers, selected from the faculty in the College of Nursing, are available to students in the nursing program and students contemplating entry to the program.

Students are responsible for their own transportation to and from all clinical facilities. If owning and driving a motor vehicle, the student is responsible for maintaining licensure and insurance coverage.

Students are responsible for their living arrangements and costs. Nursing students must comply with the University regulations as stated in the "Student Housing" section of this catalog.

HONORS PROGRAMS

The purposes of the Departmental Honors Program are: (1) to study in some depth a selected nursing problem; (2) to utilize knowledge in related fields and nursing in the study process; (3) to work with one nursing faculty member in a one to one or small group relationship so that through individual challenge and intellectual stimulation, students' achievement may approach their potential; (4) to provide the honors student a full opportunity for vital small group discussion and written expression.
Requirements for graduation with Departmental Honors are as follows: (1) an over-all scholarship index of 3.2; (2) 6 hours in Honors Study in addition to the usual requirements for the degree; (3) at least 60 hours earned at the University; and (4) approval of faculty.

DEAN'S LIST

At the end of each semester the names of students who have outstanding academic records are put on the Dean's List, which is made available to University and outside news media. To qualify for the Dean's List in the College of Nursing, a student must have carried at least 12 academic hours and made a grade-point average of 3.2 or better.

SCHOLARSHIPS

Various types of financial aid are available to University students generally. In addition, there are certain scholarships, from local and national organizations and from public and private sources, which are specifically for students in the College of Nursing (see listing under “Financial Aid” section of this catalog). Information regarding scholarships and loans may be obtained at the College of Nursing and the University Student Aids Office. Minority and disadvantaged students are encouraged to apply to these offices for assistance.

EDUCATIONAL FACILITIES

Zimmerman Library, the general University library, is available to students in nursing.

The Health Sciences Library includes medical science and nursing publications.

Nursing classes are held in the Nursing-Pharmacy building on the North Campus and in clinical facilities.

CLINICAL FACILITIES

Clinical facilities are located in the greater Albuquerque area and include Bernalillo County Medical Center, Bataan Memorial Hospital, Presbyterian Hospital Center, Anna Kaseman Hospital, Nazareth Hospital, St. Joseph Hospital, Veterans Administration Hospital, Bernalillo County Health Department, U.S. Air Force Hospital—Kirtland Air Force Base, The Bernalillo County Mental Health Center, Maternal-Infant Care Clinics, Indian Health Service Stations and Centers, and Outreach Areas in New Mexico (PORVENIR Project).

Special learning opportunities, such as field trips to other facilities, may be arranged.

HEALTH PROGRAM

Students in the College of Nursing follow the health requirements described in the “Admission and Registration” section of this catalog and use the Health Service described in the “Student Services” section of this catalog. Nursing students are encouraged to carry insurance for hospitalization and medical care. Students who do not have health insurance policies will find an adequate policy available through the University. It may be purchased at the time of registration.

Students must present the following prior to registering for a nursing practice course:

1. Over-all scholarship index of 3.2.
2. 6 hours in Honors Study.
3. At least 60 hours earned at the University.
4. Approval of faculty.
5. Carried at least 12 academic hours.
6. Made a grade-point average of 3.2 or better.

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Students must present the following prior to registering for a nursing practice course:

1. Over-all scholarship index of 3.2.
2. 6 hours in Honors Study.
3. At least 60 hours earned at the University.
4. Approval of faculty.
5. Carried at least 12 academic hours.
6. Made a grade-point average of 3.2 or better.
1. Up-to-date immunizations as specified by the College of Nursing.
2. An annual Tuberculin Test.

The annual Tuberculin Test and the immunizations, except oral Polio, can be received in the Student Health Service. A copy of the result must be filed with the College of Nursing Recorder.

The faculty of the College of Nursing recommend early medical supervision and treatment for any illness or condition. In the case of pregnancy, the student must assume complete responsibility for her own safety and welfare.

UNIFORMS

Students are responsible for obtaining appropriate uniforms to be worn during nursing practice periods. Caps are available at the UNM Bookstore.

FEES

Students enrolled in nursing laboratory courses will be expected to pay a fee. A fee will be charged for the National League for Nursing Achievement Tests for regularly enrolled Junior and Senior students. Individual courses may set a fee for educational materials or materials required when establishing credit by examination.

Each student in a clinical course is encouraged to obtain nursing student liability insurance. Contact the Student Affairs Office for information regarding sources of the insurance.

ACADEMIC REGULATIONS

Students in the nursing program are subject to the general regulations of the University and, in addition, to the specific regulations in the College of Nursing.

Students enrolled in the College of Nursing are expected to be progressing toward the Bachelor of Science in Nursing degree.

Students must have a cumulative scholarship index of 2.0 or better to be eligible to enroll in upper division nursing courses.

Students must earn a grade of C or better in each junior level nursing course in order to progress to the senior level nursing course.

To enroll in an upper division nursing course the student must have had the prerequisite nursing course during the year immediately preceding or must give evidence of knowledge of the content in the prerequisite course before being permitted to enroll in the upper division nursing course, except as previously stated in this catalog.

The College of Nursing reserves the right to require a student to withdraw for unprofessional conduct or unsafe nursing practice.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Science in Nursing is granted to basic and registered nurse students on fulfillment of the following requirements:

1. Completion of 128 semester hours of course work of the prescribed curriculum.

2. Completion of at least 60 semester hours of upper division course work. Such courses are numbered 300 or above.
3. For minimum residence requirements, see “Degree Requirements” in the section of this catalog entitled “General Academic Regulations.”

4. Students are required to have an overall scholarship index of 2.0 in Nursing in order to graduate. See also “Degree Requirements.”

5. Student must earn a grade of C or better in each upper division nursing course.

6. Unanimous recommendation for the degree by the faculty of the College of Nursing.

7. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

CURRICULUM

Descriptions of the courses offered will be found, listed by departments, in the catalog section “Courses of Instruction.” Prerequisites are included in the course descriptions. Review the prerequisites carefully in order to plan the course of study.

Students who participate in the General Honors program may apply General Studies seminars to satisfy appropriate requirements upon approval by the Dean, College of Nursing.

Students who wish to make substitutions or exceptions to the program may present their request to the Admission, Progression, and Graduation Committee of the College of Nursing.

See UNM Schedule of Classes for further information prior to registration.

It is the student’s responsibility to meet all departmental requirements.
THE COLLEGE OF PHARMACY at the University of New Mexico offers a five-year undergraduate program leading to the degree of Bachelor of Science in Pharmacy. This program consists of one year of preprofessional training followed by four years of study in the College of Pharmacy. The College of Pharmacy also cooperates with the School of Business and Administrative Sciences to offer a combined B.S. in Pharmacy/M.B.A. Program (see below).

The objective of the College of Pharmacy is to provide a program of excellence in the education of the professional pharmacist.

Professional training is directed to the teaching of those facts, concepts and unique skills that the pharmacist will require as a health scientist in the future. In addition to their scientific training, stress is placed on instilling in the students a moral, civic, and social responsibility to the public they will serve. The ethical relationship of the pharmacist to the public, to the profession, to the physician, and to other health professionals is emphasized, as is the role of the pharmacist as a consultant to the public on various health related matters.

The College of Pharmacy provides consultation to the profession of pharmacy and other Health Sciences in the State of New Mexico with respect to drug information, poison control, pharmacy practice, and clinical pharmacy service. It is engaged in service responsibility to the Bernalillo County Medical Center in the area of drug distribution and clinical pharmacy. The College of Pharmacy also operates a centralized radiopharmacy which supplies service to various hospitals and institutions throughout the State of New Mexico. In addition, the college provides pharmaceutical services to UNM students via a professional pharmacy located in the Student Health Center.

OPPORTUNITIES IN PHARMACY

The profession of pharmacy offers, to properly trained individuals, a wide variety of opportunities for service in interesting and satisfying positions. More than 80 per cent of the graduates of colleges of pharmacy enter community pharmacy practice. Opportunities in this area are available in independent pharmacies, prescription centers, and in chain pharmacies. An increasing number of graduates are entering the practice of hospital pharmacy in civilian and governmental hospitals, as well as in skilled nursing facilities. Others occupy positions as manufacturing pharmacists, pharmaceutical sales representatives, analysts for state and federal food and drug departments, and as pharmacists in the Army, Navy, Air Force, Public Health Service, and Veterans Administration. Radiopharmacists, i.e., pharmacists handling radioactive drugs, will be in increasing demand in the near future. Limited numbers of pharmacists are engaged as administrators in pharmaceutical organizations and editing or writing for pharmaceutical publications. Positions as research scientists in manufacturing plants and as teachers in colleges of pharmacy are open to those who prepare themselves by pursuing graduate work toward advanced degrees.

RECOGNITION

The College of Pharmacy is accredited by the American Council on Pharmaceutical Education, the national accrediting agency in pharmaceutical educa-
tion, and holds membership in the American Association of Colleges of pharmacy scholarships and loans follows:

FINANCIAL AID
In addition to financial aid that is available to University students generally, certain scholarships and loans are available specifically to students in the College of Pharmacy. Information and applications may be obtained from the Chairman, Grants & Financial Aids Committee, College of Pharmacy. A list of Pharmacy.

AMERICAN FOUNDATION FOR PHARMACEUTICAL EDUCATION SCHOLARSHIPS
Two scholarships of $300 each are awarded to third, fourth, or fifth year students in the College of Pharmacy who rank in the upper quarter of their class scholastically, who maintain at least a B average, and who can demonstrate need. The scholarships are made possible by an annual grant from the American Foundation of Pharmaceutical Education.

JOHN W. DARGAVEL FOUNDATION SCHOLARSHIP
One scholarship of $200 is awarded to a third, fourth, or fifth year student in the College of Pharmacy based on need. The scholarship is made possible by an annual grant from the John W. Dargavel Foundation, administered by the National Association of Retail Druggists.

DAVIS BROTHERS SCHOLARSHIP
One scholarship covering annual resident tuition is awarded to a third, fourth, or fifth year student in the College of Pharmacy on the basis of scholarship, ability, and need. The scholarship is made possible by an annual cash award from the Albuquerque Division of Davis Brothers, Inc.

THE DOROTHY AND MIESCHEL DOWE MEMORIAL FUND
Financial assistance is available to students enrolled in the College of Pharmacy from a memorial fund established in memory of Dorothy and Mieschel Dowe, who lost their lives in a tragic accident in February 1974. Dorothy Dowe was a pharmacy student at UNM.

THE ARTHUR B. HALL & ANNIE MAE HALL PHARMACY SCHOLARSHIP
The income from a $5,000 trust fund is available for a scholarship award to one or more students in the College of Pharmacy who can demonstrate financial need.

McKESSON AND ROBBINS SCHOLARSHIP
One scholarship of $300 is awarded to a third, fourth, or fifth year student in the College of Pharmacy on the basis of scholarship and need. The scholarship is made possible by an annual cash award from the El Paso and Amarillo Divisions of McKesson and Robbins, Inc.

THE WILLIAM BRADLEY SCHIRMER MEMORIAL SCHOLARSHIP
One scholarship covering resident tuition for one semester is awarded annually to a student in the College of Pharmacy who has need of financial assistance. The scholarship is derived from a memorial fund established for William Bradley Schirmer, a UNM Pharmacy student who lost his life in an automobile accident in late 1973.
HEALTH PROFESSIONS SCHOLARSHIPS
A number of scholarships of varying amounts are awarded annually to qualifying students in the College of Pharmacy. Scholarships are awarded competitively on the basis of exceptional financial need. Other eligibility requirements include U.S. citizenship and full-time enrollment (12 hours or more) in good standing (2.00 Scholastic Index or better). The scholarships are made possible by an annual grant from the Bureau of Health Manpower Education of the Department of Health, Education, and Welfare. It should be emphasized that these scholarships are dependent on annual or periodic federal legislation for funding. Therefore, it is frequently impossible to predict the annual amount of financial support in advance.

PHARMACY STUDENT LOAN PROGRAM
Low-interest loans, from Federal funds, are available to regularly enrolled students in the College of Pharmacy who can demonstrate financial need.

The student must be enrolled in the College of Pharmacy to qualify for a loan under this program. Interested students should apply to the Director of Student Aids, Mesa Vista Hall. Deadlines for applications are June 1 for the fall semester and November 1 for the spring semester.

LAWS RELATING TO LICENSURE AS A PHARMACIST
In order to become eligible for licensure as a registered pharmacist upon graduation, the pharmacy student must first register as a "pharmacy intern" and serve a designated period of internship. Pharmacy students are advised to begin their internship training as early as possible in their academic career. By doing so, it may be possible to be eligible for Board of Pharmacy examinations and licensure immediately upon graduation.

The qualifications for registration as a "pharmacy intern" under the New Mexico Pharmacy Act are as follows: "an applicant shall: be not less than 18 years of age, have completed not less than 30 semester hours or the equivalent thereof in an accredited college of pharmacy, and meet other requirements established by regulation of the Board of Pharmacy."

The qualifications for registration as a pharmacist by examination under the New Mexico Pharmacy Act are as follows: "an applicant shall: be not less than 18 years of age and not addicted to drugs or alcohol, hold a degree from an accredited college of pharmacy, have not less than one year of internship experience, and pass an examination prepared and administered by the Board of Pharmacy."

Additional information on registration as a pharmacy intern and licensure as a pharmacist may be obtained from the New Mexico Board of Pharmacy, Room 1205, 505 Marquette Avenue, N.W., Albuquerque, New Mexico 87102.

HIGH SCHOOL PREPARATION
It is important that the high school student who wishes to pursue the pharmacy program at the University of New Mexico College of Pharmacy orient his subject selection in the proper direction at the earliest possible time.

It is recommended that the student intending to obtain a Bachelor of Science degree in Pharmacy take the following subjects in high school: one year of chemistry; one year of biology; one year of physics; mathematics, including at
least two years of algebra and one year of geometry and trigonometry; four years of English; and one year of social sciences and/or humanities. These are recommended subjects, NOT requirements for admission.

MINORITY RECRUITMENT PROGRAM

The College of Pharmacy has initiated a program to attract students from minority group and low-income backgrounds. The program has been funded by a HEW Special Project Grant and involves a wide range of recruitment and retention activities including a Minority Educational Enrichment Program designed to assist students with academic problems.

WICHE PROGRAM

The College of Pharmacy is a participant in the reciprocal tuition program coordinated by the Western Interstate Commission on Higher Education (i.e. WICHE). Under the program, pharmacy students may be eligible for tuition assistance if they are a resident of a member western state that does not have a school or college of pharmacy and who participate in the pharmacy component of the WICHE program. Additional information concerning the WICHE program can be found elsewhere in this Bulletin.

COMBINED PROGRAM

The College of Pharmacy cooperates with the School of Business and Administrative Sciences to offer a combined B.S. in Pharmacy/M.B.A. program. Under the combined program a student may earn the two degrees within six years including two summer sessions. To complete the requirements for both degrees, it is recommended that the student begin planning for the combined program as early as possible in his college career. Details are available from the College of Pharmacy and the School of Business and Administrative Sciences.

ADMISSION

If the number of applications from well qualified students exceeds the number that can be accommodated, successful completion of the minimum requirements as stated below is no guarantee of admission. All applications for admission to the College of Pharmacy are screened by the Admissions Committee of the College of Pharmacy, and selection of successful applicants is made on a competitive basis. While not a requirement, it is strongly recommended that applicants complete the courses of the first year of the curriculum, with emphasis on biology, chemistry, and mathematics. Preference is given to New Mexico residents.

The College of Pharmacy admits students for the fall semester only. Successful applicants are selected by the Admissions Committee during the month of June.

All freshman students are admitted to the University College. A detailed statement of entrance requirements is in the “Admission” section of this catalog.

ADMISSION FROM UNIVERSITY COLLEGE. The minimum requirements for transfer from the University College to the College of Pharmacy for the study of Pharmacy are:
1. Twenty-six hours of earned credit.

2. (a) A scholarship index of at least 2.2 on all hours attempted; or

   (b) A scholarship index of at least 2.2 on all hours attempted in the previous 2 semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous 2 semesters, a scholarship index of at least 2.2 shall be required on all work attempted in as many previous consecutive semesters as are necessary to bring the student's total hours attempted to at least 30.

The transfer petition must be signed and filed in the University College not later than the end of the twelfth week of the spring semester in order to be considered for admission to the College of Pharmacy in the following fall semester. Students are urged to talk to the Chairman of the Admissions Committee of the College of Pharmacy before filing the transfer petition.

TRANSFER FROM OTHER COLLEGES IN THE UNIVERSITY

Transfer to the College of Pharmacy from another degree-granting college of the University of New Mexico requires a scholarship index of at least 2.2 on all work attempted while the student was enrolled in the other degree granting college(s). Students should notify the Chairman of the Admissions Committee of the College of Pharmacy of their intent to transfer not later than the end of the twelfth week of the spring semester in order to be considered for admission to the College of Pharmacy in the following fall semester.

TRANSFER FROM OTHER COLLEGES AND INSTITUTIONS

Transfer to the College of Pharmacy from other accredited colleges and institutions requires at least 26 semester hours of acceptable credit with a scholarship index of at least 2.2 on all hours attempted in the other colleges or institutions.

Applications and credentials for admission to the University of New Mexico must be received in the University of New Mexico Admissions Office NOT LATER THAN APRIL 1 in order to be considered for admission to the College of Pharmacy in the following fall semester.

SCHOLASTIC REGULATIONS

In general, students in the College of Pharmacy will be governed by the scholastic regulations described under “General Academic Regulations.” In addition, the faculty of the College of Pharmacy has adopted the following rules and regulations:

1. Deficiencies in grade points incurred while in residence may not be removed by an excess of grade points earned in extension or correspondence courses.

2. Credit will not be transferred for any required professional course or professional elective taken in another institution if an unsatisfactory grade has been previously received in a course at the University of New Mexico. For this purpose a grade of F or D in a course in the fields of Pharmacy (Pharmacy and Pharmaceutics, Pharmaceutical Chemistry,
Pharmacognosy, Pharmacology and Toxicology, Pharmacy Administration, Institutional Pharmacy, Clinical Pharmacy, and Radiopharmacy) shall be considered to be an unsatisfactory grade.

3. Generally, only work of C quality or better is acceptable as credit toward graduation in the required courses in the major fields of Pharmacy (Pharmacy and Pharmaceutics, Pharmaceutical Chemistry, Pharmacognosy, Pharmacology and Toxicology, Pharmacy Administration, Institutional Pharmacy, Clinical Pharmacy, and Radiopharmacy.) A student may receive credit towards graduation, however, if after completion of all course requirements, he has no more than three grades of D in the above required Pharmacy courses. Beginning with the 1977 graduating class no more than two of these grades of D may be obtained prior to enrolling in the professional courses of the fifth year. (For the purposes of administering this rule, each semester of a course which runs throughout the year shall be considered as a separate course.)

4. No course selected as part of the required College of Pharmacy curriculum or as a professional course or professional elective may be taken under Credit (CR) Grade Option.

5. No student will be permitted to enroll in the professional courses of the fifth year if his/her grade point average is less than 2.0 or if he/she has more than two grades of D in required Pharmacy courses as stated in item 3 above.

6. Beginning with the 1979 graduating class a Pharmacy student will not be allowed to enter the fifth year unless a grade of C or better has been obtained in all courses offered by the College of Pharmacy in the first four years of the Pharmacy curriculum. (See also item number 4 under "Requirements for Graduation.")

7. All students who have been placed on probation are required to obtain counseling from their academic adviser in the college.

8. The following are definitions of electives for the College of Pharmacy:
   (a) Non-Professional Electives—courses offered by other colleges and departments.
   (b) Professional Electives—courses offered by the College of Pharmacy and courses offered by other colleges and departments as approved by the option adviser.
   (c) Professional Courses—courses offered by the College of Pharmacy only (i.e. excluding Dental Programs).

9. A student may not repeat a course more than once unless he/she has shown an improvement in letter grade or received a "W". For any student falling under this regulation, it is mandatory that the Academic Scholarship Committee review the conditions prior to further action being taken.

MAXIMUM NUMBER OF HOURS

Students in the College of Pharmacy may not enroll for more than 20 hours per semester without prior approval from their academic adviser in the college.
ACADEMIC ADVISEMENT

The Chairman of the Admissions Committee of the College of Pharmacy is the academic adviser for all pre-pharmacy students.

All enrolled pharmacy students are assigned to individual faculty members of the College of Pharmacy and are encouraged to consult their advisers for academic advisement of a general nature or for information and advice in curriculum matters.

MINIMUM RESIDENCE REQUIREMENT

Students entering the College of Pharmacy with advanced standing from non-pharmacy colleges are required to complete not less than six semesters of full-time resident study before they will be recommended for the degree of Bachelor of Science in Pharmacy. Exceptions to this rule must be petitioned for by the student and voted upon by the faculty. Those transferring from other colleges of pharmacy may be given residence credit for more than two years of work provided the courses and credit are applicable to the work outlined in the curriculum of this College.

REQUIREMENTS FOR GRADUATION

The degree of Bachelor of Science in Pharmacy is granted upon completion of all the specified requirements. The candidate for this degree must:

1. Complete all the work outlined in the pharmacy curriculum.

Due to changes in the College of Pharmacy curriculum, elective requirements for graduation will differ depending upon the year of study the student is commencing. Pharmacy students are required to take not less than twelve hours of non-professional electives during the first four years of the curriculum. Professional elective requirements and professional course requirements will vary depending upon the fifth year option selected.

2. Complete a total of not less than 160 semester hours.

3. Maintain a grade point average of 2.0 on all hours attempted at the University of New Mexico in satisfying the scholastic requirement of the University for the bachelor's degree.

4. Receive grades of C or better in all required courses in the fields of Pharmacy (Pharmacy and Pharmaceutics, Pharmaceutical Chemistry, Pharmacognosy, Pharmacology and Toxicology, Pharmacy Administration, Institutional Pharmacy, Clinical Pharmacy, and Radiopharmacy). However, a student may receive credit towards graduation if, after completion of all course requirements, the student has no more than three grades of D in the above required Pharmacy courses. Beginning with the 1979 graduating class, a student will not be allowed to graduate unless a grade of C or better has been achieved in all courses offered by the College of Pharmacy. (For the purpose of administering this rule, each semester of a course which runs throughout the year shall be considered as a separate course.)

5. Satisfy the minimum residence requirement.
6. Completion of the Undergraduate Program Test battery, including Aptitude Tests and the three Area Tests during the first semester of the senior year. Students will automatically be informed of the testing and the interpreted results for self-evaluation. Questions regarding the Undergraduate Program should be directed to the Testing Division.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY

(Description of the courses offered will be found in the catalog section "Courses of Instruction.")

<table>
<thead>
<tr>
<th>First Year (Preprofessional Year)</th>
<th>Second Year (First Professional Year)</th>
<th>Third Year (Second Professional Year)</th>
<th>Fourth Year (Third Professional Year)</th>
<th>Fifth Year (Fourth Professional Year)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td><strong>Second Semester</strong></td>
<td><strong>Third Semester</strong></td>
<td><strong>Fourth Semester</strong></td>
<td><strong>Fifth Semester</strong></td>
</tr>
<tr>
<td>&quot;Engl 101 Wrtg w/Rdgs in Expos</td>
<td>3 English 102 or Engl 220</td>
<td>4 Pharm 342L Operative Pharm II</td>
<td>4 Pharm 444 Biopharmaceutics</td>
<td>16</td>
</tr>
<tr>
<td>&quot;Math 123 Trigonometry&quot;</td>
<td></td>
<td>2 Pharm 296 O T C Drugs &amp; Prod</td>
<td>4 Pharm 476L Phrncol III</td>
<td></td>
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<tr>
<td>Elective</td>
<td>1 Elective</td>
<td>1 Elective</td>
<td>3 Elective</td>
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<td><strong>First Semester</strong></td>
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<td><strong>Third Semester</strong></td>
<td><strong>Fourth Semester</strong></td>
<td><strong>Fifth Semester</strong></td>
</tr>
<tr>
<td>Pharm 291 Pharm Orient</td>
<td>2 Pharm 244 Hist of Pharm</td>
<td>4 Pharm 324 Biochem</td>
<td>4 Pharm 444 Biopharmaceutics</td>
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<tr>
<td>Pharm 239L Pharm Path I</td>
<td>2 Pharm 240L Pharm Path II</td>
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</tr>
<tr>
<td>Physcs 151 Genl Physics</td>
<td>3 Physcs 152 Genl Physics</td>
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<tr>
<td>Physcs 153L Genl Physics Lab</td>
<td>1 Elective</td>
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<td><strong>Third Semester</strong></td>
<td><strong>Fourth Semester</strong></td>
<td><strong>Fifth Semester</strong></td>
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</tr>
<tr>
<td>English 102 or Engl 220</td>
<td>3 English 102 or Engl 220</td>
<td>4 Pharm 342L Operative Pharm II</td>
<td>4 Pharm 444 Biopharmaceutics</td>
<td></td>
</tr>
<tr>
<td>Chem 102L Genl Chem</td>
<td>4 Chem 102L Genl Chem</td>
<td>2 Pharm 336L Clinical Pharm 1A</td>
<td>3 Pharm 462 Org Pharm Chem II</td>
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<tr>
<td>Elective</td>
<td>3 Elective</td>
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<td><strong>Third Semester</strong></td>
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<td><strong>Fifth Semester</strong></td>
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<tr>
<td>Pharm 291 Pharm Orient</td>
<td>2 Pharm 244 Hist of Pharm</td>
<td>4 Pharm 444 Biopharmaceutics</td>
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<tr>
<td>Pharm 239L Pharm Path I</td>
<td>2 Pharm 240L Pharm Path II</td>
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<tr>
<td>Physcs 151 Genl Physics</td>
<td>3 Physcs 152 Genl Physics</td>
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<tr>
<td>Physcs 153L Genl Physics Lab</td>
<td>1 Elective</td>
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<td><strong>Fourth Semester</strong></td>
<td><strong>Fifth Semester</strong></td>
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<tr>
<td>Pharm 291 Pharm Orient</td>
<td>2 Pharm 244 Hist of Pharm</td>
<td>4 Pharm 444 Biopharmaceutics</td>
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<tr>
<td>Pharm 239L Pharm Path I</td>
<td>2 Pharm 240L Pharm Path II</td>
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<tr>
<td>Physcs 151 Genl Physics</td>
<td>3 Physcs 152 Genl Physics</td>
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<td></td>
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</tr>
<tr>
<td>Physcs 153L Genl Physics Lab</td>
<td>1 Elective</td>
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<tr>
<td><strong>Fifth Semester</strong></td>
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<td></td>
</tr>
<tr>
<td>Pharm 291 Pharm Orient</td>
<td>2 Pharm 244 Hist of Pharm</td>
<td>4 Pharm 444 Biopharmaceutics</td>
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<tr>
<td>Pharm 239L Pharm Path I</td>
<td>2 Pharm 240L Pharm Path II</td>
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<tr>
<td>Physcs 151 Genl Physics</td>
<td>3 Physcs 152 Genl Physics</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Physcs 153L Genl Physics Lab</td>
<td>1 Elective</td>
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</tbody>
</table>

1 Required by students who have not successfully completed trigonometry in high school or who have not tested out of the course. Elective credit (1 unit) will be granted to those students who successfully complete Math 123.

2 Biology 121L-122L may be accepted in lieu of Biology 123L, and for transfer students.

3 A student's exemption from English 101 and 102 will be accepted by virtue of his/her score on the A&S Writing Skills Test.
4. Radiopharmacy
5. Preparation for Post-baccalaureate Studies

In the Preparation for Post-baccalaureate Studies area, the student may select specialized courses in preparation for graduate studies toward a Master of Science or a Ph.D. in Pharmaceutical Chemistry, Pharmacology, Pharmaceutics, Pharmacy Administration or Pharmacognosy; Master of Business Administration; Doctor of Pharmacy in Clinical Pharmacy; Master of Science in Radiopharmacy; or Master of Science or Residency Certificate in Hospital Pharmacy.

The Fifth Year option must be selected (in the Spring) by all Fourth Year students at least one week prior to the start of preregistration for the Fall Semester of the Fifth Year. The option must be declared in writing after approval of the faculty member(s) concerned. Enrollment for the Radiopharmacy option and the Preparation for Post-baccalaureate Studies option may be limited.

Students will be permitted to change their option only after consultation with and approval by their previous and future option advisers prior to or within the first two weeks of the Fall Semester of their senior year.

When a student selects a given option, he/she is required to take all of the required courses in the option.

Students are reminded that it is their individual responsibility to make certain that sufficient elective hours are secured in the Fifth Year program to attain the total of 160 credit hours required for graduation.

1. General Pharmacy Option:

<table>
<thead>
<tr>
<th>First Semester</th>
<th></th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharm 437 Clinical V</td>
<td>3</td>
<td>Pharm 422 Pharm Law</td>
</tr>
<tr>
<td>Pharm 493 Pharm Prac I</td>
<td>2</td>
<td>Pharm 494 Pharm Prac II</td>
</tr>
<tr>
<td>Professional Courses</td>
<td>9</td>
<td>Professional Courses</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

2. Community Pharmacy Option:

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Pharm 437L Clin Pharm V</td>
<td>8</td>
<td>Pharm 422 Pharmacy Law</td>
</tr>
<tr>
<td>Pharm 421 Pharm Acctg &amp; Fin Mgmt</td>
<td>3</td>
<td>Pharm 424 Phm Retlg Mgmt</td>
</tr>
<tr>
<td>Pharm 423 Phm Admin &amp; Org Behav</td>
<td>3</td>
<td>Pharm 482 Toxicology I</td>
</tr>
<tr>
<td>Professional Electives</td>
<td>3-9</td>
<td>Professional Electives</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>9-16</strong></td>
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</tbody>
</table>

3. Hospital Pharmacy Option:

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Pharm 437L Clin Phm V</td>
<td>5-8</td>
<td>Pharm 422 Pharm Law</td>
</tr>
<tr>
<td>Pharm 451 Inst Pharm Proc</td>
<td>3</td>
<td>Pharm 452 Inst Phm Manag</td>
</tr>
<tr>
<td>Pharm 423 Pharm Admin Org Behav</td>
<td>3</td>
<td>Pharm 482 Toxicology I</td>
</tr>
<tr>
<td>Professional Electives</td>
<td>1-6</td>
<td>Professional Electives</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12-20</strong></td>
<td><strong>12-18</strong></td>
</tr>
</tbody>
</table>

4. Radiopharmacy Option:

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Summer:</td>
<td></td>
</tr>
<tr>
<td>Rad T 201 Intermed Radiophysics</td>
<td>2</td>
</tr>
<tr>
<td>Rad T 205 Radiation Protection</td>
<td>1</td>
</tr>
<tr>
<td>NMDT 313 Clin Nuc Med</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMDT 301 Adv Rad Physics</td>
<td>2</td>
</tr>
<tr>
<td>NMDT 341 Nuc Instrument</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 412L Radiopharm I</td>
<td>4</td>
</tr>
<tr>
<td>Pharm 437 Clin Phm V</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 493 Pharm Prac I</td>
<td>2</td>
</tr>
<tr>
<td>Pharm 417 Radio Pharm Rot I</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

2 Offered by School of Business & Administrative Sciences as B&AS 361.
5. Preparation for Post-Baccalaureate Studies Option:

a. Combined B.S. Pharm.-M.B.A. Program

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharm 421 Phm Acctg &amp; Fin Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>B&amp;S 501 Quant Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>B&amp;S 502 Acct &amp; Manag Info Syst I</td>
<td>3</td>
</tr>
<tr>
<td>B&amp;S 504 Organiz Econ I</td>
<td>3</td>
</tr>
<tr>
<td>B&amp;S 506 Organiz Behavior I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Following completion of the Fifth Year in the above program and one summer session, the student electing this program would enter the final year of the M.B.A. program.

b. Pharmacy Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharm 437L Clin Pharm V</td>
<td>8</td>
</tr>
<tr>
<td>Pharm 421 Phm Acctg &amp; Fin Mgmt</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 423 Phm Org &amp; Admin Behav</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 425 Seminar in Phm Admin</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

Or, Pharm 424 may be selected as an alternate, upon consultation with the instructor.

† Select from the following after consultation with the instructor: any professional pharmacy course, Chem 315L, Chem 414, Chem 415L, Math 162, Math 163.

‡ Depending on the student’s interest, selection will include professional pharmacy courses and suitable offerings from the Departments of Chemistry, Mathematics, Physics or Biology.

c. Clinical Pharmacy

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharm 437L Clin Pharm V</td>
<td>8</td>
</tr>
<tr>
<td>Pharm 423 Phm Admin &amp; Org Behav</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
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</table>

[d. Pharmaceutical Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharm 463 Adv Pharm Chem I</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 465L Org Phm Chem Lab I</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 467 Chem of Nat Prod I</td>
<td>3</td>
</tr>
<tr>
<td>†Electives</td>
<td>0-6</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

†Electives 0-3

12-18

e. Pharmacology

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Pharm 437L Clin Pharm V</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 477L Biol Assays</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 485L Biochem Pharmacol</td>
<td>4</td>
</tr>
<tr>
<td>Med Sc 589 Adv Biometry for Rsch</td>
<td>3</td>
</tr>
<tr>
<td>Med Sc 691 Sc Writ for Grad</td>
<td>1</td>
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<tr>
<td><strong>Total</strong></td>
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</table>

f. Pharmacognosy

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Pharm 437L Clin Pharm V</td>
<td>8</td>
</tr>
<tr>
<td>Pharm 467 Chem of Nat Prod I</td>
<td>3</td>
</tr>
<tr>
<td>Chem 351 Adv Quant Anal</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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</table>

Pharm 468 Chem of Nat Prod II 3

Biol 363L Flora of N. Mex

or

Biol 372L Plant Morphogen 4

Med Sc 588 Adv Biometry for Rsch 3

Pharm 422 Pharm Law 3

Professional Electives 0-5

13-18

g. Pharmaceutics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Pharm 437 Clin V</td>
<td>3</td>
</tr>
<tr>
<td>Pharm 449L Pharmacokinetics</td>
<td>3</td>
</tr>
<tr>
<td>Med Sc 691 Sc Writ for Grad</td>
<td>1</td>
</tr>
<tr>
<td>Pharm 497 Problems</td>
<td>5</td>
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<tr>
<td>†Professional Electives</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Pharm 450 Clin Pharmaceut 3

Pharm 459 Problems 5

Pharm 422 Pharm Law 3

€ Depending on the student’s interest, selection will include professional pharmacy courses and suitable offerings from the Departments of Chemistry, Mathematics, Physics or Biology.
h. Hospital Pharmacy

Pharm 437L Clin Pharm V 5  Pharm 482 Toxicology I 3
Pharm 451 Inst Pharm Prac 3  Pharm 452 Inst Phm Manag 3
Pharm 423 Pharm Admin & Org Behav 3  Pharm 456 Rsch Des & Stat Meth 3
Pharm 453 Sem Hosp Phm Admin 2  Pharm 422 Pharm Law 3
Cp Sci 155 Prob Solv Comp 3  Pharm 459 Sterile Preps 3

16  15

DENTAL PROGRAMS

The Dental Programs have three offerings:

1. A Dental Assisting Program leading to a Certificate of Proficiency in Dental Assisting;
2. A two year Dental Hygiene Program leading to the degree of Associate of Science in Dental Hygiene;
3. A program leading to the degree of Bachelor of Science in Dental Hygiene. This requires 120 days of working experience as a licensed dental hygienist and two or more semesters of academic work beyond the Associate of Science Degree requirements.

DENTAL ASSISTING

As auxiliary personnel to the dental profession, dental assistants perform supportive duties to the dentist in all dental procedures, assume responsibilities in dental office management, instrument sterilization and x-ray developing. Individuals trained as dental assistants may be employed immediately upon completion of their education. Licensure is not required.

The Dental Assisting Program is a one year curriculum which begins each year in the fall semester only. It is open to applicants who meet University admission requirements and are selected by an Admissions Committee of the Program. Applicants transferring from another institution must have at least a C average.

The class each year is limited to 16 students. The Admissions Committee selects the class on the basis of high school and college records, and a personal interview. High school or college courses in general Biology and typing are prerequisites.

In addition to tuition, housing, books and other usual school expenses, the Dental Assisting Program requires fees for clinic and laboratory uniforms, and fees for instruments and dental supplies.

APPLICATION PROCEDURE

1. Submit a formal application, including all required transcripts and test scores, to the University of New Mexico, Office of Admissions (refer to “Admission and Registration”);
2. Obtain a dental programs application form from the Dental Programs Office and follow the instructions therein.

ALL OF THE ADMISSION REQUIREMENTS MUST BE COMPLETED BY MARCH 1 in order to be considered for the Dental Assisting Program.

Curriculum leading to the Certificate in Dental Assisting

Changes in the curriculum are anticipated, for details of the curriculum contact the Dental Programs.
REQUIREMENTS FOR THE CERTIFICATE IN DENTAL ASSISTING
1. Completion of all curriculum requirements with a 2.0 average.
2. Unanimous recommendation by the Faculty of the Dental Programs.

Students who complete the Dental Assisting Program may elect to take the certification examination of the American Dental Assistants' Association. This Examination is administered at the University of New Mexico on demand each spring and fall.

DENTAL HYGIENE
PROGRAM FOR ASSOCIATE OF SCIENCE DEGREE IN DENTAL HYGIENE

Dental Hygienists are auxiliary personnel to the dental profession. Opportunities for hygienists are available in a variety of clinical settings, including private dental practice where the hygienist performs dental prophylaxes, applies decay-preventatives, and instructs patients in preventive home care.

The Dental Hygiene Associate Degree Program is a four semester curriculum which begins each year during the fall semester only. Facilities limit each class to 24 students who are selected by an Admissions Committee to the Program. In addition to tuition, housing, books and other usual school expenses, the Dental Hygiene Program requires fees for instruments and dental supplies, fees for clinic and laboratory uniforms, and an additional fee for books.

REQUIREMENTS FOR ADMISSION
1. High school graduation or equivalent, with at least a C average.
2. Completion of all courses listed under the pre-professional curriculum of the Dental Hygiene Program.

Preference is given to residents of New Mexico. Potential students who are past the age of most college students are not handicapped by this factor and are encouraged to apply. It should be noted that an increasing number of men are entering the field of dental hygiene.

APPLICATION PROCEDURE
1. Students transferring from another institution or those seeking re-admission to the University of New Mexico must submit a formal application to the University of New Mexico, Office of Admissions. Please refer to "Admissions" section of this bulletin.
2. All applicants should obtain a Dental Programs application form from the Dental Programs Office and follow the instructions therein.
3. Send scores of all required standardized tests to the program.

ALL OF THE ADMISSIONS REQUIREMENTS MUST BE COMPLETED BY MARCH 1 in order to be considered for the Dental Hygiene Program. Credentials are screened by the Admissions Committee in March. Applicants who successfully complete this portion of the application are then invited to meet with the Admissions Committee for a brief personal interview. Those applicants who are provisionally selected by the Admissions Committee will be required to submit medical and dental history forms. Notification of the selection of applicants is made in April.

REQUIREMENTS FOR THE ASSOCIATE OF SCIENCE DEGREE

The accepted candidate must:
1. Complete all the course work required, maintaining a scholastic average of at least 2.0.
2. Be unanimously recommended by the Dental Hygiene Programs Faculty.
   Students who complete the Dental Hygiene Program may elect to take the National Board Examination of the American Dental Hygienists’ Association.

Curriculum Leading to the Associate of Science in Dental Hygiene Degree
(Descriptions of the courses offered will be found, listed by departments, in the catalog section “Courses of Instruction.”)

<table>
<thead>
<tr>
<th>PREPROFESSIONAL CURRICULUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
</tr>
<tr>
<td>Engl 101 Wrtg/Rdgs in Expos</td>
</tr>
<tr>
<td>Psych 101 Gen Psych</td>
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<td>Chem 141L Elem Gen Chem</td>
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<td>Bio 136-139L Human Anatomy &amp; Physiology/Lab</td>
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Changes in the professional curriculum are anticipated, for details of the curriculum contact the Dental Programs.

PROGRAM FOR THE BACHELOR OF SCIENCE DEGREE IN DENTAL HYGIENE

This offering is designed to prepare teachers of clinical dental hygiene. Therefore at least 120 days of clinical work experience as a licensed hygienist are required. This program is available to selected students who have received an Associate Degree in Dental Hygiene or a Certificate in Dental Hygiene from a school accredited by the American Dental Association's Council on Dental Education. Applicants for admission to the Bachelor’s Degree Program must meet these requirements:

1. Admissibility to the University of New Mexico as described in the “Admissions and Registration” section of the bulletin;
2. Written letter of intent to the Director of the Dental Programs;
3. A 2.5 grade point average from the dental hygiene Associate Degree or Certificate program;
4. Clinical demonstration of the skills currently taught by the University of New Mexico Dental Programs.
5. Documentation of at least 120 days of work experience in clinical dental hygiene. Forms are available from the Dental Programs.
6. Records of medical and dental examinations within the past three months.
7. Letters of recommendation from all employers from the time of receiving the Dental Hygiene Certificate or degree to the present.
8. Completion of standardized tests as required by the Dental Programs.

ALL OF THE ABOVE REQUIREMENTS MUST BE COMPLETED BY MARCH 1 for entrance fall semester; November 1 for entrance the spring semester.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE DEGREE

1. Completion of 132 semester hours including the required courses below;
2. At least a 2.0 scholastic index in all hours attempted at the University of New Mexico and a 2.4 average in all Dental Hygiene courses;
3. Written application for graduation to be submitted during the semester prior to expected graduation date. This is to be submitted to the Dental Programs Office.

4. Unanimous recommendation by the Faculty of the Dental Programs.

CURRICULUM LEADING TO THE BACHELOR OF SCIENCE DEGREE IN DENTAL HYGIENE

(Descriptions of the courses offered will be found, listed by departments, in the catalog section "Courses of Instruction."

First and second year requirements are fulfilled by completion of an Associate Degree or Certificate program in dental hygiene at an accredited two-year school.

Changes in the curriculum are anticipated, for details of the curriculum contact the Dental Programs.
OTHER DIVISIONS OF THE UNIVERSITY
DIVISION OF CONTINUING EDUCATION AND COMMUNITY SERVICES

THE DIVISION of Continuing Education and Community Services is a separate unit of the University of New Mexico, responsible for conducting instruction by Independent Study, Extension classes and non-credit courses for adults. The division also supervises the programs of all students enrolled in the University for Non Degree work.

EXTENSION CLASSES. Any of the regular University courses may be offered by extension provided there is a large enough group in any one center to justify doing so and as long as the class is not dependent upon the campus library and laboratory facilities. Persons interested in having an extension class offered in a specific community should address their inquiries to the Director, Division of Continuing Education and Community Services, the University of New Mexico, Albuquerque, New Mexico, 87131.

INDEPENDENT STUDY COURSES. A number of courses are offered which are carried on entirely by mail and are planned and conducted by qualified University personnel. Credit received from these courses may be applied toward an undergraduate degree to the extent of 30 semester hours, subject to the approval of the dean of the college in which the student is enrolled. (See “General Academic Regulations.”)

NON DEGREE COURSES

The division offers a program of late afternoon, evening and Saturday non-credit courses making it possible for adults to supplement their education along general, cultural lines or in the fields of their special interest.

The Bulletin listing non-credit courses offered each semester may be obtained from the Director, Division of Continuing Education and Community Services, the University of New Mexico, Albuquerque, New Mexico, 87131.

CONFERENCES, INSTITUTES, AND SHORT COURSES

All conferences and special courses connected with The University of New Mexico are coordinated through the Division of Continuing Education and Community Services.

Business, professional, or lay groups interested in a series of meetings to discuss topics of special interest should contact the Director, Division of Continuing Education and Community Services, who will make the necessary arrangements for the meetings.

ADULT EDUCATION PROGRAMS

To any community, club, or organization which wishes help in setting up adult education activities the University will give all the assistance possible. Educational activities such as adult basic education, club study groups, forums, lecture series, etc., will receive special attention.

CIVIL PREPAREDNESS PROGRAM

Under contract with the Defense Civil Preparedness Agency, courses in various civil preparedness specialities are offered to the public free of charge.
Courses are normally conducted, in cooperation with the State Office of Civil Emergency Preparedness, throughout the state where there is a need to increase the civil preparedness operational capability in the area. Conferences and exercises are also conducted in various communities in cooperation with municipal and county officials. Another component of this program provides assistance in developing and updating disaster and emergency operations plans for all schools in New Mexico and to incorporate into the curricula of all schools a program of safety, disaster readiness and environmental information. The program also acts as liaison between the schools and state and local civil preparedness programs, assists in obtaining architectural and engineering services where desired by schools and provides “on-site assistance” support to those communities participating in that program.

OFF-CAMPUS BRANCH COLLEGES AND RESIDENCE CENTERS

The University of New Mexico has as its primary responsibility the task of serving the citizens of the state by offering opportunities for higher education. It has generally been the policy of the University to provide these opportunities on the main campus, with supplementary programs in extension and independent study. In addition to these programs, the University has two branch colleges and two residence centers.

BRANCH COLLEGES

The two Branch Colleges of the University of New Mexico offer courses within the first two years of a baccalaureate program and are under the supervision of the Division of Continuing Education. Academic requirements and regulations are the same at the Branches as on the main campus.

All credits earned by students while attending a Branch College of the University of New Mexico are transferable to appropriate schools and colleges on the main campus of the University. Credits are also transferable to other colleges and universities in New Mexico and surrounding states on the same basis as credit earned on the main campus. Students enrolling at the Branches should contact a representative from the college of their choice to determine which courses are applicable toward the degree desired.

All communications regarding entrance to the Branches should be addressed to the Dean of Admissions and Records, The University of New Mexico, Albuquerque, New Mexico, 87131. The University requires students to file applications for admission, to pay a $15 application fee, and to have their credentials sent directly to the Dean of Admissions and Records from the high school or college previously attended. Transcripts in the possession of students are not acceptable for entrance purposes.

THE GALLUP BRANCH

The University of New Mexico-Gallup Branch began its first full-term instruction in September 1968. The Branch offers courses within the first two years of a baccalaureate program. In addition, the Branch offers technical and para-professional post-high school courses which are responsive to needs of the Gallup area.

At the present time the Branch occupies a building donated to the Branch College by the Gallup Lions Club. The Branch also uses facilities in the Gallup
High School, including classrooms and laboratories. Most classes are held in the late afternoon and evening, although some are scheduled in the daytime. A new facility including classrooms, laboratories, library, and office space was completed in 1974.

**THE NORTHERN BRANCH**

The University of New Mexico-Northern Branch was established in February 1973. Instruction at the Branch began with the 1973 Summer Session and headquarters are located near Española.

The Branch District encompasses seven school districts, and facilities for Branch College classes are secured in the different high school classrooms and the laboratories in the area where demands warrant such use. Classes are held in the late afternoons and evenings although some are scheduled for the daytime.

In connection with the Northern Branch of the University of New Mexico, the College of Engineering offers a two-year associate degree program in Instrumentation Engineering Technology at Los Alamos. Further description of the program may be seen in the “Engineering” section of this catalog.

**THE LOS ALAMOS GRADUATE CENTER**

The University of New Mexico and the Los Alamos Scientific Laboratory (LASL), operated by the University of California (Berkeley), cooperate in the advanced training of graduate students specializing in chemistry, engineering, mathematics, and physics. Under these arrangements, it is possible for properly qualified doctoral candidates to carry on research for their dissertation. Acceptance of students for research at Los Alamos is subject to certain conditions specified by the Laboratory. Further information concerning work offered may be obtained by writing to the Director at Los Alamos or to the chairman of the department concerned at the University.

**ANDEAN STUDY AND RESEARCH CENTER, QUITO, ECUADOR**

This Center was established to provide juniors, seniors, and graduate students in good standing at the University of New Mexico an opportunity for overseas field work, study, and research. The Andean Center constitutes a physical transfer of a portion of the Latin American Center’s program to an overseas site and is, therefore, a fully accredited program offering courses in Latin American languages (including Portuguese), literatures, and social sciences applicable toward degrees. For information concerning courses offered during specific semesters, students should contact the Director, Latin American Center (see p. 86).

The Andean Center occupies a handsome facility independent of either of the Quito universities but close enough to both to facilitate class attendance at either.

**DIVISION OF PUBLIC ADMINISTRATION**

The Division offers a Master of Arts degree in Public Administration to prepare students in a graduate program for careers in the public service. This program is built around a core curriculum in Public Administration, but permits a number of options for persons with special interests. The inter-departmental and multi-disciplinary nature of the program is designed to utilize all of the Univer-
The Division's resources relating to public administration and to offer students a broad choice in professional preparation.

Course offerings within the Division are set up to provide: (1) general preparation for students seeking to enter career service at an entrance level in local, state, or federal government; (2) special preparation in the administrative and policy aspects of the public service for persons who already have achieved a subject-matter competence; and, (3) upgrading courses for persons already in the public service.

The Division offers options for students interested in:

**PUBLIC SCIENCE POLICY AND ADMINISTRATION.** The program for advanced study in this field offers a special focus on public science policy and administration for scientists and administrators presently engaged in mid-management positions in scientific industries and agencies, and for students with some background in the fields of science, engineering, and administration.

**COMBINATION WITH LAW DEGREE.** Law students at the University who are entering their second year of legal studies may enter the program and work for both a Law degree and the Master of Arts degree in Public Administration.

For description of courses offered in Public Administration, see the "Courses of Instruction" section of this catalog. For Curriculum see the Graduate School Bulletin.

**DIVISION OF COMPUTING AND INFORMATION SCIENCE**

The University offers a Master of Science Degree in Computing and Information Science to prepare students for careers in the use of computers in a wide variety of applications. The program is built upon a core of courses in computing science, and encourages the election of options in related fields or in fields of application such as mathematics, physical sciences, business, library science, law, medicine, education or the humanities.

The Division also offers with the College of Business and Administrative Sciences, a dual degree program in which a student may earn an M.B.A. degree in Business and Administrative Sciences, and a Master of Science in Computing and Information Science.

For description of courses, faculty, Major, Minor in Computing/Computer Science, and Honors in Computing and Information Science, see "Courses of Instruction." For Master's Degree curricula, see the Graduate School Bulletin.

**COMPUTING CENTER**

The Computing Center supports both course work and research, with its facilities available to students and faculty in all departments.

The Center has an IBM System 360, Model 67, and is also equipped with a sorter and card punches. Members of the staff are on hand to offer programming assistance to all users. An extensive set of reference documents, both vendor and Center produced, is maintained to aid in this assistance.

The staff at the Center also conducts a series of lectures in programming orientation for members of the University. These series are given at irregular intervals but are announced well in advance.
Along with the standard software provided with the computer by the vendor, additional software is maintained including WATFIV, SPSS, CSMP, GPSS, MPS, the U.C.L.A. BMD statistical series, and other similar packages.

The computing system supports batch (card reader and printer) job entry both remote and local as well as keyboard entry through a variety of low speed terminals, some located at the Computing Center and some within various departments around the campus. The interactive timesharing system supports the BASIC, FORTRAN and PL/1 languages as well as a remote batch interface.

MILITARY TRAINING
AIR FORCE ROTC

The Aerospace Studies curriculum is designed to give the participating student an understanding of the military instrument of national power with emphasis on the United States Air Force and how it fits into the spectrum of power. Inherent in course content and methodology are opportunities for students to develop their capacities to think creatively, to speak and write effectively, and to lead and manage efficiently.

The Air Force ROTC commissioning program is open to qualified students in all academic majors. The program is divided into a General Military Course (GMC) and a Professional Officer Course (POC). The latter is the final commissioning phase for those students who qualify and desire a commission in the USAF. Both the GMC and POC require one hour of non-credit Corps Training. Students qualified for flying training receive flight instruction in civilian aircraft during their senior year. A total of 36½ hours of flight instruction is offered and normally leads to an FAA private pilot's certificate.

FOUR-YEAR OPTION—A qualified incoming freshman, male or female, may enroll in Aerospace Studies classes following normal college registration procedures. The student enrolls in the General Military Course (GMC) for the first two years. Prior to enrolling in the last two years of the program, the Professional Officer Course (POC), students must qualify on the Air Force Officer Qualifying Test (AFOQT), pass a medical evaluation, and be selected by a review board. All AFROTC participants must complete a summer four week Field Training course prior to entering POC, normally between the sophomore and junior year.

TWO-YEAR OPTION—The basic requirement for entry into this program is that the student have two academic years remaining. Entry into the Professional Officer Course (POC) is on a competitive basis. Applicants must qualify on the Air Force Officer Qualifying Test (AFOQT), pass a medical evaluation and be selected by a review board. Prior to entering the POC program, students must attend and successfully complete a six week Field Training course.

Uniforms and textbooks for both the GMC and POC Air Force ROTC courses are provided by the Air Force. Non-scholarship participants receive $430 for the six-week summer training period and $265 for the four week summer training...
period (in addition to six cents per mile travel pay or an airline ticket) and $100 per month for 20 months. Additionally, students who qualify may receive an AFROTC scholarship which will pay full tuition, laboratory fees and books, plus $100 per month subsistence throughout the academic period that the scholarship is in effect. Scholarships are available for four, three and two year periods.

This department is administered by personnel of the United States Air Force under rules promulgated by the Department of the Air Force and the University of New Mexico.

The mission of the Air Force ROTC education program is to provide pre-professional preparation for future Air Force officers. It is designed to develop selected men and women who can apply their AFROTC education to their initial active duty assignments as Air Force Commissioned officers.

Students may enter the Air Force ROTC from any high school, college, or university. Transfer students with an ROTC background can receive credit for previous ROTC experience.

Processing of new students for the four-year program is accomplished during registration for the fall semester. New students for the two-year program can process at any time before the midpoint of the second semester of their sophomore year. Specifics may be obtained by contacting the Air Force ROTC staff members at 1901 Las Lomas, N.E. An $8 activity fee will be collected at the beginning of each semester. This fee makes up an activity fund which is administered by the cadets.

DEPARTMENT OF AEROSPACE STUDIES

THE GENERAL MILITARY COURSE (GMC). (Four-year program only). The GMC is an introduction to U.S. military forces and the development of air power designed to prepare cadets for entry into the POC. The standard GMC is a two-year course in Aerospace Studies. The first year is designated AS 100 and the second year AS 200. It is normally offered to freshmen and sophomores. The GMC totals approximately 120 hours consisting of 60 hours of academics and 60 hours of Corps Training.

THE PROFESSIONAL OFFICER COURSE (POC). (Two- and four-year programs). The POC subject matter includes the development and use of aerospace power, theoretical and applied leadership and management and communications skills to prepare cadets for active duty as commissioned officers. It is a two-year course of instruction in Aerospace Studies and is normally designated AS 300 for juniors and AS 400 for seniors. The POC totals approximately 240 hours, i.e., 120 per year consisting of 90 hours of academics and 30 hours of Corps Training. The POC is available for qualified students who have successfully completed Air Force, Army or Navy basic ROTC programs, armed forces veterans with six months or more active service and undergraduate or graduate students with two or more academic years remaining.

CORPS TRAINING. Corps Training provides the cadets with practical command and staff leadership experiences by performing their various tasks within the framework of the organized cadet corps.
NAVAL RESERVE OFFICERS TRAINING CORPS

The NROTC program provides a means whereby the student can be financially assisted toward attainment of an undergraduate degree through the four-year Scholarship Program, the four-year College Program, or the two-year College Program. All three programs lead to service as a commissioned officer in the Navy or Marine Corps.

Applications for the NROTC Scholarship Program must be made to the Navy by November 15 for entry into the program the following August. Applicants first compete nationally on the basis of ACT or SAT scores; subsequent selection heavily weighs on the applicant’s academic performance in high school and college.

Applications for the four-year NROTC College Program may be made to the NROTC Unit UNM at any time. Applications for the two-year NROTC College Program may be made to the NROTC Unit UNM during the fall semester of the sophomore year or during the first month of the spring semester of the sophomore year. Applicants are selected by the Navy on the basis of demonstrated academic performance and expressed motivation.

Students in the NROTC Scholarship Program receive tuition and scholastic fees, textbooks, uniforms and $100.00 per month for the entire time they are in the program. Students in the NROTC College Program receive Naval Science textbooks and uniforms for the entire time they are in the program and $100.00 per month subsistence allowance during their junior and senior years.

Further information concerning the program may be obtained from high school and college counselors, recruiting stations, and the NROTC Unit, UNM, 720 Yale Boulevard NE, Albuquerque, N.M. 87131, telephone (505) 277-3744.

DEPARTMENT OF NAVAL SCIENCE

Students in the NROTC Scholarship Program are encouraged to pursue majors in the engineering and hard science (mathematics, chemistry and physics) fields of study to meet the technological requirements of the Navy. Other fields of study are permitted with the approval of the Director of Naval Science.

There are no restrictions placed upon College Program students or Marine Option students as to academic majors.

Completion of the Naval Science requirements can constitute completion of a minor in the College of Arts and Sciences.
Other Divisions of the University

Freshman Year

First Semester
Nav Sc 105 Naval Ships Systems I 3

Second Semester
Nav Sc 106 Naval Ships Systems II 3

Prior to Senior Year

Pol Sc 240 International Politics 3

Hist 364 Political History of the US

or

Hist 375 Military History of the US 3

Junior Year

Nav Sc 303 Navigation and Naval Operations 3

Nav Sc 304 Navigation and Naval Operations 3

Senior Year

Nav Sc 407 Principles of Naval Organization and Management 3

Three hour elective 3

Marine Corps subjects, given below, are substituted by Marine Corps applicants during the junior and senior years:

Junior Year

Nav Sc 331 Evolution of Warfare 3

Three hour elective 3

Senior Year

Nav Sc 431 Amphibious Warfare 3

Three hour elective 3

All NROTC students attend two hours of Naval Science drill/laboratory per week.

In addition to the above, NROTC students must take certain additional courses. Information concerning additional course work can be obtained at the Department of Naval Science.
COURSES OF INSTRUCTION

On the following pages, under the respective department and division headings, are listed the courses offered for residence credit by the University as well as requirements for major and minor studies in the various departments.

Courses are numbered from 001 through 799. Courses from 001 to 099 may or may not carry credit, but are not applicable toward a baccalaureate degree; from 100 to 199, lower division, are normally open to freshmen; from 200 to 299, lower division, normally open to sophomores; from 300 to 499, upper division, normally open to juniors, seniors, fifth-year undergraduates, and graduates; 500 to 799, graduate and professional, normally open to students enrolled in the Graduate School only, the School of Law, or the School of Medicine. See Graduate School Bulletin for description of courses numbered 500 and above.

Symbols used in departmental faculty listings:
1 On sabbatical leave for year
2 On sabbatical leave first semester
3 On sabbatical leave second semester
4 On leave for the year
5 On leave first semester
6 On leave second semester

Symbols used in course descriptions:
**—available for graduate credit except for graduate majors in the department.
*—course allowed for graduate credit to students enrolled in the Graduate School. Normally, a Graduate student enrolled in a starred course numbered below 500 is required to do extra work in the course.
L—part of the course is laboratory work. Hours of lecture and laboratory are given at end of description.
F—course is given in field session.
[ ]—former course number or title.
( )—semester hours' credit; credit hours separated by a hyphen (1-3) indicates variable credit in the course.
†—May be repeated for credit with permission of department chairman (or dean).
‡†—May be repeated for credit with permission of department chairman (or dean) and instructor.
‡—May be repeated for credit because subject matter varies.
‡‡—(Used by departments as footnote for repetition qualification not covered by three footnotes immediately above.)
< >—session in which course is expected to be offered (except for Law and Medicine, where registration is conducted by the School). Session indicated for year courses (such as 301-302) refers to both semesters unless otherwise stated. Courses such as 551, 552, 599, 699 will be offered every session; no indication will be given unless it differs. Session offered for other courses not indicating this information must be obtained from department chairman.

When a prerequisite course number is not preceded by a department designation, reference is to the department under which the prerequisite statement appears. A schedule of course offerings, including hours of meeting, is issued at the opening of each session. The University reserves the right to cancel any listed course or to make a substitution in instructors when necessary.

ACCOUNTING
See Business and Administrative Sciences.

AEROSPACE STUDIES
Edwin Conley, Jr., Lt. Col., USAF, M.B.A., Director; Noel F. Austin, Maj, USAF, M.E.D., Assistant Director; David H. Barthel, Capt, USAF, M.A., Assistant Director.
AEROSPACE STUDIES—AFRO-AMERICAN STUDIES

CURRICULUM
See p. 208.

010. Corps Training. (0)
A laboratory of one hour per week is conducted over the student's full period of enrollment for the practice of leadership and management techniques. It provides students with practical command and staff leadership experiences by performing various managerial duties within the framework of the corps. No academic credit is awarded for this laboratory.

100-101. United States Military Forces in the Contemporary World. (1; 1)
A study of the doctrine, mission, and organization of the United States Air Force; U.S. strategic offensive and defensive forces; their mission and functions; employment of weapons systems, aerospace defense; missile defense; U.S. general purpose and aerospace support forces; the mission, resources, and operation of tactical air forces, with special attention to limited war; review of Army, Navy, and Marine general purpose forces.

200-201. The Development of Air Power. [Introduction to Defense Policy] (1, 1)
The course is developed from a historical perspective starting before the Wright Brothers and continuing into the 1970's. It examines in detail not only the application of airpower in wartime but the peaceful employment of aerospace forces in the Berlin Airlift, the Middle East, and during civil humanitarian actions. No prerequisites.

300-301. Introduction To Defense Policy. [Aerospace Power and Astronautics.] (3, 3)
The course is conceptually focused on the armed forces as an integral element in society, with an emphasis on the broad range of American civil-military relations and the environmental context in which U.S. Defense Policy is formulated. No prerequisites.

400-401. Concepts of Leadership and Management. (3, 3)
Theory and application of leadership concepts to Air Force situations. Review of the Military Justice System. Theory and practice of Air Force management to include information systems, quantitative approaches to decision-making, and resource control techniques. In each semester, students will take field trips, prepare oral and written reports and participate in group discussions, case studies, and problem-solving exercises.

402. Flight Instruction. (3)
Principles of flight, federal aviation regulations, weight and balance, preflight inspection, aviation weather, navigation, radio communication, emergency procedures, 36½ hours airborne instruction. Successful completion of all phases results in FAA certification as a private pilot. Prerequisite: qualified senior students in the POC. <Fall>

AFRO-AMERICAN STUDIES
Coordinator: Charles Becknell, M.A., Assistant Professor of Educational Foundations; Assistant Coordinator: Harold Bailey, M.A., Lecturer in Educational Foundations.

The Afro-American Studies Program is an interdisciplinary program dedicated to a scholarly examination of the black experience in Africa, the Caribbean, and the United States.

Besides offering a wide variety of courses, the program complements classroom work with special lectures, community involvement, concerts and other artistic and cultural events.

CURRICULUM
Amer St. 301. Interdepartmental Studies in the Culture of the United States. (3)

English 300. Studies in Literature. (3)
The Black Novelist.

History 284. Afro-American History. (3)
(Also offered as Ed Fein 284.)

History 357. History of Africa Since 1800. (3)

Swahili 101-102. Introduction to Swahili. (3, 3)

Social 316. The Black Family in America. (3)
AMERICAN STUDIES

COMMITTEE IN CHARGE: Charles D. Biebel, Ph.D. (American Studies) Acting Director; G. Argersinger, M. Phil (American Studies); G. Arms, Ph.D. (English); G. Baker, Ph.D. (American Studies); E. Baughman, Ph.D. (English); B. Bunting, Ph.D. (Art); R. Campbell, Ph.D. (Geography); W. M. Dabney, Ph.D. (History); J. Jones, Ph.D. (American Studies); P. F. Schmidt, Ph.D. (Philosophy); F. Szasz, Ph.D. (History).

An American Studies minor may be elected by undergraduate students majoring in the departments of Anthropology, Art History and Criticism, Economics, English, History, Philosophy, Political Science or Sociology. Requirements for the doctor's degree in American Studies are listed in the Graduate School Bulletin.

MINOR STUDY

The minor in American Studies is designed to introduce students to the interdisciplinary study of the culture of the United States. The requirement is 24 hours, including 12 hours in American Studies: 285, 6 hours at the 300 level and 485. Prospective minors will usually begin their programs with an introductory course chosen from 201-241. Students will take the remaining 12 hours in an integrated program chosen from other departments (Anthropology, Art History and Criticism, Economics, English, Geography, History, Political Science, Philosophy, Psychology, or Sociology) or American Studies courses. With proper selection of courses a student may elect a minor in American Studies with an emphasis in Afro-American, Chicano, Native American, or Women Studies. All students should consult with their major adviser and the American Studies minor adviser as early as possible to obtain approval of their minor program.

For majors in Anthropology, Economics, Political Science, or Sociology:

6 hours in literature or history (normally chosen from English 300 or 400 level courses; Hist 361 through 379); 6 hours in a social science other than the major (normally from Anth 305, 308, 357, 358, 404; Econ 320, 350, 360; Pol Sc 306, 368, 375; Soc 441, 445, 461); 3 hours in Phil 332 or Art Hi 472, or any courses of a comparable nature.

For majors in Art History and Criticism or in Philosophy:

6 hours in literature or history (as above); 6 hours in a social science (as above); 3 hours in Phil 332 (for majors in Art) or in Art Hi 472 (for majors in Philosophy).

For majors in English:

6 hours in history (as above); 6 hours in a social science (as above); 3 hours in Phil 332 or Art Hi 472.

For majors in History:

6 hours in literature (as above); 6 hours in a social science (as above); 3 hours in Phil 332 or Art Hi 472.

For other majors:

People having other majors will need the special approval of both their major adviser and the American Studies office.
201. European Immigrant Experience in the United States. (3) Staff
Discussion of expectations, immigration, and acculturation of European immigrant groups with special attention given to the problems of diversity, assimilation and homogeneity. <Fall, Spring>

221. Southwest Indian Lifestyles. (3) Paymella
An examination of the world view and lifestyles of reservation Indians in an area of unusually high cultural integrity. <Fall>

231. Women's Experience in the United States. (3) Argersinger
An analysis of the contributions and problems of women in the United States. <Fall, Spring>

241. The Chicano Experience in the United States. (3) Staff
Investigation of the historical and social conditions that have shaped the development of Chicano life. <Fall, Spring>

285. American Life and Thought. (3)
Important themes and issues of our society (1607 to the present), as reflected in American literature. <Fall, Spring>

286. Life and Thought in America II. (3)
Course is intended for students who have had American Studies 285: Life and Thought in America. Purpose is to give students opportunity to pursue individual and group research projects which interested them in introductory course, but for which one semester's time was insufficient to develop. Interests, methodology, and results will be presented to entire class.

301-302. Interdepartmental Studies in the Culture of the United States. (3, 3)*
Subjects, varying from semester to semester, will be topical in 301 (as "Present Predicaments" and "Politics of the Transcendentalists") and chronological in 302 (as "Historical Crises of the 20th Century" and "Academia in the Novel"). May be repeated for credit as subject matter varies, with permission of American Studies Undergraduate Adviser or of the chairman of the student's major department. <Summer, Fall, Spring>

303. The Artist in the United States. (3) Biebel
An examination of the manner in which selected artists in the recent past have come to terms with their experience as Americans. <Fall, Spring>

304. Ecology in American Thought. (3) Jones
A study of cultural attitudes and values toward urban development, nature, wilderness and the environment. <Fall, Spring>

311. Institutional Racism. (3) Staff
An analysis of the effects of institutionalized racism on the Black community. Emphasis will be placed on education, economics, political and social forces which affect Black America. <Fall>

312. The Black Woman. (3) Staff
A comprehensive survey of the role that the Black woman has played in the society of the United States. Emphasis will be placed on achievements and contributions. <Fall>

313. The Black Community. (3) Staff
An in-depth analysis of the racial, economic, educational and historical make-up of the Black community and the effects society has on this community structure. <Fall>

321. Indian in a Multicultural Setting. (3) Paymella
Political issues and problems of Native Americans on reservations and in urban areas. Topical review of Indian/White contacts, including Indian society's adaptation to contemporary social conditions and contemporary thinking. <Spring>

322. Five Civilized Tribes. (3) Hobson
Survey of the history and cultures of the Five Civilized Tribes (Cherokee, Chickasaw, Choctaw, Creek, and Seminole). Course deals in three categories: Understanding of the early history of the tribes prior to the Indian Removal Bill of 1830; the Indian Removal Era; and the Commission's actions following 1887. <Fall>

331. Classics of Feminism in the United States. (3) Baker
Reading and criticism of classics of feminism in the United States. Particular emphasis is placed on the relationships between theoretical and autobiographical works, and on their interaction with social, political, and religious movements. <Fall, Spring>

341. History of Conflict in New Mexico. (3) Duran
Examination of selected examples of imposition of Anglo-American economic, political, and social institutions on Chicanos and their consequences. <Fall, Spring>
La Mujer Chicana. (3) Staff
Exploration of the role of the Chicana in contemporary society (the family, the church, rural vs. urban experience, etc.) and of the historical relationship of the Chicana to the Chicano Movement and the Feminist Movement. <Fall, Spring>

Senior Seminar in the Culture of the United States. (3)
An analysis of the value of synthesis in liberal scholarship. Focus will be on cooperative interdisciplinary research. <Spring>

Individual Study. (1-3 hrs. per semester, to a maximum of 9)

Interdepartmental Seminar in the Culture of the United States. (3)
<Summer, Fall, Spring>

Approaches in Interdisciplinary Methodology. (4)
Prerequisite: permission of instructor.

Individual Study. (1-3 hrs. per semester, to a maximum of 12)
For Ph.D. candidates only.

Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ANTHROPOLOGY


Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY

Anth 101, 102, 493 and 27 additional semester hours in courses numbered from 200 through 499 within the department. Anthropology courses are offered in four major divisions: archaeology; general ethnology; linguistics; and physical anthropology. A limited number of courses are also offered in the technical division. A student must concentrate in one of the four major divisions and take a minimum of 9 semester hours in it. In each of the three remaining major divisions, he must take at least 3 semester hours. No more than 3 semester hours of field courses may be applied toward the fulfillment of the requirements in any one division, nor may more than 6 semester hours of field courses be applied toward the entire anthropology major. Upper division courses from other departments chosen with the approval of the Chairman of this department are acceptable as electives toward the major in anthropology.

MINOR STUDY

17 hours in addition to Anth 101 and 102, and at least 6 hours to be taken in courses numbered above 300. No more than 3 semester hours of field courses may be applied toward the minor.

DISTRIBUTED MINOR FOR ANTHROPOLOGY MAJORS. With the consent of the Department Chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

ANTHROPOLOGY, GENERAL

Origin and Antiquity of Man. (3)
The physical origins of man and the development of human culture as revealed by archaeology. <Summer, Fall, Spring>

Development of Culture. (3)
The concept of culture as exemplified by contemporary peoples. <Summer, Fall, Spring>
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275F. General Field Session. (2-6)
Introductory summer field course in archaeology, linguistics, or general ethnology. <Summer only>

*402. American Indian Art I. (3) Brody
(Also offered as Art Hi 402.) Prehistoric and historic art forms of the Arctic Northwest Coast, Southwest and Western regions. <Fall 1976 and alternate years>

*403. American Indian Art II. (3) Brody
(Also offered as Art Hi 403.) Prehistoric and historic art forms of the Plains, Sub-Arctic and Eastern regions. <Spring 1975 and alternate years>

*422. Education and Anthropology. (3)
(Also offered as Ed Fdn 422.) An overview of educational implications from the field of anthropology. <Offered upon demand>

*475F. Advanced Summer Field Session. (2-6)
For upper-division and graduate students. Field course in archaeology, linguistics, or general ethnology. An advanced course that includes intensive instruction in field techniques and the opportunity for independent research on the part of the student. Prerequisite: 275F or equivalent. <Summer only>

*493. History of Anthropology. (2)
The development of anthropological theory from the 19th century to the contemporary period, with major emphasis on cultural anthropology. Limited to majors and minors in anthropology. <Spring>

*498. Honors Seminar. (3) Staff
Readings and discussions concerning anthropological research methods, sources, goals, and professional ethics. Open to upper division majors and concentrators whose applications for the honors program have been approved. <Spring>

*499F. Field Research. (2-6)
Field research for qualified advanced or graduate students with previous experience in archaeology, linguistics, or general ethnology. Problems are selected on the basis of student-faculty interest and field research opportunities. Prerequisite: permission of staff. <Offered upon demand>

*511. Advanced Research. (3)
Limited to graduate majors. <Offered upon demand>

General prerequisites: Anth 101 and 102 or equivalent.

ANTHROPOLOGY, PHYSICAL

*307L. Anthropology of the Skeleton. (3)
A laboratory course in the identification of human skeletal materials with attention to problems in the evolution of the primates. 2 lectures, 2 hrs. lab. <Fall>

*331. Biology and Behavior of Primates. (3) Froehlich
Discussion of evolutionary history of primates and the biology and behavior of living primates.

*343. Population Problems in Anthropology. (3) Harpending
Aspects of demography and population biology, models of population growth, regulation of life tables, and reproductive behavior.

*388. Human Genetics. (3) Spuhler
An introduction to human transmission, cellular, molecular, developmental, and population genetics. <Fall>

*431. Problems in Primate Ethology. (3) Froehlich
Current issues in primate behavioral research; their relevance to the evolution and present condition of man. Prerequisite: permission of the instructor. <Spring>

*432. Primate Anatomy. (3) Froehlich, Rhine
Comparative functional, myological and osteological anatomy of the primates. Emphasis placed upon dissection and comparison of specimens. Prerequisites: either 331 or 431. 1 hr. lecture, 6 hrs. lab. <Fall 1975, Spring 1977 and alternate years thereafter>

*450. Physical Anthropology. (3) Rhine, Spuhler
The biological organization of past and present primate and human populations. <Fall>

*451. Biology, Society, and Culture. (3) Spuhler
The biological bases of behavior, social behavior of the non-human primates, and the evolution of human behavior. <Spring>

*452. Human Population Genetics. (3) Harpending
The conditions for stability and change in gene and genotype frequencies in human breeding populations. <Spring 1975 and alternate years>
*453. Human Behavioral Genetics. (3) Spuhler
A study of the intersection between genetics and the behavioral sciences. <Spring 1977 and alternate years>

*455. Human Evolution. (3) Rhine
Evolutionary significance of various hominid characteristics; comparisons of significant fossil forms. Students are encouraged but not required to enroll concurrently in 456L. <Spring>

*456L. Human Evolution Laboratory. (1) Rhine
Anthropometric and anthroposcopic comparisons of fossil and recent hominoids. <Spring>

*488. Formal and Numerical Methods in Anthropology. (3) Harpending
Formal and mathematical techniques for organizing and analyzing anthropological data, with emphasis on computer usage. <Offered upon demand>

*510. Seminar: Physical Anthropology. (3) Spuhler
<Offered upon demand>

*531. Seminar: Problems in Primatology. (3) Froehlich, Rhine
<Spring 1976 and alternate years>

ARCHAEOLOGY

205. Introduction to Archaeology. (3)
Emphasis will be placed primarily upon theory and method, although general world prehistory will be presented. <Offered at Gallup Branch only>

206. Indians of the Southwest. (3)
An intensive study of the Navajo people—their origin, general history, social organization, material culture, relationships with other southwestern groups, and present day conditions. <Offered at Gallup Branch only>

*312. European Prehistory. (3) Hibben
The archaeological backgrounds of Europe and contiguous areas in the Mediterranean, Africa, and Asia from earliest times to the historical period. <Spring 1976 and alternate years>

*349. Archaeology of Complex Societies. (3) Cordell
Comparative approach to origin and development of stratified societies and pristine states as known from the archaeological record. <Fall 1975 and alternate years>

*355. Southwestern Archaeology: Mogollon and Hohokam. (3)
The development of the various branches of Mogollon and Hohokam cultures, from Southwestern Desert Culture roots; influences from Mexico are examined. <Fall>

*356. Southwestern Archaeology: Pueblo Area. (3) Cordell
The development of Basket Maker-Pueblo culture through its periods and regional branches from a combination of Southwestern Desert Culture roots and borrowed traits. <Spring>

*362. Archaeology of the Old World. (3) Binford, Hibben
Prehistory of Africa, Asia, and Oceania with emphasis on Egypt, Mesopotamia, India, and China. In each area the prehistoric sequence is brought up to historic times. <Fall 1976 and alternate years>

*366. Archaeological Field Techniques. (3)
Introduction to site survey, techniques of excavation, field mapping, data recording, initial laboratory analysis, cataloging, and site reporting. Prerequisite: permission of instructor. <Spring>

*384. Archaeology of Mexico, Central America, and the West Indies. (3) Hibben
Prehistoric beginnings of human culture from the appearance of man in the New World to the Spanish Conquest. Emphasis is on the Valley of Mexico, the Mayan area, and contiguous regions. <Spring 1977 and alternate years>

*385. American Archaeology: North America. (3) Binford, Hibben
Prehistory of the North American continent from the first appearance of man in America to the European contact period. The American Southwest and Mexico are excluded. <Spring 1976 and alternate years>

*386. American Archaeology: South America. (3) Cordell
The archaeology of the continent of South America from the time of the Paleo-Indian to the European period. Emphasis is upon the Andean area. <Spring 1976 and alternate years>
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*391. Classical Archaeology. (3) Hibben
Cultural beginnings of Greece, Rome, and associated cultures in the Mediterranean area from the Neolithic period to the Byzantine empire. <Spring 1977 and alternate years>

*392. Strategy of Archaeology. (3) Binford
The purpose and theory of the study of archaeology; relates archaeology to anthropological principles and the practice of science. <Fall 1975 and alternate years>

*507. Seminar: Archaeological Theory and Method. (3)
*514. Seminar: South American Archaeology. (3)
*516. Seminar: European Prehistory. (3) Hibben
*557. Seminar: Early Man in the New World. (3) Hibben
*582. Seminar: American Archaeology. (3)
*594. Seminar: Southwestern Archaeology. (3) Judge

ETHNOLOGY, GENERAL

§301-302. Interdepartmental Studies in the Culture of the United States. (3, 3)
(See Am St 301-302).

*305. The American Indian: North America. (3) Rigsby
Major culture types and selected ethnographic examples of North American Indian cultures. <Spring>

*306. The American Indian: South America. (3) Schwerin
Major culture types and selected ethnographic examples of South American Indian cultures. <Fall>

*308. Psychological Anthropology. (3) Bock
Materials and concepts useful in understanding the influence of group culture upon personality and of the individual upon his society. <Spring 1977 and alternate years>

*309. Comparative Studies of Childhood. (3) Draper
Study of childhood in different cultural settings, ranging from primitive, peasant, to modern; consideration of theoretical problems in the relation of socialization to other cultural systems.

*310. Peasant Cultures of the World. (3) Barrett, Bock
An introduction to the comparative study of peasantry. Focuses on the social and economic organization of peasant societies and the relationships of these groups to the civilizations of which they are a part. <Fall 1976 and alternate years>

*314. Latin American Culture and Societies. (3) Barrett, Schwerin
Culture patterns common throughout Latin America and their historical antecedents. Analyses of the variations among selected Latin American societies. <Fall>

315. Current American Indian Problems. (3)
Presentation of the problems of reservation and urban Indians. Discussion of selected topics such as Indian education, social problems and adjustments, economic development, and the urban Indian scene. Prerequisite: 305 or permission of instructor.

*316. Applied Anthropology. (3) Sebring
The application of anthropological methods and principles to problems of inter-cultural communication and social change. <Spring>

*321. Ethnology of South Asia. (3) Sebring
Survey of modern social structures and cultures of South Asia with emphasis upon selected areas and problems. <Spring>

*325. The Peoples of Oceania. (3) Froehlich
Prehistory, biology, and culture of Pacific Islanders. <Fall 1976 and alternate years>

*336. Ethnology of Africa. (3) Draper
Cultural and social patterns characteristic of sub-Saharan Africa with special reference to problems of culture history and comparative political organization. <Spring 1976 and alternate years>

§ No prerequisite.
*341. Biosocial Bases of Sex Roles. (3) Draper, Harpending
  Biological and sociological bases of sex role differentiation. <Spring 1977>

*345. Spanish-Speaking Peoples of the Southwest. (3) Alvarado
  Analysis of the ethnohistory and modern culture patterns of Spanish-speaking peoples
  of the Southwest. <Spring 1977 and alternate years>

*347. Anthropological Folklore. (3) Weigle
  Comparative and ethnographic study of selected genres of expressive culture.

*348. Social Anthropology of Complex Societies. (3) Barrett
  Main contributions of anthropology to the study of complex societies, with special atten­
  tion to the methods and techniques utilized in the study of these societies. <Spring>

*350. Methods in Cultural Anthropology. (3)
  Methods used in the collection and ordering of anthropological data for historical, scientific, and administrative problems. <Spring 1976 and alternate years>

*357. Southwestern Ethnology: Non-Pueblo Peoples. (3) Alvarado
  The cultures, and relationships of Pima, Papago, Yaqui, Tarahumara, Seri, Yumans, Navajo,
  and Apaches. <Fall>

*358. Southwestern Ethnology: Pueblo Peoples. (3) Alvarado
  The origin, social organization, material culture, and relationships of Southwestern
  Pueblo tribes. <Spring>

*361. Social Implications of Technological Change. (3) Barrett
  (Also offered as Soc 361.) The impact of technological change on societal institutions with
  special attention to underdeveloped areas. Prerequisite: Soc 101 or equivalent.

*365. Urbanization in Latin America. (3)
  (Also offered as Soc 365.) Analyzes the processes related to urbanization in Latin America,
  comparing them with developments following industrialization and rural-to-urban migrat­
  ions elsewhere. Emphasis on social and cultural changes accompanying rural-to-urban
  migration. Prerequisite: Soc 101 or equivalent.

*369. American Indian History. (3)
  (Also offered as Hist 369.) Survey of American Indian history from white contact to the
  present. <Fall>

*371. Indian-White Relations: Native American Viewpoints. (3) Ortiz
  Analysis of literary, historical, ethnographic, and contemporary texts, principally by
  Indians, to understand Native American peoples' reaction and adjustment to conquest
  and domination. Prerequisites: Anth 305 or 369 or consent of instructor. <Offered upon
  demand>

*382. Middle American Ethnology. (3) Schwerin
  Emergence of the modern Indian cultures of Mexico and Guatemala. Persistence and
  change in social institutions and cultural patterns. <Spring>

*383. Caribbean Ethnology. (3)
  A descriptive and analytic survey of modern West Indian sociocultural systems, taking
  into consideration their African, European, and East Indian cultural antecedents. Limited
  to juniors and seniors. <Offered upon demand>

*389. Cultural Evolution. (3) Schwerin
  Nineteenth century theories of cultural evolution and revival of the evolutionary view in
  contemporary anthropology. Selected cultural examples are analyzed in terms of the
  modern theories. Limited to juniors and seniors. <Fall 1975 and alternate years>

*396. Cultural Ecology. (3)
  View of human communities as elements in landscape systems; analyses of the relationship
  between environment, production systems, and social systems at different levels of
  evolution. <Spring>

*397. Music in Society. (3)
  Examinations of the functions of music in tribal and modern society; tools of analysis;
  survey of selected samples of musical culture. Prerequisite: ability to read simple music.
  <Fall 1975 and alternate years>

*398. Ritual Symbols and Behavior. [Primitive Religion] (3) Ortiz
  Comparative analysis of ritual processes, symbol systems, and world views in the context
  of social structure. <Fall>

*399. Comparative Value Systems. (3) Sebring
  A comparative treatment of values, world views, belief systems of selected societies; basic
  premises and tenets revealed in a society's interpretation of its experiences; examination
  of relation between values, world views. <Fall>
*404. Comparative Social Structure. (3)
An introduction to the study of kinship and social organization. <Offered upon demand>

*406. Economic Anthropology. (3)
Introduction through case material to the forms of economic organization in non-Western societies; analyses of production, distribution, and consumption, the evolution of economic systems, and the relation of economy to society. <Fall 1976 and alternate years>

*421. Political Anthropology. (3)
Investigation of political organization in primitive societies, with emphasis on political processes. Prerequisite: 102. <Fall 1975 and alternate years>

*460. Seminar in Museology and Museography. (3) Brody
(Also offered as Art Hi 460.) Practical and theoretical work in specific museum problems. Prerequisite: 304L or 380L, or Art Hi 400, or permission of instructor.

*465. Medical Anthropology. (3) Alvarado
Analysis of systems of health, curing, and disease in aboriginal, Western, and pluralistic societies. <Spring 1976 and alternate years>

*506. Cultural Ecology. (3) Campbell
<Fall, Spring>

*508. Processes of Culture Change. (3) Alvarado
<Fall, Spring>

*512. Seminar: Ethnology. (3)
Fall, Spring

*513. Anthropological Problems in Latin America. (3)
Spring

*584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen, Merks, Needler, Schwerin
<Also offered as Econ, Hist, Pol Sc, and Soc 584.> Spring

*595. Seminar: Southwestern Ethnology. (3)
Fall 1975 and alternate years

*610. Kinship Studies. (3)
<Offered upon demand>

LINGUISTICS

292. Introduction to the Study of Language. (3 or 4)
(See Ling 292.)

*313L. Linguistic Field Methods. (3)
Practice in transcribing from oral dictation, phonemic analysis, introduction to problems of morphology. 2 lectures, 2 hrs. lab. <Offered upon demand>

*317L. Phonological Analysis. (3) Rigsby, Steele
(Also offered as Ling 317L.) Phonetic principles and phonological theory, descriptive analysis of phonological systems, transcriptional practice and problems from selected languages. 2 lectures, 2 hrs. lab. <Fall, Spring>

*318L. Grammatical Analysis. (3) Rigsby, Steele, Staff
(Also offered as Ling 318L.) A continuation of 317L. Principles of grammatical analysis and the theory of grammar, descriptive analysis of grammatical structures, problems from selected languages. 2 lectures, 2 hrs. lab. <Fall, Spring>

*352. Verbal Art. (3) Weigle
Comparative study of non-Western oral traditions as cultural and aesthetic expressions. Special emphasis on narratives and proverbs.

*354. The Nature of Language. (3) Spolsky
Introduction to modern descriptive linguistics, principles of comparative linguistics, language as a social and psychological phenomenon. <Offered upon demand>

*359. Language and Culture. (3) Rigsby, Spolsky
(Also offered as Ling 359.) An examination of the interrelations of language and speech with other selected aspects of culture. Prerequisites: 317L, 354, or equivalent. <Spring>

*370. History of Linguistics. (3) Spolsky, Oller
(Also offered as Ling 370.) A survey of methods and assumptions involved in the scientific study of language from antiquity to present day. An overview of philosophical, prescriptive, mathematical (logical), and linguistics approaches to the study of language. Prerequisite: Intro to Ling. <Fall>
*405. North American Indian Languages. (3) Rigsby, Spolsky
Introduction to the study of North American native languages and survey of contemporary speech communities; intensive examination of the structure of one or more Southwestern native languages. Prerequisite: 292 or 354, or equivalent. <Offered upon demand>

*417L. Advanced Phonological Analysis. (3) Rigsby, Steele
(Also offered as Ling 417L.) Survey of problems in generative phonology. Formalization of linguistic rules to generate specific phonological structures. Formal and substantive universals of phonological systems. Prerequisite: Anth 317L. <Spring>

*418L. Advanced Grammatical Analysis. (3) Oller, Young
(Also offered as Ling 418L.) A survey of problems in generative grammar. Alternative formalizations for generating specific structures. Formal and substantive universals of grammatical structures. Emphasis ranges from syntax to pragmatics. Prerequisite: 318L.

*446. Introduction to Comparative Linguistics. (3)
(Also offered as Ling 446.) The comparative method applied to Indo-European and to unwritten languages; other methods and techniques used in comparing languages. Prerequisites: 313L, 317L, 354 or permission of instructor. <Spring 1976 and alternate years>

*459. Language and Society. (3) Spolsky
(Also offered as Ling 459.) An introduction to sociolinguistics, with special reference to language reflections of socio-cultural organization, multilingualism, and language planning. Prerequisite: a course in Linguistics. <Spring>

*554. Seminar: Linguistic Theory. (3) Rigsby
(Also offered as Ling 554.) Current topics and issues in phonology, syntax, or semantics. Prerequisite: 317L, 318L or 418L or equivalent. <Offered upon demand>

*555. Seminar in Linguistics and Language Pedagogy. (1-3) Rigsby, Spolsky
(See Ling 555.)

*559. [469] Advanced Sociolinguistics. (3) Spolsky, Rigsby
(Also offered as Ling 559.) Study of specific areas of sociolinguistics, e.g., pidgins, Creoles, language planning processes, and societal multilingualism. Prerequisite: 459. <Fall>

*660. Methods of Comparative Linguistics. (3)
<Offered upon demand>

*661. Types of Linguistic Structure. (3)
<Offered upon demand>

TECHNICAL

*303L. Chronology. (3)
Methods of dating in relationship to archaeological problems. Prerequisite: permission of instructor. 1 lecture, 4 hrs. lab. <Offered upon demand>

304L. Beginning Museology. (3) Brody
An introduction to the history, philosophy, and purpose of museums. Techniques and problems of museum administration, education, collection, exhibition, conservation, and public relations. <Fall 1975 and alternate years>

*311. Material Culture. (3)
Materials and techniques of manufacture, with emphasis on analysis and identification of the prehistoric and historic Southwestern tribes. <Offered upon demand>

380L. Advanced Museology. (3) Brody
Specialized work on a sub-curatorial level in one area of anthropology, art, or folk art. Emphasis on conservation, cataloging, and interpretation of collection materials to the public. Prerequisite: 304L. 2 lectures, 2 hrs. lab. <Spring 1976 and alternate years>

*489. Computer Models in Anthropology. (3) Harpending
Introductory theory and practice of the use of high speed computers to solve anthropological problems. Prerequisites: Math 155 or equivalent ability with a programming language compatible with the campus computer, basic course in statistics with elementary probability theory, and graduate standing in Anthropology or permission of instructor. <Offered upon demand>

INDIVIDUAL STUDIES

*551-552. Problems. (1-3 hrs. each semester)
*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ARCHITECTURE


Explanation of footnotes not indicated will be found on p. 210.

Students are reminded that charges for classroom supplies and services for certain architecture courses must be paid at the Fine Arts Box Office during the first three weeks of each semester. Refunds will be given according to the refund schedule in the student expense section of this catalog, page 34.

CURRICULA
See p. 73.

101. Introduction to Architecture. (3)
Building form as a product of social, perceptual, and technological determinants. <Fall, Spring>

104. Visual Communications. (3)
Visual analysis with emphasis on observation, recording, and communication techniques. <Fall, Spring>

161. The City. (3)
Discussion of the interrelations of the physical form and the social, economic, political, and cultural life of the contemporary city. <Fall>

181. Introduction to Environmental Problems. (3)
The relation of man to his physical environment. <Fall, Spring>

201. Design I. (3)
Introduction to design methods with emphasis on analysis, systems, space manipulation, and integration of basic functional form determinants. Prerequisite: open by interview to students in degree-granting colleges. <Fall>

202. Design II. (3)
Continuation of 201. Prerequisite: 201. <Spring>

265. Land Use Planning. (3)
Exploration of land-use activities, transportation systems, municipal services, and taxation as related to the comprehensive planning process. <Fall>

281. Environment and Behavior. (3)
Series of studies through observation, tracking, and interviews in the way people behave in the man-made environment. <Fall>

282. Environmental Impact Review. (3)
Principles and techniques of evaluating the impact of man-made structures on the environment. <Spring>

301. Design III. (4)
Exploration of the issues and determinants of environmental design. Design methods will be applied to a wide range of environmental problems. Prerequisite: open by brochure only. <Fall>

302. Design IV. (4)
Continuation of 301. Prerequisite: 301. <Spring>

338. The City in History. (3)
(Also offered as Hist 338 and Soc 338.) An overview of the development of urban forms throughout history, with emphasis on modern times, which examines the causes of urban growth and change and the ways in which cities have affected the course of development of Western society.

*Open only to students enrolled in the professional curriculum in architecture.
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362. Problems in Theory and Criticism. (3) <Spring>

366. Urbanization and Housing. (3)
Study of migration to urban areas with emphasis on housing in the United States and
developing countries including a survey of available governmental programs. <Spring>

*385. Building Technology I. (3)
Analysis of the building process. <Fall>

*386. Building Technology II. (3)
Integration of building systems. <Spring>

°401. Design V. (4)
Options in architecture, planning, and environmental studies based on individual and
joint projects common to the options. Title of individual sections will vary as content varies.
Prerequisite: 302. <Fall>

°402. Design VI. (4)
Continuation of 401. <Spring>

429. Problems. (1-3)‡ <Fall, Spring>

°*430. Internship. (1-4)
Planned program of actual experience with an employer such as an architect, planning
agency, engineering consultant, or building contractor.

°462. Seminar. (2)‡
Individually listed topics each semester. <Fall, Spring>

*465. City Planning Methods. (3)
(Also offered as Econ and Pol Sc 465) Topics include perceptual form of the city; planning
and decision-making theory; national and regional policy; public control over develop­
ment; direct action techniques. This is a multi-discipline introduction to urban studies
with emphasis on planning and control. <Fall>

*466. Economics for City Planning. (3)
(Also offered as Econ 466) This course introduces quantitative methods of city and
development planning. Topics include cost-benefit analysis, including heroic quantification
and social physics (simultaneous design of transportation and land use). Prerequisite:
Econ 201. <Spring>

*472. Regional Planning. (3)
Normative studies at regional scale integrating social science and physical design.
methods. <Spring>

480. Heating and Plumbing. (2)

481. Cooling. (2)

482. Lighting. (2)

483. Acoustics. (2)

*485. Working Drawings and Specifications. (4) Cohlmeyer
Development of documents from actual building projects including office procedures,
zoning and building code analysis. Prerequisites: 302 and 385. <Fall, Spring>

*497. Social Planning Seminar. (2)‡
Consequences of social and cultural change on design and planning. Prerequisite; senior
standing. <Fall, Spring>

*498. Community Design Studio (6)‡
Architectural and planning services to minority groups in New Mexico carried on through
the Design and Planning Assistance Center. Corequisite: 497. <Summer, Fall, Spring>

499. Comprehensive Review. (8)‡
An overview of the architectural undergraduate curriculum. Prerequisite: for graduate
students in architecture with degrees from other disciplines. <Fall, Spring>

°501. Studio Workshop. (6)
May be repeated to a total of 12 hours. <Fall, Spring>

°551. Problems. (1-3)
May be repeated to a total of 12 hours. <Fall, Spring>

°562. Seminar. (2)‡
<Fall, Spring>

°581. Architectural Research and Programming Methods. (2)
<Fall, Spring>

° Open only to students enrolled in the professional curriculum in architecture.
*598. Thesis Research (6)
Prerequisite: 591.

*599. Thesis. (1-6)
Prerequisite: 598. <Summer, Fall, Spring>

ART


Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY

1. For the student enrolled in the College of Fine Arts who wishes to pursue a studio emphasis, a 70-hour major offered under the Pre-professional Curriculum leads to the degree of B.F.A. (See curriculum, p. 159.)

2. For the student enrolled in the College of Fine Arts who wishes to pursue an art history emphasis, a 48-hour major offered under the General (Liberal Arts) Curriculum leads to the degree of B.A. in Fine Arts. (See curriculum, p. 159.)

3. For the student enrolled in the College of Arts and Sciences, a 32-hour major may be taken with an emphasis either in studio or art history. Of these 32 hours, at least 12 must be in courses numbered above 300.

   The major with an emphasis in studio is as follows:
   
   8 hours of art history; and
   
   24 hours in studio courses, including 123.

   The major with an emphasis in art history is as follows:
   
   20 hours in art history courses, including 201 and 202; and
   
   12 hours in studio courses, including 123.

MATERIALS AND STUDENT WORK

Students enrolling in art courses furnish their own material except certain studio equipment provided by the University.

All work when completed is under the control of the department until after the exhibitions of student work. Each student may be requested to leave one or several pieces of original work with the department.

Students are reminded that charges for classroom supplies and services for certain art studio courses must be paid at the Fine Arts Box Office during the first three weeks of each semester. Refunds will be given according to the refund schedule in the student expense section of this catalog, page 34.

ART STUDIO

Course 123 is prerequisite to most art studio courses, and is specifically designed for students who plan to major or minor in art. Other students should consider courses 102 and 142 as their best introductions to studio art.

102. Painting. (3)

  Basic principles of still life, figure, and landscape painting. <Fall, Spring>
123. Studio Fundamentals. (6)
Basic aspects of two and three dimensional phenomena including drawing and color
theory. <Summer, Fall, Spring>

142. Drawing. (3)
Descriptive drawing, designed for students who do not plan to enter the pre-professional
program in art. <Fall, Spring>

205. Drawing I. (3)††
Introduction to the basic materials and mechanics of drawing. Emphasis on the develop­
ment of descriptive and perceptual skills. Prerequisite: 123 or equivalent. <Fall, Spring>

207. Painting I. (3)
Introduction to painting with basic instruction in materials, techniques, composition and
color theory. Emphasis on the development of descriptive and perceptual skills. Prerequi­
site: 123 or equivalent; Pre- or corequisite: 205. <Fall, Spring>

213. Sculpture I. (3)
Various sculptural ideas and materials. Prerequisite: 123 or equivalent. <Fall, Spring>

257. Beginning Jewelry and Metalwork. (3)††
The handworking of various metals. Prerequisite: 123 or equivalent. <Fall, Spring>

268. Beginning Ceramics (3)††
Ceramic techniques. Prerequisite: 123 or equivalent. <Summer, Fall, Spring>

277. Graphic Design. (3)
(Also offered as Journ 277.) Graphic design and communication. Prerequisite: 123.
<Fall>

287. Photography I. (3)
Introductory course in still photography. <Summer, Fall, Spring>

293. Beginning Watercolor Painting. (3)†† S. D. Smith
Emphasis on the landscape. Prerequisite: 205. <Offered upon demand>

305. Drawing II. (3)††
Comprehensive and intensive investigation of the techniques and concepts of drawing.
Prerequisite: 205. <Fall, Spring>

306. Drawing III. (3)††
Continuation of 305. Prerequisite: 305. <Fall, Spring>

307. Painting II. (3)††
Comprehensive and intensive investigation of techniques, composition, color and various
painting concepts. Prerequisite: 207. <Fall, Spring>

308. Painting III. (3)††
Continuation of 307. Prerequisite: 307. <Fall, Spring>

309. Intermediate Watercolor Painting. (3)†† S. D. Smith
Watercolor as an expressive medium. Emphasis on the landscape. Prerequisite: 293.
<Offered upon demand>

313. Sculpture II. (3)††
Relationships of various materials to specific conceptual problems. Prerequisite: 213.
<Fall, Spring>

314. Sculpture III. (3)††
Continuation of 313. Prerequisite: 313. <Fall, Spring>

325. Drawing IV. (3)††
Pre-tutorial preparation of individual technical and intellectual resources for advanced
course work. Prerequisite: 306. <Fall, Spring>

327. Painting IV. (3)††
Pre-tutorial preparation for advanced course work. Prerequisite: 308. <Fall, Spring>

357. Intermediate Jewelry and Metalwork. (3)†† Lewis
Development of metalworking techniques with emphasis on the creative application of
various skills. Prerequisite: 257. <Fall, Spring>

368. Intermediate Ceramics. (3)†† Paak
Experimental approaches to ceramics. Prerequisite: 268. <Summer, Fall, Spring>

†† May be repeated twice.
* Open only to graduate students and to undergraduates enrolled in the pre-professional
curricula of the College of Fine Arts. Students in the teacher education curricula may enroll with
permission of the Department Chairman. Graduate credit allowed only where an asterisk appears
before the course number.
374. Lithography. (3)†† Antreasian
   Techniques and methods of lithography. Prerequisite: 305. <Fall, Spring>

386. Photography II. (3)††
   Continuation of 287 with concentration on photographic techniques and the development of personal vision. Prerequisite: 287; corequisite: 123. <Fall, Spring>

387. Photography III. (3)††
   Further development of personal concepts of photographic vision. Prerequisite: 386; corequisite: 426. <Fall, Spring>

388. Cinematic Photography. (3)†† Lazorik
   Basic study of film-making. Prerequisite: 287 or Journ 261. <Fall, Spring>

389. Topics in Photography. [Photo Communications.] (3)†
   Concentrated practical and historical study of specific concerns in photography. Prerequisite: 356, corequisite: Art Hi 426. <Offered upon demand>

405. Advanced Drawing. (3)†† Ellis, Gechtoff, Nadler
   Individual work in drawing as an expressive medium and as a vehicle for developing advanced concepts in the visual arts on a tutorial basis. Prerequisites: 306, 325 and submission of portfolio for departmental approval. <Fall, Spring>

406. Computer Graphics. (3)†† Mattox
   Generalized course for developing graphic images by electronic computer and electronic plotter. <Offered upon demand>

407. Advanced Painting. (3)†† Ellis, Gechtoff, Nadler
   Intensive individual investigation of the materials, methods and conceptual problems of painting on a tutorial basis. Prerequisites: 308, 327 and submission of portfolio for departmental approval. <Fall, Spring>

408. Advanced Landscape Painting. (3)†† S. D. Smith
   Landscape painting in various media. Prerequisites: 305, 307. <Offered upon demand>

409. Electrical Circuits, Devices, and Systems. (3)†† Williams
   (Also offered as EECS 409.) Theoretical and practical survey of electrical circuits, devices, and systems intended primarily for majors in the visual arts. <Fall>

413. Advanced Sculpture. (3)††
   Investigation of individual problems based on a thorough knowledge of materials and methods. Prerequisite: 314. <Fall, Spring>

429. Workshop. (1-4)‡
   Course work determined by specific student request or by professor's current research. Carries graduate credit when specifically approved by the Graduate Committee. <Offered upon demand>

457. Advanced Jewelry and Metalwork. (3)†† Lewis
   Experimental use of metal-working processes. Prerequisite: 357. <Fall, Spring>

468. Advanced Ceramics. (3)†† Paak
   Experimental approach to ceramics based on a thorough knowledge of processes. Prerequisite: 368. <Summer, Fall, Spring>

474. Advanced Lithography. (3)†† Antreasian
  Continuation of 374. Prerequisites: 374, 405. <Fall, Spring>

475. Business Systems in Lithography Workshops. (2) Booth
   Application of systems theory to the structure of a business environment for preservation of the art of lithography. Emphasis on the application of management techniques in the planning, directing, and control of print shop business operations. <Fall>

476. Business Systems in Lithography Workshops. (2) Booth
   Continuation of 475. Research and synthesis of small business practices which contribute to successful art entrepreneurship. Specific consideration of capital funding, marketing methods, and financial management. <Spring>

†† May be repeated twice.

§ Open only to graduate students and to undergraduates enrolled in the pre-professional curricula of the College of Fine Arts. Students in the teacher education curricula may enroll with permission of the Department Chairman. Graduate credit allowed only where asterisk appears before course number.

° Open only to graduate students and to undergraduates enrolled in the pre-professional curricula of the College of Fine Arts. Students in the teacher education curricula may enroll with permission of the Department Chairman. A 3.5 grade average in 6 hours (or 3.0 grade average in 9 hours) of the 300 level prerequisites noted in the course description is also required.
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486. Techniques of Photography. (3)‡‡ Exploration of special equipment and such processes as photo-silk-screening, film strips, photo montage, high contrast film use. Prerequisites: 387, Art Hi 425, 426. <Fall, Spring>

487. Advanced Photography. (3)‡‡ Barrow, Coke Advanced concepts of photography as applied to the development of personal expression. Prerequisites: 386, 387, Art Hi 425, and 426. <Fall, Spring>

488. Advanced Cinematic Photography. (3)‡ Lazorik Continuation of 388. Prerequisite: 388. <Fall, Spring>

495. Tutorial Critique. (1-6)‡‡ Advanced criticism of specifically directed individual problems. Prerequisite: 6 hours of 300 level courses in the tutorial area and submission of portfolio for departmental approval. By permission of the instructor. <Fall, Spring>

499. Senior Thesis. (3) Directed study in the major field, culminating in a written thesis. Open to students by faculty invitation only. <Spring>

505. Projects in Drawing. (3)‡ Prerequisite: 405. <Fall, Spring>

507. Projects in Painting. (3)‡ Prerequisite: 407. <Fall, Spring>

513. Projects in Sculpture. (3)‡ Grow, Mattox Prerequisite: 413. <Fall, Spring>

514-515. Problems. (2-3 hours each semester to a maximum of 6) Graduate work in projects or fields not covered in the regular catalog courses.

517. Projects in Jewelry and Metalwork. (3)‡ Lewis Prerequisite: 457. <Fall, Spring>

518. Projects in Ceramics. (3)‡ Paak Prerequisite: 468. <Fall, Spring>

519. Projects in Lithography. (3 or 6)‡ Antreasian Prerequisite: 474. <Fall, Spring>

527. Projects in Photography. (3)‡ Coke Prerequisite: 487. <Fall, Spring>

528. Final Project. (3) Prerequisite: advancement to candidacy. <Fall, Spring>

529. Master’s Thesis. (1-6) <Fall, Spring>

539. Dissertation. (1-9 hrs. per semester) See the Graduate School Bulletin for total credit requirements. <Fall, Spring>

ART HISTORY

101. Art Appreciation. (3) Introduction to the visual arts, with emphasis on the various fields, media, and masterpieces. <Summer, Fall, Spring>

130. Contemporary Art. (3) Ellis, Walch Emphasis will be given to the theoretical bases of the major movements since Impressionism. <Fall, Spring>

201. History of Art I. (3) Bunting Prehistoric, Near Eastern, Egyptian, Greek, Roman, Early Christian, Byzantine, Romanesque, and Gothic Art. <Fall, Spring>

202. History of Art II. (3) George, Rodee Western art from the Early Renaissance to Impressionism. <Fall, Spring>

†‡ May be repeated twice.

‡‡ Open only to graduate students and to undergraduates enrolled in the pre-professional curricula of the College of Fine Arts. Students in the teacher education curricula may enroll with permission of the Department Chairman. Graduate credit allowed only where asterisk appears before course number.

§ Open only to graduate students and to undergraduates enrolled in the pre-professional curricula of the College of Fine Arts. Students in the teacher education curricula may enroll with permission of the Department Chairman. A 3.5 grade average in 6 hours (or 3.0 grade average in 9 hours) of the 300 level prerequisites noted in the course description is also required.
261. Ancient and Medieval Architecture. (3) Bunting  
   <Fall>

262. Renaissance and Baroque Architecture. (3) Bunting  
   <Spring>

301-302. Interdepartmental Studies in the Culture of the United States. (3, 3)  
   (See Am St 301-302.)  
   <Offered upon demand>

303. Chinese and Japanese Art. (3)  
   <Offered upon demand>

304L. Beginning Museology. (3) Brody  
   (See Anth 304L.)

*320. African and Oceanic Art. (3)  
   <Spring>

*340. Pre-Columbian Art. (3) M. E. Smith  
   Art of Middle America prior to the 16th century.  
   <Fall>

343. Pre-Columbian Architecture. (3)  
   North, South and Meso-American Pre-Columbian Architecture, with emphasis on the cultural  
   background of ancient civilizations.  
   <Spring>

*350. Greek and Roman Art. (3)  
   Painting and sculpture from 1800 B.C. to the 6th century A.D.  
   <Offered upon demand>

*351. Medieval Art I. (3) Bunting  
   Architecture, painting, and sculpture from the dissolution of the Roman empire to the 11th  
   century.  
   <Fall 1977 and alternate years>

*352. Medieval Art II. (3) Bunting  
   Architecture, painting, and sculpture from the 12th century through the 16th century.  
   <Spring 1978 and alternate years>

361. Architecture Since 1750. (3) Pillet  
   <Fall>

*370. History of the Graphic Arts. (3)  
   Printmaking from the 13th century to the present.  
   <Fall>

*380L. Advanced Museology. (3) Brody  
   (See Anth 380L.)

*400. Museum Practices. (3)†† Newhall  
   Practical and theoretical work in museum practices such as registration, conservation, exhibition,  
   and cataloging works of art.  
   <Fall, Spring>

*402. Native American Art I. (3) Brody  
   (Also offered as Anth 402.) Prehistoric and historic art forms of the Arctic Northwest coast,  
   Southwest, and Western regions.  
   <Offered upon demand>

*403. Native American Art II. (3) Brody  
   (Also offered as Anth 403.) Prehistoric and historic art forms of the Plains, Sub-Arctic and  
   Eastern regions.  
   <Offered upon demand>

*425. 19th Century Photography. (3) Newhall  
   Historical development and aesthetic character of photography in the 19th century.  
   <Fall>

*426. 20th Century Photography. (3) Newhall  
   Historical development and aesthetic character of photography in the 20th century.  
   <Spring>

*450. Spanish Colonial Art. (3) M. E. Smith  
   Architecture, sculpture, and painting in the period of Spanish colonization and the  
   relation of these art forms to both the Spanish and the native Indian traditions.  
   <Spring>

*451. Fifteenth and Sixteenth Century Art in Italy. (3) Bunting  
   Painting and sculpture from the late 14th century through Mannerism.  
   <Fall>

*452. Fifteenth and Sixteenth Century Art in Northern Europe. (3) Rodee  
   Painting and sculpture from the late 14th century through Mannerism.  
   <Spring>

*460. Seminar in Museology and Museography. (3) Brody  
   (Also offered as Anth 460.) Practical and theoretical work in specific museum problems.  
   Prerequisites: Anth 304L or 380L, or Art 400.

*463. Seventeenth-Century Art in Europe. (3)  
   Painting, sculpture, and architecture of the Baroque.  
   <Fall>

*464. Eighteenth-Century Art in Europe. (3) Walch  
   <Spring>
*471. Hispanic Art. (3) M. E. Smith
Survey of Hispanic art in Europe. <Fall>

*472. Art of the United States. (3) Cikovsky
Painting and sculpture from Colonial times to 1906. <Fall>

*475. American Architecture. (3) Bunting
History of American architecture from the 17th century to World War II. <Spring>

*479. American Art: 1906-1940. (3) George
Painting and sculpture from 1906 to the beginning of World War II. <Spring>

*481. Nineteenth Century Art. (3) Rodee
Painting and sculpture from the late Rococo period through Courbet. <Fall>

*482. Foundations of Modern Art. (3) Rodee
Painting and sculpture from Monet through Post-Impressionism. <Spring>

490. Interdepartmental Proseminar. (3) Honors Staff
(See FA 490) <Fall>

*491. 20th Century Art. (Later 20th Century Art) (3) Walch
Painting and sculpture from World War I to the present. <Fall>

*492. Art Criticism. (3)
Principles of criticism in the visual arts with emphasis on critical approaches to contemporary art. Prerequisite: 6 hours upper division in art history, literature, and/or philosophy. <Offered upon demand>

*494. Problems in Art History. (2-3)
Course work determined by specific student request or by professor's current research. <Offered upon demand>

496. Tutorial. (3)
Individual investigation or reading under faculty direction. Prerequisite: 6 hrs. upper division art history. <Fall, Spring>

499. Senior Thesis. (3)
Directed study in the major field, culminating in a written thesis. Open to students by faculty invitation only. <Spring>

*500. Bibliography and Research. (3) Bunting, Walch
<Fall>

*501. Interdepartmental Seminar in the Culture of the United States. (3)
(See Am St 501.) <Offered upon demand>

*551-552. Problems. (2-3 hrs. each semester)
Maximum 6 hours. <Fall, Spring>

*559. Problems in Native American Art. (3) Brody
<Offered upon demand>

*560. Problems in Pre-Columbian Art or African Art or Oceanic Art. (3) M. E. Smith
Prerequisites: 340 or its equivalent and reading knowledge of Spanish. <Fall>

*561. Problems in Ancient and Medieval Art. (3)<Offered upon demand>

*571. Problems in Renaissance and Baroque Art. (3)
<Offered upon demand>

*572. Problems in the Art of the United States. (3) Bunting, Cikovsky, George
<Spring>

*580. Problems in Spanish Colonial Art (3) Bunting, M. E. Smith
Prerequisites: 450 and reading knowledge of Spanish. <Fall>

*581. Problems in 19th Century Art. (3) Newhall, Rodee
<Fall, Spring>

*582. Problems in 20th Century Art. (3) Adams, Cikovsky, Newhall, Walch
<Fall, Spring>

*592. Art Since 1950. (3) Adams, Cikovsky, Walch
<Spring>

*594. Topics in Art History. (3)

*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements. <Fall, Spring>

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements. <Fall, Spring>
ASIAN STUDIES

COMMITTEE IN CHARGE: Associate Professor C. McDermott, Ph.D. (Philosophy), Chairperson; Assistant Professor D. Gordon, M.A. (Geography); Professor F. Iklé, Ph.D. (History); Assistant Professor J. Sebring, Ph.D. (Anthropology); Professor J. Sorenson, Ph.D. (Political Science).

MAJOR STUDY
Not offered.

UNDERGRADUATE MINOR
An interdepartmental minor in Asian Studies shall consist of at least 18 hours in courses selected from the approved list below, including at least 3 hours in History, 3 hours in Philosophy, and 3 hours in Geography. No more than 9 hours may be selected in any one department and courses used to satisfy the major field may not be applied to the minor. The following courses have been approved. (See appropriate departmental listings for course descriptions and prerequisites):

Anthropology 321; Art 303; Geography 330, 331, 336, 337; History 251, 252, 350, 351, 352, 354, 356, 370, 371, plus 495 and 496 when topic is appropriate; Philosophy 263, 334, 335, 336, 337, 348, plus 441 and 442 when topic is appropriate; Political Science 450, English 300 when topic is appropriate.

BIOLOGY


Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY

B.S. Degree: (recommended for professional biologists and for those entering graduate programs and professional fields such as medicine). Biol 121L-122L, 407 or 411L, 408, 409L, 429L, at least one course from two of the following three groups: Botanical—363L, 372L, 474L; Zoological—371L, 386L; Microbiological 253 and 255L, 473L, 482L; plus sufficient added courses in biology to total 37 hours. Math 162 or 180 and 181; Chem 101L-102L or 121L-122L, and 281 or 301-303L (Note: 281 not allowed for chemistry minor. Credit not allowed for both 281 and 301); Physcs 151 and 152. (For those interested in microbiology, physiology, or medicine, Chem 301-303L and 302-304L are recommended.) Grades of "C" or better are required of biology majors in all of the above courses.

B.A. Degree: (available for biology majors in Education or in Arts and Sciences obtaining a teaching certificate and others in a liberal arts program). Biol 121L-122L, 407 or 411L, 408, 409L, 429L, at least one course from two of the following three groups: Botanical—363L, 372L, 474L; Zoological—371L,
386L; Microbiological—253 and 255L, 473L, 482L; plus sufficient added courses in biology to total 39 hours. Math 162 or 180 and 181; Chem 101L or 121L and 281 or 301-303L. Grades of "C" or better are required of biology majors in all of the above courses.

A student desiring to concentrate in some special field of biology or to receive advisement should report to the departmental office Room 173. Students entering the sophomore year or higher level will be assigned to an appropriate faculty adviser on a voluntary basis.

MINOR STUDY

Biol 121L-122L and 12 additional hours of biology with 8 of the additional hours being at the 300 or 400 level. Grades of "C" or better are required in biology courses used for a minor.

MINOR STUDY IN PALEOECOLOGY

See p. 400.

CURRICULA PREPARATORY TO DENTISTRY, FORESTRY, MEDICAL TECHNOLOGY, OR MEDICINE

See p. 83.

Note: Credit will not be allowed for both 136-139L and 237L or 238L; nor for both 254L and 255L.

110. Life Science for Non-Majors. (3) Degenhardt
Fundamental concepts of biology. Social implications are stressed, chemical and molecular aspects are de-emphasized. 3 lectures. <Fall>

111. Life Science for Non-Majors. (3) Degenhardt
Continuation of Biology 110. Emphases on ecology and man's integral relationship with and responsibility to his environment. Prerequisite: 110. 3 lectures. <Spring>

121L. Principles of Biology. (4) Altenbach
Molecular basis of life and cell theory. Emphasis on development of ideas rather than descriptive aspects. 3 lectures, 3 hrs. lab. <Summer, Fall>

122L. Principles of Biology. (4) Altenbach
Heredity, development, and evolution. 3 lectures, 3 hrs. lab. <Summer, Spring>

123. Biology for Health Related Sciences. (4) Kidd
Principles of cell biology, genetics, evolution, and social biology. Restricted enrollment: only those students who intend to apply for admittance to the colleges of Nursing and Pharmacy. 3 lectures, 3 hrs. lab. <Fall>

136. Human Anatomy and Physiology. (3) Landau
The structure and functions of the human body. Lectures emphasize physiology. May be taken with, or independently of, 139L. Not accepted toward a biology major. <Spring>

139L. Human Anatomy and Physiology Laboratory. (1) Landau
Laboratory work in elementary anatomy and physiology. Cannot be taken independently of 136. 3 hrs lab. <Spring>

237L. [236L] Human Anatomy and Physiology for Health Sciences [Paramedical Anatomy and Physiology] (4) Bourne
An integrated study of human structure and functions. Enrollment restricted to students of Colleges of Pharmacy and Nursing. Not accepted for biology major. Prerequisites: Biol. 123L, Gen. Chem. 4 hrs. 3 hrs. lecture, 3 hrs. lab. <Fall>

238L. Anatomy Physiology and Pathology. (4) Bourne
Continuation of Biology 237L. <Spring>

253. Introductory Microbiology. (2) Barton
Anatomy, physiology, and ecology of bacteria. Host-parasite relationships. Principles of infection and immunity. Must be taken concurrently with either 254L or 255L. Prerequisites: 121L and 4 hrs. of chemistry. 2 lectures. <Summer, Fall, Spring>

254L. Introductory Microbiology Laboratory for Health Sciences. (2)
Microbial techniques and laboratory procedures for nursing, pharmacy, dental hygiene, dietetics, and health education majors. Must be taken with 253. 6 hrs. lab. <Fall>
255L Introductory Microbiology Laboratory. (2)
Microbiology techniques and laboratory procedures for biology majors, med-tech, pre-medical, and pre-dental students. Must be taken with 253. 6 hrs. lab. <Summer, Fall, Spring>

290L [490L] Biological Lab Techniques [Histological Techniques] (4) Duszynski
Preparation of cells and tissues for microscopic examination using paraffin and plastic methods. Other techniques may also include: use of the cryostat and ultramicrotome, histochemistry, basic photography, and fermentation studies. 1 hr. lecture, 5 hrs. lab. <Spring>

312. Developmental Biology. (3) Staff
A survey of the basic mechanism of organismic development from both descriptive and experimental points of view. Prerequisites: Biol. 121L, 122L, and Chem. 281 or 301. 3 hrs. lecture. <Spring 1977 and alternate years>

*324. Biochemistry. (3)
(See Chem 324.) <Spring>

326L Physiology of Exercise. (3) Atterbom
(Also offered as P.E. 326L) Physiological processes and their relation to exercise. Prerequisite: 121L and 122L and 136. 2 lectures, 3 hrs. lab. <Summer, Fall>

351. Introductory Molecular Biology. (3) Kogoma
Interpretation of biological activities in terms of molecules with emphasis on interactions of molecules in cells. Prerequisites: Biol. 253, Chem. 281 or 301. Physics 151-152 recommended. 3 lectures. <Fall>

*363L Flora of New Mexico. (4) Martin
Identification, classification, and nomenclature of vascular plants. Field trips required. Prerequisites: 121L and 122L. 3 lectures, 3 hrs. lab. <Fall>

*371L Biology of the Invertebrates. [Invertebrate Zoology] (4) Wise
Survey of the major invertebrate groups with emphasis on evolutionary and ecological relationships, and the correlation of structure with function. Prerequisites: Biol. 121L and 122L. 3 lectures, 3 hrs. lab. <Fall>

*372. Plant Morphogenesis. (4) Staff
Unity, diversity, and organogenesis in the plant kingdom. Prerequisite: 8 hrs. in Biol. 3 lectures, 3 hrs. lab. <Spring>

382L [482L] Parasitic Protozoa and Helminths (4) Duszynski
The protozoa and worms important in human and veterinary medicine. Emphasis on life histories, epidemiology, and ecology of parasites with laboratory practice in identification and experimentation. Prerequisite: 371L. 2 hrs lecture, 4 hrs lab. <Fall>

*386L General Vertebrate Zoology. (4) Findley, Ligon
Ecology, behavior, sociology, adaptations and evolution of the vertebrates. Prerequisites: Biol. 121L and 122L. 3 lectures, 3 hrs. lab. <Fall 1977, Each Spring>

400. Senior Seminar. (2)
(Offered each semester, cannot be repeated for credit). <Fall, Spring>

*401L Biometrics. (4) Gosz
Collection, handling, and statistical treatment of biological data. Prerequisites: 20 hrs. of Biol and Math 121 or 150 or 162 or 180 and 181. 2 lectures, 6 hrs. lab. <Fall 1975 and alternate years>

*407. Concepts of Ecology. (3) Potter, Gosz
Interrelationships of physical and biotic environments. Prerequisite: 16 hrs. of Biol or instructor's permission. <Fall, Spring>

*408. Genetics. (3) W. Johnson
Structure, function, and transmission of hereditary factors. May be taken with, or independently of, 409L. Prerequisite: 121L and 122L. <Fall, Spring>

*409L Genetics Laboratory. (1) W. Johnson
Genetic principles using the fruit fly and lower organisms. Prerequisite or corequisite: 408. 3 hrs. lab. <Fall, Spring>

*410L Arid Land Invertebrates. (4) Crawford
Biology of arid land invertebrates with emphasis on their roles in adaptations to xeric ecosystems. Some Saturday field trips required. Prerequisites: Biol. 371L and 407; Biol. 414L, 423 and 424 and 443L recommended. 3 lectures, 3 hrs. lab. <Fall 1975 and alternate years>
411L. Population Biology. (4) Rosenzweig
Evolutionary mechanics; population and evolutionary ecology. Prerequisite: one semester of calculus. 3 lectures, 3 hrs. lab. <Fall>

412L. Descriptive and Comparative Embryology of the Vertebrates. [Comparative Embryology of the Vertebrates]. (4) Bourne
Prerequisites: Biol. 371L, 386L, or permission of instructor. <Fall>

414L. General Entomology. (4) Crawford
Biology and classification of the insects. Prerequisites: 121L and 122L, 371L or permission of instructor. 2 lectures, 4 hrs. lab. <Spring>

416L. Histology. (5) Bourne
Microscopic structure of vertebrate tissues, emphasizing correlation of structure and function. Prerequisites: 121L and 122L and 4 hrs. in Biol. 3 lectures, 4 hrs. lab. <Fall>

417. Cytology. (3) Bourne
Study of plant and animal cells. Prerequisite: 429L. <Spring>

420. Biochemistry of the Nervous System. (3) LeBaron, Wild
(See Medical Sci. 420)

421L. Comparative Vertebrate Anatomy. (5) Ligon
Prerequisites: 121L and 122L and 371L or 386L. 2 lectures, 6 hrs. lab. <Fall 1975 and alternate years>

423. Biological Adaptation. (3) Gosz, Riedesel, Ligon, Crawford
Adaptations of plants and animals to light. Prerequisites: 121L and 122L and Junior standing. <Fall>

424. Biological Adaptation. (3) Gosz, Riedesel, Ligon, Crawford
Adaptations of plants and animals to temperature and water. Prerequisites: 121L and 122L and Junior standing. <Spring>

425. Molecular Genetics. (3) Kogoma
Molecular biology of the gene. May be taken with or independently of 426L. Prerequisites: Biol. 351 and 408 or permission of instructor. 3 lectures. <Spring>

426L. Molecular Genetics Laboratory. (1) Kogoma
Experiments with bacteria and bacteriophages to understand mutation, recombination, complementation, etc. Pre- or corequisite: Biol. 425. 3 hrs. lab. <Spring>

429L. Cellular Physiology and Biochemistry. [Cellular Physiology] (4) Kerkof
Life processes with emphasis on relationships of structure and function at organelle and molecular level. Prerequisites: 16 hrs. Biol, Chem 281 or 301-303L, Math 121 or 150 or 162 or 180 and 181: 3 lectures, 3 hrs. lab. <Fall, Spring>

430L. Vertebrate Physiology. (5) Riedesel
Functions and structures with emphasis on fundamental physiological processes and mechanisms at cell and system levels. Prerequisite: 429L, or Chem 324 or Chem 481-482. 4 lectures, 3 hrs. lab. <Spring>

433. Molecular Biophysics. (3) Allen, Beckel, Kogoma
(Also offered as Chem, Physics 433.) Physio-chemical properties and the dependence of biological function on these properties for amino acids, proteins, nucleotides, DNA, and RNA. <Offered upon demand>

443L. Comparative Physiology. (4) Landau
A comparison of physiological processes with emphasis on osmoregulation, nutrition, and metabolism. Prerequisites: 371L or 386, 430L or 478L and 429L, or permission of instructor. Organic chemistry recommended. 3 lectures, 3 hrs. lab. <Fall 1975 and alternate years>

454L. Pathogenic Bacteriology. (5) Staff
The properties and characteristics of disease-producing bacteria and their relationship to disease. Prerequisites: 253 and Chem 281 or 301-303L. 2 lectures, 9 hrs. lab. <Summer, Fall>

455. Ethology: Animal Behavior. (3) Ligon
Adaptive significance of major behavioral patterns, with special emphasis on vertebrates; composition of behavior. Prerequisite: 386L. <Fall>

456. Immunology. (3) Staff
Principles of antigen-antibody reaction, hypersensitivity, and auto-immune diseases. Laboratory preparation, detection, and measurement of antibodies. Prerequisites: 253 and Chem 302-304L. Chem 324 recommended. 2 lectures, 6 hrs. lab. <Spring>
Biology 233

*457L. Ethology Laboratory: Animal Behavior. (1) Ligon
Special laboratory and field projects in animal behavior. Optional. To be taken with, or subsequent to, 455. 3 hrs. lab. <Fall>

*458L. Immunology Laboratory Techniques. (2) Staff

*460L. Physiology of Bacteria. (4) Barton
Cytology; growth and reproduction; fermentation, respiration, and other enzymatic activities of bacteria. Prerequisites: 253, 429L, and Chem 281 or 301-303L. 2 lectures, 6 hrs. lab. <Spring>

*473L. General Mycology. (4) Barton, Martin
A general study of the fungi with emphasis on classification, physiology, biochemistry, and the impact of these organisms on human affairs. Prerequisites: 121L and 122L and 363L, 372L or 253. 2 lectures, 6 hrs. lab. <Fall>

*474L. Plant Anatomy. (4) Martin
Structure of vascular plants. Prerequisites: 121L and 122L and 363L or 372L. 2 lectures, 4 hrs. lab. <Spring 1977 and alternate years>

*475L. Pharmacology I. (5)
(See Pharm 475L.) Not allowed for undergraduate Biology credit. <Fall>

*476L. Pharmacology II. (4)
(See Pharm 476L.) Not allowed for undergraduate Biology credit. <Spring>

*478L. Plant Physiology. (4) G. Johnson
Nutrition, metabolism, and growth of higher plants. Prerequisites: 429L, and 363L or 372L or permission of instructor. Chem 301-303L recommended. 3 lectures, 3 hrs. lab. <Spring>

*479L. Environmental Conservation. (3) Dittmer
The effects of overpopulation on the earth's natural resources and prospects for the future. Lecture, demonstration, field trips. Prerequisite: 8 hrs. in Biol or junior status. <Summer 1975 only>

*483L. Analysis of Development. (3) Staff
Advanced study of basic problems in developmental biology, with major emphasis on interacting systems approached at several levels from molecular to morphological; genetic and metabolic control of the interacting systems. Prerequisites: Biol. 312, 408, 429L or permission of instructor. <Spring 1976 and alternate years>

*486L. Ornithology. (4) Ligon
Classification, phylogeny, natural history and literature of birds. Early morning field trips required. Prerequisite: 386L or permission of instructor. 3 lectures, 3 hrs. lab. <Fall>

*487L. Ichthyology (4) Staff
Classification, phylogeny, natural history and literature of fishes. All-day field trips required. Prerequisites: 121L and 122L. 3 lectures, 3 hrs. lab. <Spring>

*488L. Herpetology. (4) Degenhardt
Classification, phylogeny, natural history, and literature of reptiles and amphibians. All-day and one or more overnight field trips required. Prerequisites: 121L and 122L. 2 lectures, 6 hrs. lab. <Spring>

*489L. Mammalogy. (4) Findley
Classification, phylogeny, natural history, and literature of mammals. All-day field trips and one or more overnight field trips required. Prerequisites: 386L, 421L. 3 lectures, 3 hrs. lab. <Fall>

*491L. Radiobiology. (4) Kerkof, G. Johnson
Properties of radiation; principles, theory, and use of detection and counting instruments; radioisotopes as tracers in biological experiments. Prerequisites: 429L, Physics 151-153L, Chem 281 or 301-303L. One year of organic chemistry recommended. 2 lectures, 6 hrs. lab. <Fall 1975 and alternate years>

*492L. Radiobiology. (4) G. Johnson, Kerkof
Interaction of radiation with matter; biological effects of radiation; radiation syndrome; relative radiosensitivity of cells, organs and organisms; physics and practical applications of radiation. Prerequisite: 491L; Pre- or corequisite: Physics 152-154L, 1 yr. organic chem. recommended. <Spring 1976 and alternate years>

*493L. Advanced Radiobiology Laboratory. (1-3) G. Johnson, Kerkof
Advanced radioisotope methodology, independent research in radiobiology. Corequisite: Biol. 492 and permission of instructor. <Spring 1976 and alternate years>
*495. Topics in Oceanography-Limnology. (3) Kidd
Consideration of the physical, chemical, and biological interactions in freshwater and marine environments. Prerequisites: Biol. 121L, 122L, Physics 151, 152 and 8 hrs. of Chemistry. <Spring and alternate years>

*496. Oceanography-Limnology Technique (1) Kidd
Measurement of physical, chemical, and biological parameters which are used in both freshwater and marine environments. Pre- or corequisite: 495. <Spring 1976 and alternate years>

499. Undergraduate Problems. (1-3)
Permission of instructor required. Maximum of 6 hrs. credited toward a biology major or minor.

*500. New Graduate Student Seminar. (1) Duszynski

*501. Seminar: Current Topics in Biology. (1)†
Prerequisite: permission of instructor. <Summer, Fall, Spring>

*502. Special Topics in Biology. (1-3)‡
Prerequisite: permission of instructor. <Summer, Fall, Spring>

*504. Environmental Physiology. (3) Riedesel
Prerequisites: 430L and permission of instructor. <Fall>

*509. Advanced Genetics. (3) W. Johnson
Prerequisite: 408. <Spring 1975 and alternate years>

*510. Genetics of Speciation. (3) W. Johnson
Prerequisite: 408. <Spring 1976>


*540. The Soil Ecosystem. (4) Gosz, G. Johnson
Prerequisite: Graduate status or permission of instructor. <Fall 1976 and alternate years.>

*551. Problems. (2-3)††

*552L. Advanced Parasitic Protozoology. (4) Duszynski
Prerequisites: 371L, 416L, or permission of instructor. 2 lectures, 4 hrs. lab. <Spring 1976 and alternate years>

*554L. Advanced Mammalogy. (4) Findley
Prerequisite: 489L. 3 lectures, 3 hrs. lab. <Fall 1974 and alternate years>

*557. Theoretical Ecology. (3) Rosenzweig
Prerequisites: 411L and Math 163 or equivalent. 3 lectures. <Spring>

Some all day field trips required. Prerequisites: Biol. 401L, 407 or 411L; or permission of instructor. <Spring>

*563L. Advanced Plant Taxonomy. (4) Martin
Prerequisites: 408 and 363L. Recommended: 407, 474L, and 478L. 2 lectures, 6 hrs. lab. <Spring 1976>

*567L. Experimental Embryology. (4) Staff
Prerequisite: Biol. 483. <Spring 1976 and alternate years>

*571L. Physiological Plant Ecology. (4) Gosz
Prerequisite: 407 or 478L. 3 lectures, 3 hrs. lab.

*572L. Ecology of North American Vegetation. (4) Potter
Prerequisite: 407. 3 lectures, 3 hrs. lab. <Spring>

*583. Biology of Water Pollution. (3) Kidd
Prerequisite: permission of instructor. <Fall>

*584L. Biology of Water Pollution Laboratory. (1) Kidd
Enrollment limited to ten. Prerequisite: permission of instructor. Must be taken concurrently with or after 583.

*593L. Plant Mineral and Water Relations. (4) G. Johnson
Prerequisite: 478L. 2 lectures, 6 hrs. lab. <Fall 1976 and alternate years>

*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*651F. Advanced Field Biology. (4-8)
Approval of Committee on Studies required.

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.
BUSINESS AND ADMINISTRATIVE SCIENCES


CURRICULA

See p. 91.

MINOR

The minor in Business and Administrative Sciences is available only to those students who complete the “Specific Requirements” for admission to 300- and 400-level B&AS courses: Math 102, 121, 180; Econ 200, 201; Psych 102 and a 200 or higher psychology course or Soc 101 and a 200 or higher sociology course, B&AS 202, 290L (taken with Math 102) and Cp Sci 150. The additional courses required for the minor are B&AS 303 or 340, 306, 307, and one additional upper division course in B&AS.

100. Management: An Introduction (3)
Modern concepts of organizations and their management. An overview of functional activities within business and other organizations. A management simulation game will provide students with the opportunity to integrate the subject materials of the course.

202. Introduction to Accounting. (3)
An examination of the conceptual framework of accounting and the functions of accounting in a business-oriented society. Topics include: valuation theory and its application to assets and liabilities; concepts of business income; funds-flow analysis; problems of financial reporting. Prerequisites: two semesters of college level mathematics and one semester of Economics with a grade of C or better in each course. <Fall, Spring>

290L. Business Statistics Laboratory. (1)
Application of probability and statistics in business. Co-requisite: Math 102. <Fall, Spring>

Note: With the exceptions noted immediately below, the minimum prerequisites for all 300 and 400 level courses listed are: (1) the “Specific Requirements” listed as item 5 (b) under “Admission from the University College” (See the description of the Bachelor of Business Administration Degree in an earlier section of this catalog), and (2) junior standing. Individual courses may have other prerequisites as indicated in the course descriptions. The exceptions to this rule are courses numbered 340, 358, 359, and 361. The latter three courses are offered specifically to meet the needs of students not working toward a B.B.A. degree and may not be used to fulfill the requirements for that degree.

300. Management Science I. (3)
Mathematical and statistical models used in the decision-making process. Computer used in problem solving through deterministic models for optimal scheduling, resource allocation, and inventory control. Statistical techniques for time series forecasts and Bayesian decision theory. Prerequisites: “Specific Requirements,” see above. <Fall, Spring>

301. Management Science II. (3)
Continuation of 300. Analyses of waiting line situations, design and execution of computer simulations, scheduling and sequencing techniques such as PERT-CPM in network analysis, and an introduction to computer-based management information systems. Prerequisite: 300. <Fall, Spring>

303. Accounting for Management Control. (3)
Primary emphasis on the role of accounting in the processes of management decision-making for planning and control. Topics include: relevant cost analysis; standard costing and analysis of variances; budgeting and responsibility accounting, planning capital expenditures. Prerequisite: “Specific Requirements,” see above. <Fall, Spring>
306. Organizational Behavior I—Theory and Concepts. (3)
   Intensive examination of behavioral science research and theory as a basis for under­
   standing, managing, and changing organizations. Emphasis is upon a comparative or­
   ganizational approach which applies to every organization, public or private, as a
   socio-technical system. Prerequisites: "Specific Requirements," see above. <Fall, Spring>

307. Organizational Behavior II—Applications. (3)
   Continuation of 306 with emphasis on applications of theories and concepts. Prerequi­
   site: 306. <Fall, Spring>

308. Organizational Environment. (3)
   The nature of environmental change on the structure and operation of the organization;
   social, political, economic, ethical, and technological systems are examined as they
   relate to each other and to the management of small and large scale organizations.
   Prerequisites: "Specific Requirements," see above. <Fall, Spring>

309. Man, Society, and Law. (3)
   Examination of nature, functions and ends of law. Philosophical schools of thought con­
   cerning the nature of man, organizations and government from Aristotle to present.
   Emphasis on law as external constraint on decision-making by individuals and organiza­
   tions. Prerequisites: "Specific Requirements," see above. <Fall, Spring>

310. Law of Contracts. (3)
   A conceptual approach to transactions between men and organizations. Development of
   an understanding of the elements of agreements, the types of agreements which are
   legally enforceable, and the legal remedies available to the parties thereto. Prerequi­
   sites: "Specific Requirements," see above. <Fall, Spring>

322. Marketing Management. (3)
   Provides an understanding and appreciation of the marketing process within the frame­
   work of the firm. The purpose is to develop a comprehension of the increasingly im­
   portant role of behavioral and quantitative models in developing marketing strategy.
   Prerequisites: "Specific Requirements," see above. <Fall, Spring, Summer>

326. Financial Management. (3)
   Principles and practices influencing the decision-making responsibility for business
   financial operations. Financial analysis, planning and control; long-term invest­
   ment decisions; financial structure and cost of capital; working capital management;
   long-term external financing. Prerequisites: 300, 303, Econ 300, 315. <Fall, Spring>

340. Financial Accounting I. (3)
   Financial reporting theory, applied financial accounting problems, contemporary finan­
   cial accounting issues. The accounting cycle; asset valuation; income determination; issues
   resulting from the corporate form of organization; current assets. Prerequisites: grade of
   C or better in 202. <Fall, Spring>

341. Financial Accounting II. (3)
   Continuation of 340. Problems relating to liabilities and non-current assets; the anal­
   ysis and interpretation of financial statements including the impact of income taxes and
   changing price levels. Prerequisites: "Specific Requirements," see above and 340.
   <Fall, Spring>

*342. Income Tax Accounting. (3)
   Federal and state income tax laws and regulations; sources of tax law; tax services;
   the Internal Revenue Service; tax returns, rates and credits; deductions and exclusions;
   withholding provisions; capital gains and losses; community property clauses. Prerequisites:
   "Specific Requirements," see above and 340, or permission of the instructor. <Fall, Spring>

*346. Managerial and Cost Accounting. (3)
   Procedures involved in the development, presentation and interpretation of accounting
   information as an aid to management. Usefulness and limitations of accounting data in
   evaluating and controlling operations; collecting cost information; cost estimation and
   allocation; standard costs; budgeting; cost-value relationships. Prerequisite: 303. <Fall, Spring>

*348. Legal Concepts for Accountants. (3)
   An intensive examination of the legal concepts underlying accounting theory and prac­
   tice. Specific topics, contracts, agency, sales, and legal liability of accountants. Pre­
   requisites: 340, 310. <Fall>
358. Man, Society, and Law. (3)
Examination of nature, functions and ends of law. Philosophical schools of thought concerning the nature of man, organizations and government from Aristotle to present. Emphasis on law as external constraint on decision-making by individuals and organizations. Not accepted as credit toward a B.B.A. degree. <Fall>

359. Law of Contracts. (3)
A conceptual approach to transactions between men and organizations. Development of an understanding of the elements of agreements, the types of agreements which are legally enforceable, and the legal remedies available to the parties thereto. Not accepted as credit toward a B.B.A. degree. <Spring>

361. Organization Theory. (3)
Fundamentals of organization and management which apply to organizations involving sizeable groups of people. The manager's job in setting goals and utilizing human and material resources to meet organization objectives. Human relations case problems. Not accepted as credit toward a B.B.A. degree. <Fall, Spring>

436. Production and Operations Management. (3)
Design and control of production and logistics systems. Facilities design, quality control, and other industrial engineering techniques. Case analyses of management science techniques applied to operations problems. Prerequisites: 300, 301. <Fall>

439. Projects in Management Science. (3)
Seminar involving class or group projects applying management science techniques to ongoing problems of business and administrative organizations. Special attention may be given to the use of computerized business games. Prerequisites: 300 and 301, or permission of the instructor. <Spring>

*440. Financial Accounting III. (3)
Continuation of 340 and 341. Problems and theory related to advanced accounting topics including: partnership dissolution and liquidation; installment sales; and selected issues of a currently controversial nature. Prerequisite: 341. <Fall, Spring>

*443. Auditing. (3)
Auditing principles and procedure; preliminary considerations, planning the audit program, classes of audits, audit reports, professional ethics, and legal responsibility; case problems. Prerequisite: 440. <Fall, Spring>

*445. Contemporary Accounting Topics. (3)
An examination of selected theoretical issues related to current controversy in accounting. Prerequisite: 440. <Spring>

*449. Accounting Information Systems. (3)
Accounting and its relationship to the management information and control system in the context of the total servomechanism system concept. Theories and applications emphasize the generation, organization, transformation, dissemination, codification, discrimination and economics of information. Prerequisite: 301; pre- or corequisite: 346. <Fall, Spring>

451-452. Problems. (1-3 hrs. each semester)††
Special permission of the adviser and of the Dean of the School of Business and Administrative Sciences required. Arrangements must be made with individual instructor before enrolling for Problems. <Fall, Spring>

*460. Information System Design. (3) Newpeck
The design, development and operation of computer-based management information systems. Includes feasibility studies, system analysis, design, implementation and operation with emphasis on concepts for embedding a computer-based system within the organization. Prerequisite: 449 or consent of instructor. <Spring>

*464. Labor Law and Collective Bargaining. (3)
Intensive analysis of negotiation and arbitration cases involving wages, employee discipline, seniority rights, management prerogatives, and other collective bargaining issues. Prerequisites: B average or higher in 306 and 307. <Fall>

*466. Advanced Concepts and Problems in Organizational Behavior. (3)
Selected topics, problems, learning designs, and models in organizational behavior. Prerequisites: B average or higher in 306 and 307. <Spring>

470. Money Management and Financial Institutions. (3)
Financial flows in the U.S. economy, the monetary mechanism and determination of
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interest rates. Behavior of short- vs. long-term interest rates. Regulation and structure of the banking system. Character and behavior of financial institutions. Prerequisite: 326. <Fall>

471. Investment Analysis and Management. (3)
Theory and techniques basic to control of investment risks and optimization of investment returns. Investment media and priorities, security market operations, portfolio analysis and management, profitability analysis, planning and management of investment programs, timing of securities transactions. Prerequisite: 326. <Fall, Spring>

472. Problems and Policies in Business Financial Management. (3)
Planning and financing current and long-term operations. Internal vs. external financing, internal rate of return, mergers and consolidations, dividend policy. Development of a policy-making framework for sound decision-making under risk. Prerequisite: 326. <Spring>

*480. Marketing Research. (3)
Research methods and techniques as an aid to marketing management and the application of these tools to the process of obtaining information upon which to base marketing strategy. Prerequisite: 322. <Fall>

*483. International Marketing. (3)
Analysis of marketing opportunities abroad and major constraints in marketing planning. Develops familiarity with concepts, terminology and decision-making criteria. Conceptual framework for analysis of marketing constraints and use of marketing intelligence in developing firm's strategies in foreign markets. Prerequisite: 322. <Fall, Spring, Summer>

485. Introduction to International Business. (3)
Provides an understanding of international business operations—the managerial and operational problems of a global enterprise—and focus on socio-economic differences. Structure and functions of a world-wide organization. Emphasis on global business decision-making. Prerequisite: 322. <Fall, Spring, Summer>

*486. Marketing Logistics. (3)
Analysis and development of an integrated distribution network. A systems approach is applied to problems of marketing logistics. Economic analysis and quantitative tools are used in decision-making concerning the physical flow of goods. Warehousing and inventory planning. Prerequisites: 300 and 322. <Spring>

*487. Marketing Communication. (3)
Communication theory including market, audience, and individual behavior; relationships of communication in the marketing mix; personal and nonpersonal forms of communications; problems of determining advertising appropriations, budgets, campaign strategy, media analysis, and evaluations of the communications effort. Prerequisite: 322. <Fall>

490-491-492-493. Special Topics in Business and Administrative Sciences. (3)
Selected offerings of business and administrative science topics not represented in the regular curriculum. Prerequisites: 301, 309, 322, 326. <Offered upon demand>

*495. Seminar in Small Business. (3)
The objectives of the course are to stimulate creative entrepreneurship in small business. It is devoted to consideration of the problems of initiating and/or acquiring, financing, organizing, operating, and marketing the product of small firms. Prerequisites: 301, 309, 310, 322, 326. <Spring>

*496. Seminar in Venture Capital for Small Business. (3) M. Mondlick
Focuses on problems encountered in the initiation and acquisition of small businesses. Consideration will be given to the areas of law, accounting, financing, marketing, management and organization. Prerequisites: 301, 309, 310, 322, 326. <Spring 1975, Fall thereafter>

498. Senior Seminar. (3)
Emphasizes the functions of top management. Case studies offer the student an opportunity to develop a habit of administrative thinking as company-wide objectives and policies are formulated and consistent plans and programs are carried into action. Prerequisites: 306, 309 or 310, 322, and 326 and second semester senior standing. <Fall, Spring>

*500. Quantitative Analysis I. (3)
*501. Quantitative Analysis II. (3)
*502. Accounting and Management Information Systems I. (3)
*503. Accounting and Management Information Systems II. (3)
*504. Organizational Economics I. (3)
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*505. Organizational Economics II. (3)
*506-507. Organizational Behavior I and II. (3, 3)
*508. Organizational Environment. (3)
*509. Organizational Environment II—Law. [Organizational Intelligence Systems.] (2)
*520. Operations Research and Production Management. (3)
*522. Marketing Management. (3)
*526. Financial Management. (3)
*528. Fundamentals of International Business (3)
*530. Systems Theory and Information Science. (3)
*531. Multivariate Analysis for Administrative Science. (3)
*532. Simulation. (3)  
(Also offered as Cp Sci 452.)
*533. Quantitative Analysis for System Planning. (3)
*534. Introduction to Information Systems. [Computerized Administrative Information Systems.]  
(3)
*535. Information System Analysis. (3)  
Corequisite: B&AS 460 or consent of instructor. <Spring>
*540. Financial Accounting. (3)  
Prerequisites: 502; 503 may be taken concurrently. <Spring>
*544. Advanced Accounting Theory and Practice. (3)
*545. Seminar in Accounting Theory and Its Development. (3)
*546. Seminar in Controllership. (3)
*547. Seminar in Advanced Tax Accounting. (3)
*549. Seminar in Managerial Control. (3)
*550. Economic and Behavioral Theories of the Organization. (3)
*551-552. Problems. (1-3 hrs. each semester)
*553. Industrial Organization Economics. (3)
*554. Public Control of Business. (3)
*555. Urban Economics and Social Welfare. (3)
*556. Experimental Economics. (3)
*557. Seminar in Organizational Economics. (3)
*558. Man and His Environment. (3)
*559. Seminar in Organizational Ecology. (3)
*560. Seminar in Cross-Cultural Organization Behavior. [Psychobiological Approaches to Organizational Behavior.] (3)
*562. Organizational Design and Development. (3)
*563. Human Resources Management: Theory and Applications I. (3)
*565. Seminar in Administrative Theory and Decision Making. (3)
*566. Human Relations Laboratory. (3)
*569. Seminar in Organizational Communication. (3)  
(See Sp Corn 544.)
*570. Analysis of the Financial System. (3)
*571. Security Analysis and Investment Management. (3)
*572. Financial Planning and Capital Budgeting. (3)
*575. Seminar in Finance. (3)
*580. Research for Marketing Management. (3)
*581. Seminar in Marketing Strategy. (3)
*582. Seminar in Marketing Models. (3)
*583. Seminar in Comparative Marketing Systems. (3)
*584. Advanced Seminar in Marketing Theory. (3)
*585. Fundamentals of International Business. (3)
*586. Seminar in the Management of International Business Operations. (3)
*587. Seminar in Management of World Markets. (3)
*588. Advanced Seminar in International Business Administration. (3)
*590. Problems for Interns. (1-6)
*591. Seminar in Integrative Management. (2)
*595. Seminar in Corporation and Society. (3)
*596. Organizational Intelligence: Domestic and International. (3)
*597. Planning Theory and Practice: Domestic and International. (3)
*598. Seminar in Integrative Management. (3)
*599. Administrative Research and Problems I and II. (Thesis) (1-6)
*700. Computer Based Information Systems. (Management Science I.) (1)
*701. Management Science. (Management Science II.) (3)
*702. Financial Accounting. (Financial and Managerial Accounting and Control I.) (3)
*703. Management Accounting. (Financial and Managerial Accounting and Control II.) (3)
*704. Organizational Economics I. (3)
*705. Organizational Economics II. (3)
*706. Organizational Behavior I. (2)
*707. Organizational Behavior II. (3)
*708. Organizational Environment. (Organizational Environment I and II.) (3)
*711. Strategic and Tactical Planning. (Strategic and Operational Planning.) (3)
*720. Marketing and International Business. (Operations Management III.) (3)
*722. Operations Management. (Operations Management I & II.) (3)
*726. Financial Management. (Operations Management IV.) (3)
*798. Integrative Seminar. (Seminar in Integrative Management.) (3)

BUSINESS EDUCATION
See Education, Secondary

CHEMICAL ENGINEERING
See Engineering, Chemical

CHEMISTRY


The program of the Department of Chemistry conforms to the standards prescribed by the American Chemical Society.

Explanation of footnotes not indicated will be found on p. 210.

The policy of the Department of Chemistry regarding enrollment under the Credit Grade Option is that CR (Credit) will be given only for grades of C or better.

¹ On leave for year.
MAJOR STUDY

For the degree of Bachelor of Arts: Chemistry 121L (or 101L), 122L, 301, 302, 303L, 304L, 311, 312, 351, 431 and additional hours selected from courses numbered 305-496 to bring total to 34 hours; or Chemistry 101L, 102L, 253L, 301, 302, 303L, 304L, 311, 312, 351, 431 and additional hours selected from courses numbered 305-496 to bring total to 34 hours. The B.A. program must also include Physics 151, 152, 153L and 154L and Mathematics 162 and 163.

For the degree of Bachelor of Science: Chem 121L (or 101L), 122L, 301, 302, 309L, 310L, 311, 312, 331L, 332L, 351, 431 and at least 7 additional hours selected from courses numbered 305-498; or Chem 101L, 102L, 253L, 301, 302, 309L, 310L, 311, 312, 331L, 332L, 351, 431 and at least 7 additional hours selected from courses numbered 305-498. The program must also include Physics 160, 161, 163L, 262, 264L, Mathematics equivalent to 265. Only three credits of Chem 495-498 and two credits of 325-326 may be counted towards the B.A. or B.S. degree.

Two years German is recommended for students who are planning to do advanced studies in Chemistry.

Physics and Mathematics courses required for the B.S. or B.A. degree may not be taken on the credit grade option.

Students deciding on a B.S. after having taken Chem 301-304L may qualify for the B.S. by taking Chem 415L, 2 hrs of this course counting toward the 7 additional hours required selected from courses numbered 305-498.

Any deviation from the requirements prescribed above must be approved by the Department of Chemistry and must total a minimum of 34 hours (BA degree) or 44-47 hours (BS degree).

No distributed minors are allowed for B.S. and B.A. majors.

DEPARTMENTAL HONORS

The student enters the program at the start of the junior year. At this time the student's grade point average must be at least 3.2 overall and 3.5 in Chemistry. This minimum must be maintained throughout the junior and senior years. Course requirements for graduation with honors are as follows: 121L (or 101L), 122L (or 101L, 102L, 253L), 301, 302, 309L-310L (or 303L-304L-415L), 311, 312, 331L-332L, 351, 431 plus seven hours of additional courses from 305, 324-498 including at least three hours of 497-498. A senior honors thesis will be written based on the senior honors research and submitted to the faculty. An oral presentation will also be made in a departmental or divisional seminar. Honors students will also take the American Society graduate entrance exams during January of the students' senior year.

MINOR STUDY

20 hours in Chemistry, including Chem 101L, 102L, 253L, and either 301, 302, 303L, 304L or 311, 312; or Chem 121L (or 101L) 122L, 301, 302, 303L, 304L or 311, 312, and 3 additional hours selected from courses numbered 305-496. Chem 309L-310L may be substituted for Chem 303L-304L in which case the minor will total 22 hours. Chem 141L and 281 do not count toward the minor.

100L. Chemistry for the Citizen. (4)

Nonquantitative and descriptive introduction to the worldview of the chemist with
applications to problems at the science-society interface, such as, the energy crisis, air and water pollution, nuclear chemistry, household chemistry, etc. 3 lectures, 3 hrs. lab. <Spring>

101L. General Chemistry. (4)
Introduction to the chemical and physical behavior of matter. Prerequisite: grade of C or better in Math 020 or a math placement index high enough to exempt student from Math 020. 3 lectures, 3 hrs. lab. <Fall, Summer>

102L. General Chemistry. (4)
Continuation of 101L. Prerequisite: 101L or 121L with grade of C or better. 3 lectures, 3 hrs. lab. <Spring, Summer>

121L. General Chemistry. (4)
Comprehensive study of the chemical and physical behavior of matter with application of these principles to quantitative laboratory techniques and inorganic preparations. This course is strongly recommended for students intending to major in chemistry. Prerequisites: 1 yr. high school chemistry within last 3 years and ACT math score of 29 or permission of instructor. Corequisite: Math 162 or 180. 3 lectures, 3 hrs. lab. (Credit not allowed for both 121L and 101L.) <Fall>

122L. General Chemistry. (5)
Introduction to chemical equilibrium and the periodic properties of the elements. Application of these principles to qualitative and quantitative analysis. Prerequisite: 121L or grade of A in Chem 101L or permission of instructor. 3 lectures, 6 hrs. lab. (Credit not allowed for both 122L and 102L or 253L.) <Spring>

141L. Elements of General Chemistry. (4)
One-semester course in general chemistry, especially for non-science majors in the health sciences except premedicine and medical technology. 3 lectures, 3 hrs. lab. (Credit not allowed for both 141L and 101L.)<Fall, Spring>

253L. Quantitative Analysis. (4)
Theory and techniques of volumetric and gravimetric analysis. Prerequisite: 102L. 2 lectures, 6 hrs. lab. (Students should make every effort to complete 253 within two semesters of completion of 102.) <Summer, Fall, Spring>

281. Integrated Organic Chemistry and Biochemistry. (4)
Survey interrelating the major principles of organic chemistry and biochemistry with special emphasis towards interests of students in the health sciences. Prerequisite: 101L or 141L. (Credit not allowed for both 281 and 301). <Summer, Fall, Spring>

282L. Integrated Organic and Biological Chemistry Laboratory. (1)
Introduction to basic laboratory techniques in organic chemistry with some representative reactions. Identification tests of biochemical substances and related lab techniques. Prerequisite or corequisite: 281. 3 hrs. lab. <Offered upon demand>

In the following courses numbered 301-310L the laboratory course must be taken concurrently with the corresponding lecture course. Students dropping the lecture prior to the 8th week of the semester must drop the corresponding lab; however, students dropping the lecture after that time may be allowed to continue the lab to completion provided that at the time of dropping the lecture the grade in the lab course was C or better.

**301. Organic Chemistry. (3)
Chemistry of the compounds of carbon. Prerequisite: 102L or 122L. It is mandatory that 303L or 309L be taken concurrently. <Fall, Summer>

**302. Organic Chemistry. (3)
Continuation of 301. Prerequisite: 301. It is mandatory that 304L or 310L be taken concurrently. <Spring Summer>

**303L. Organic Chemistry Laboratory. (1)
To be taken concurrently with 301. 3 hrs. lab. <Fall, Summer>

**304L. Organic Chemistry Laboratory. (1)
To be taken concurrently with 302. 3 hrs. lab. <Spring, Summer>

**305. Organic Chemistry. (1-3)
Continuation of Chem 302. Special topics including reactions of carbonions, conjugate addition, non-classical ions, orbital symmetry and other advanced topics. Prerequisite: 302. <Fall>
**309L. Organic Chemistry Laboratory. (2)**
To be taken concurrently with 301 by B.S. majors. 6 hrs. lab. <Fall>

**310L. Organic Chemistry Laboratory. (2)**
To be taken concurrently with 302 by B.S. majors. 6 hrs. lab. <Spring>

**311. Physical Chemistry. (4)**
The quantitative principles of chemistry, including gases, thermodynamics, equilibrium, quantum systems, spectroscopy and kinetics, developed by numerous problems. Prerequisites: 122L or 253L, Math 162, 163, Physics 151 or 162, corequisites: Physics 152 or 262. <Fall>

**312. Physical Chemistry. (4)**
Continuation of 311. Prerequisite: 311. <Spring>

**315. Introductory Physical Chemistry. (4)**
One-semester survey of the fundamentals of physical chemistry with primary emphasis upon biological and biochemical applications. Prerequisites: 102L and 253L or 122L, Math 162 or 180 and 181, or permission of instructor. <Fall>

**324. Biochemistry. (3)**
Introductory course into metabolic reaction within the cell with emphasis on a chemical understanding of the way the cell integrates and controls intermediary metabolism; also included are quantitative problems in pH control, enzyme kinetics and energetics. Intended for undergraduate students and especially recommended for pre-med students. Prerequisite: 302. (Credit not allowed for both 324 and 481.) <Spring>

**325-326. Special Topics for Undergraduates. (1-2 hrs. each semester)**
Discussion of a topic of general interest. Possible topics are: chemical literature, environmental chemistry, group theory, photochemistry, macromolecules, synthesis. Prerequisite: 302. Corequisite: 311 or 315. <Offered upon demand>

**331L. Chemistry Laboratory III. (2)**
Integrated advanced analytical-inorganic-physical chemistry laboratory, illustrating the techniques used to quantify the energetics, dynamics, composition, and structure of matter. Prerequisites: 311, 351. 6 hrs. lab. <Fall>

**332L. Chemistry Laboratory III. (1-2)**
2 credits for chem majors, 1 credit for Chem Engrs. Continuation of 331L. Pre- or corequisites: 312, 331L. 6 hrs. lab. <Spring>

**342. Inorganic Chemistry. (2)**
A survey of the chemical and physical properties of the elements and their compounds including periodic trends, solid state structures, nonmetallic compounds, and transition metal complexes. Prerequisite: 311 or 315 or permission of instructor. <Spring>

**344L. Inorganic Chemistry Laboratory. (1)**
The synthesis and characterization of inorganic compounds of the metals and nonmetals. Introduction to the laboratory techniques of inorganic chemistry. Pre- or corequisite: 342 or 431. <Spring>

**351. Advanced Quantitative Analysis. (3)**
Lecture survey of theory and practice of modern chemical analysis. Ionic equilibria, column separation theory, and introduction to instrumental and electroanalytical methods. Prerequisites: 122L or 253L; corequisite: 311. <Fall>

**401L. Scientific Glassblowing. (1)**
Scientific glassblowing techniques for the serious science student interested in repairing and maintaining glass apparatus. Topics covered will be the safe cutting of glass, butt seals, side seals, ring seals, the construction of glass equipment for simple distillation and fractionation, and discussion of special sealing glasses and glass to metal seals. Prerequisites: Senior/Graduate status and approval of instructor. 3 hrs. lab. <Offered upon demand>

**411. Stereochemistry. (2)**
Stereochemistry of carbon compounds (including carbohydrates) and of organic reactions. Prerequisite: 302. <Offered upon demand>

**412. Spectra of Organic Molecules. (2)**
A survey of the basic principles of ultraviolet, infrared, nuclear magnetic resonance, and mass spectrometry as applied to the identification of organic compounds. Prerequisite: 302. <Offered upon demand>

**414. Mechanistic Organic Chemistry. (2)**
A survey of mechanisms of organic reactions with emphasis on reactivity patterns and stereochemical outcome. Prerequisite: 302. <Offered upon demand>
*415L. Qualitative Organic Analysis. (4)
Identification of carbon compounds through the characteristic reactions and spectral behavior of the functional groups. Prerequisites: 122L or 253L and 302-304L or 302-310L and permission of instructor. 2 lectures, 6 hrs. lab. <Spring>

*431. Advanced Inorganic Chemistry. [Inorganic Chemistry] (3)
Survey of electronic and molecular structures of inorganic compounds, coordination chemistry, bonding theory, physical methods, periodicity, and reactions. Prerequisite: 312 or permission of instructor. 2 lectures, 6 hrs. lab. <Spring>

*433. Molecular Biophysics. (3)
(Also offered as Biol and Physics 433.) Physico-chemical properties and the dependence of biological function on these properties for amino acids, proteins, nucleotides, DNA, and RNA.

*454L. Instrumental Analysis. (4)
Instrumentation and applications of instrumental methods to chemical analysis, including spectrophotometric, electroanalytical, X-ray diffraction, neutron activation, and chromatographic methods. Prerequisite: 351 or permission of instructor. 2 lectures, 6 hrs. lab. <Spring>

*455. Advanced Analysis. (1-3)
Detailed description of ionic equilibria of complex ion solutions, theory of separations and applications to analytical and preparative methods, and a case study treatment of contemporary analytical problems. Prerequisite: 351 or permission of instructor. <Fall>

*466. Computers in Chemistry. (2)
Introduction to the Fortran IV computer language with application to problems of chemical interest. <Spring>

*481. Biological Chemistry. (3)
(Also offered as Med Sc 481.) In depth survey of basic biochemical reactions within the cell with quantitative evaluation of the energy changes involved. Topics considered include structure and function of macromolecules, pH control, catabolic metabolism, free energy changes, enzyme kinetics, control mechanisms, and bioenergetics. Intended for students expecting to pursue advanced studies in chemistry. (Credit not allowed for both 324 and 481.) Prerequisite: 302; and pre- or corequisite: 311 or 315L, undergraduates—approval of instructor. <Fall>

*482. Biological Chemistry. (3)
(Also offered as Med Sc 482.) Continuation of 481 with major emphasis on anabolic metabolism and control mechanisms. Prerequisite: 481. <Spring>

*483L. Biological Chemistry Laboratory. (1)
Pre- or corequisite: 481. 3 hrs. lab. <Offered upon demand>

*484L. Biological Chemistry Laboratory. (1)
Pre- or corequisite: 482. 3 hrs lab. <Offered upon demand>

495-496. Undergraduate Problems. (2-5 hrs. each semester) <495-Summer, Fall; 496-Spring>

497-498. Senior Honors Research. (3 hrs. each semester)
Senior paper based on independent research. <497-Summer, Fall; 498-Spring>

*501. Chemical Bonding Theory. (3)
<Fall>

*502. Molecular Structure Determination. (3)
<Spring>

*503. Chemical Synthesis. (3)
<Fall>

*504. Chemical Dynamics. (3)
<Spring>

*511. Mechanisms In Organic Chemistry. (3)
Prerequisite: 504 or permission of instructor. <Fall 1976 and alternate years>

*512. Mechanisms in Organic Chemistry. (3)
Prerequisite: 511 or permission of instructor. <Spring 1977 and alternate years>

*513. Chemistry of Heterocyclic Compounds. [Topics in Organic Chemistry] (3)
<Fall 1975 and alternate years>

*514. Synthesis in Organic Chemistry. (3)†
Prerequisite: 503 or permission of instructor. <Spring 1976 and alternate years>
*515-516. Topics in Organic Chemistry. (1-3)†
   <515—Fall upon demand; 516—Spring upon demand>

*521. Radiochemistry. (3)
   Prerequisite: 312. <Fall 1975 and alternate years>

*522. Advanced Topics in Radiochemistry. (3)
   Prerequisite: permission of instructor. <Spring 1976 and alternate years>

*523L. X-ray Crystallography. (4)
   (Also offered as Geol 506L) Prerequisites: 311 or Math 264, and permission of instructor.
   2 lectures, 6 hrs. lab.

*524L. Crystal Structure Analysis. (3)
   (Also offered as Geol. 507L) Prerequisites: 523L and permission of instructor. EECS 336 is
   strongly recommended. 2 lectures, 3 hrs. lab.

*525-526. Special Topics in Chemistry. (1-3)
   Prerequisite: permission of instructor. <525—Fall upon demand; 526—Spring upon demand>

*532. Inorganic Stereochemistry. (3)
   Prerequisite: 431 or permission of instructor. <Spring 1977 and alternate years>

*533. Group Theory. (3)
   Prerequisite: 431 or permission of instructor. <Fall 1976 and alternate years>

*534. Advanced Coordination Chemistry. (3)
   Prerequisite: 431 or permission of instructor. <Spring 1976 and alternate years>

*535. Bioinorganic Chemistry. (3)
   Prerequisite: 431 or permission of instructor. <Fall 1975 and alternate years>

*536. Inorganic Reaction Mechanisms. (3)
   Prerequisite: 431 or permission of instructor. <Spring 1977 and alternate years>

*537-538. Special Topics in Inorganic Chemistry. (1-3)†
   Prerequisite: permission of instructor. <537—Fall upon demand; 538—Spring upon demand>

*541. Separations. (3)
   <Fall 1975 and alternate years>

*542. Chemical Measurements. (3)
   <Spring 1976 and alternate years>

*543. Analytical Spectroscopy. (3)
   <Fall 1976 and alternate years>

*544. Electrochemistry. (3)
   <Spring 1977 and alternate years>

*545-546. Topics in Analytical Chemistry. (1-3)
   <545—Fall upon demand; 546—Spring upon demand>

*561. Quantum Chemistry I. (3)
   <Fall 1976 and alternate years>

*562. Quantum Chemistry II. (3)
   Prerequisite: 561. <Spring 1977 and alternate years>

*563. Thermodynamics. (3)
   Prerequisite: 312 or permission of instructor. <Fall 1976 and alternate years>

*564. Statistical Thermodynamics. (3)
   Prerequisite: 313 or permission of instructor. <Spring 1977 and alternate years>

*565. Kinetics. (3)
   Prerequisite: 313 or permission of instructor. <Fall 1975 and alternate years>

*566. Spectroscopy. (3)
   Prerequisite: 313 or 561 or permission of instructor. <Spring 1976 and alternate years>

*567-568. Topics in Physical Chemistry. (1-3)†
   Prerequisite: permission of instructor. <567—Fall upon demand; 568—Spring upon demand>

*581. Advanced Topics in Biological Chemistry. (1-3)
   (Also offered as Med Sc 581) Prerequisite: 482. <Offered upon demand>

*599. Master's Thesis. (1-6 hrs. per semester.) See the Graduate School Bulletin for total
   credit requirements.

*623. Biochemistry of Steroids. (3)
   (Also offered as Med Sc 623) Prerequisites: 302, 324 or 481, or Med Sc 590-591.
CHICHANO STUDIES—COMMUNICATIVE DISORDERS

*625. Chemistry Seminar. (1)  
(Fall, Spring)

*650. Research. (2-6 to a maximum of 12)  
(Summer, Fall, Spring)

*699. Dissertation. (1-9 hrs. per semester) See the Graduate School Bulletin for total credit requirements.

CHICANO STUDIES

COORDINATOR: Antonio Mondragon, Lecturer in American Studies; ASSISTANT COORDINATOR: Tobias Duron, M.A., Lecturer in American Studies.

This interdepartmental program is designed to inject the richness of the Chicano viewpoint and culture into the already existing departments. In order to eradicate the historical and political biases, which have existed vis-a-vis the Chicano values, language and way of life, this program offers approximately 15 courses, which are accredited and numbered by the corresponding departments. The following are some of the core courses:

CURRICULUM

American Studies 301. Interdepartmental Studies in the Culture of the United States. (3)  
Chicano Literature.

American Studies 302. Interdepartmental Studies in the Culture of the United States. (3)  
History of conflict in New Mexico.

History 283. La Raza: A History of Mexican Americans. (3)

Philosophy 105. Introduction to Chicano Thought. (3)

Sociology 226. Sociology of the Barrio. (3)

CIVIL ENGINEERING

See Engineering, Civil

CLASSICAL LANGUAGES

CLASSICS

See Modern and Classical Languages.

COMMUNICATIVE DISORDERS


MAJOR STUDY


The Department of Communicative Disorders endorses the training program recommendations of the American Speech and Hearing Association with training at the bachelor's level being primarily pre-professional. In order to meet professional certification requirements, a person must complete the master's degree or equivalent with well rounded academic and clinical experience.

MINOR STUDY

18 hours in the Department of Communicative Disorders chosen from courses listed for Major.
105. Speech for Foreign Language Students. (1 hr. per semester, to a maximum of 3) Chreist
Clinical work for students who speak English with a foreign accent. <Summer, Fall, Spring>

202. Communicative Disorders. (3)
(Also offered as Spc Ed 202.) Nature of communicative disorders, including speech, hearing, and language disorders in children and adults. Methods of identification and remediation.

220. Workshop in Communicative Disorders. (1-3, repeatable up to 6 hrs.) Bolton, Butt, Chreist, Hood, Lamb
An introductory to the identification and management of communicative disorders for classroom aides and teachers. Content to be varied according to demand. No prerequisites.

280. Scientific Bases of Speech. (3) Chreist
(Also offered as Sp Com 280.) The bases of the speech process as presented in the scientific materials of such related fields as physics, physiology, psychology, and linguistics. <Fall, Spring>

292. Introduction to the Study of Language. (3 or 4)
(See Ling 292.)

302. Communicative Disorders. (3) Bolton, Butt, Chreist
(Also offered as Spc Ed 302.) Nature of communicative disorders, including speech, hearing and language disorders in children and adults. Methods of identification and remediation. <Spring, Fall, Summer>

303. Phonetics. (3) Chreist
(Also offered as Sp Com and Ling 303.) English phonetics as applied to problems of articulation, pronunciation, rhythm, dialects, and to the teaching of speech, English, language and communicative disorders. <Fall, Spring>

320. Acoustics of Speech and Hearing. (3) Ryan
Principles and processes of sound generation, transmission and reception in human communication. 2 lectures, 2 hrs. lab. <Spring>

321. Introduction to Audiology. (3) Lamb
History of audiology; the auditory stimulus; pathological conditions of the auditory system; basic methods of individual pure tone audiometry. <Fall>

325. Processes of Speech Articulation. (3)
A detailed study of the science of speech articulation, including consideration of motor and sensory systems in the coordination of patterns of oral activity, and the role of learning processes in development of typical and atypical articulation. Prerequisite: 303. <Spring>

326L. Processes of Speech Articulation Laboratory. (1)
Projects and demonstrations in support of theory presented in 325. Pre- and corequisite: 325. <Spring>

330. Speech Pathology in the Schools. (3) Butt
An introduction to types of speech and hearing problems found in the schools. <Offered on demand>

350. Anatomy and Physiology of Speech and Hearing. (4) Ryan
Structure and function of the speech and hearing mechanisms as they relate to normal and disordered communication. Prerequisite: permission of instructor. <Fall>

358. Pre-Clinical Training. (1) Bolton, Hood
Introduction to basic clinical skills prerequisite for clinical practicum. Prerequisites: 302, 303, 321, 325 and permission of instructor. <Summer, Fall, Spring>

420. Workshop in Communicative Disorders. (1-3 repeatable up to 6 hrs.) Bolton, Butt, Chreist, Hood, Lamb
Not accepted toward a communicative disorders major. No prerequisites.

422. Hearing Conservation. (3) Lamb
The role of the speech and hearing specialist in hearing conservation programs; screening audiometry; special tests for infants and children; hearing problems in industry. Prerequisite: 321 or permission of instructor. <Spring>

425. Aural Rehabilitation. (3) Hood
Appraisal and management of individuals with impaired hearing. Prerequisite: 321 or equivalent. <Spring>

426. Manual Communication. (1) Fletcher, Hood
Fingerspelling and sign language. <Fall, Spring>

§ Offered at the Gallup Branch.
*427. Problems of the Hearing-Impaired. (3) Hood
(Also offered as Spc Ed 427.) Communicative, educational and psycho-social problems of the deaf and hard of hearing. Prerequisite: 302 or 321 or permission of instructor. 
<Fall>

*428. Aural Rehabilitation Laboratory. (1) Hood, Watrous
Projects and demonstrations in support of theory presented in 425. Pre- or corequisite: 425. <Spring>

*429. Intermediate Manual Communication. (1) Fletcher
Prerequisite: permission of instructor. <Spring>

*430. Development of Speech and Language. (3) Butt
The study of acquisition of phonetic and morphemic skills in the child and in the adult. Prerequisite: Psych 320. <Fall>

*435. Processes of Phonation. (3) Chreist
The scientific study of normal and atypical processes of phonation as they affect communication. Prerequisites: 302, 325 and 350. <Spring>

*436. Stuttering. (3)
Theories of stuttering and other rhythmic disorders and approaches to treatment. Prerequisite: 302 or permission of instructor. <Spring>

*437. Aphasia. (3) Porch
Symbolic disorders of communication, including receptive and expressive speech and language problems. Prerequisites: 302, 430, and 450 or permission of instructor. <Spring>

*438. Processes of Phonation Laboratory. (1) Chreist
Projects and demonstrations in support of theory presented in 435. Pre- or corequisite: 435. <Spring>

440. Undergraduate Problems. (1-3, to a maximum of 6)
Prerequisite: permission of instructor. <Summer, Fall, Spring>

*450. Neurological Foundations of Speech and Language. (3) Ryan
Structure and function of the central and peripheral nervous systems as they relate to normal and disordered communication. Prerequisite: 350 or permission of instructor. <Fall>

*458. Clinical Practice. (1-3, to a maximum of 6) Hood
Speech pathology and audiology in the clinic. Prerequisite: 358 or permission of instructor. <Summer, Fall, Spring>

*492. Introduction to Linguistics. (3) Pickett
(See Engl 440).

*493. Reading and Research in Honors. (3) <Summer, Fall, Spring>

*494. Senior Thesis. (3) <Summer, Fall, Spring>

*503. Experimental Phonetics. (3) Ryan

*506. Seminar in Foreign Accent. (3) Chreist

*530. Language Disorders in Children. (3) Butt

*531. Communication Problems of the Cerebral Palsied. (3) Butt

*535. Seminar in Cleft Palate. (3) Ryan

*536. Seminar in Research in Stuttering. (3) Butt

*537. Seminar in Aphasia. (3) Porch

*539. Seminar: Current Concepts in Speech Pathology and Audiology. (1, repeatable to a total of 2) Lamb

*551-552. Problems. (1-3 hrs. each semester)

*555. Seminar in Linguistics and Language Pedagogy. (1-3)
(See Ling 555.)

*558. Special Tests in Speech Pathology. (3) Butt

*560. Audiology and Audiometry. (3) Hood

*561. Clinical Audiology. (3) Hattler, Lamb

*563. Speech Audiometry and Hearing Aids. (3) Hood

*565. Seminar in Aural Rehabilitation. (3) Hood

*566. Seminar in Audiology. (3) Lamb

*599. Master's Thesis (1-6 hrs. per semester)
COMPARATIVE LITERATURE

COMMITTEE IN CHARGE: Assistant Professor S. Guthrie, Ph.D., (English), Chairperson; PROFESSORS F. M. Dickey, Ph.D., (English); J. Kolbert, Ph.D., (Languages); A. Rodriguez, Ph.D., (Languages); ASSOCIATE PROFESSORS P. Murphy, Ph.D., (Languages); G. F. Peters, Ph.D., (Languages); ASSISTANT PROFESSORS B. T. Lindsey, Ph.D., (Languages); P. K. Pabisch, Ph.D., (Languages); W. S. Smith, Ph.D., (Languages); and any new appointments to be made.

Comparative Literature is an interdepartmental program administered jointly by the Department of English and the Department of Modern and Classical Languages. Students planning to major or minor in Comparative Literature are urged to consult with a Comparative Literature adviser so that their programs may be carefully planned.

MAJOR STUDY

The major in Comparative Literature normally consists of 33 hours distributed as follows:

Comparative Literature 260 and 12 additional hours in Comparative Literature, not more than 6 of which may be literature in translation;
9 hours of literature selected from courses numbered 300 or above in each of two languages, one of which may be English (literature in translation may not be used to satisfy this requirement).

A student is strongly advised to acquire reading knowledge of a second foreign language. Satisfactory completion of one of the following courses is recommended: French 252, 105-106, 275-276; German 202, 105-106; Greek 102, 301-302; Italian 275-276; Latin 251-252; Portuguese 275-276; Russian 251-252; Spanish 252, 105-106. Reading proficiency may also be demonstrated by examination through the University Testing Service.

Students may minor in any national literature, but courses taken to satisfy requirements for the minor may not be used to satisfy major requirements.

MINOR STUDY

A minor in Comparative Literature normally consists of Comparative Literature 260 and 12 additional hours of courses in literature, 6 of which must be Comparative Literature. 6 hours may be courses in any national literature. A student majoring in a national literature may not satisfy this requirement with literature courses in the language of his major.

The student is required to demonstrate reading proficiency in one foreign language by the satisfactory completion of one of the courses listed above, or by examination through the University Testing Service.

PERIOD MINOR STUDY

A period minor, an interdisciplinary minor with emphasis on one historical period, may consist of Comparative Literature 260 and 15 additional hours of appropriate courses drawn from literature, history, fine arts, music, philosophy, or other related fields, with the approval of a Comparative Literature adviser. Proficiency in an appropriate foreign language must be demonstrated, as in the Comparative Literature minor.
260. Introduction to the Study of Comparative Literature. (3)
   General introduction to comparative literature emphasizing problems of theme, genre,
   period, influence, reception, and translation, through the study of specific literary texts.

300. Studies in Literature. (3)
   (See Engl 300.)

*334. Spanish American Literature in Translation. (3)
   (See Span 334)

*335. French Literature in Translation. (3)
   (See French 335)

*336. German Literature in Translation. (3)
   (See German 336)

*337. Spanish Literature in Translation. (3)
   (See Span 337)

*338. Russian Literature in Translation. (3)
   (See Russ 338)

*341. Greek Mythology. (3)
   (See Greek 341)

*343. Soviet Literature in Translation. (3)
   (Also offered as Russ 343.)

*344. Topics in Latin Literature in Translation. (3)
   (See Latin 344.)

*345. Topics in Greek Literature in Translation. (3)
   (See Greek 345.)

375. World Literature from Homer to Dante. (3)
   (See Engl 375.)

376. World Literature from Rabelais to Mann. (3)
   (See Engl 376.)

400. Literary Movements. (3)
   (See Engl 400.)

410. Literary Criticism. (3)
   (See Engl 410.)

*450. Special Topics in German Literature. (3)
   (See German 450.)

452. The Middle Ages. (3)
   (See Engl 452.)

459. Irish Literature (3)
   (See Engl 459.)

470. Contemporary Literature. (3)
   (See Engl 470.)

*475. Dante in Translation. (3)
   (See Italian 475.)

*481. The Folktale in English. (3)
   (See Engl 481.)

487. Studies in Genre: Comedy, Epic, Satire, Tragedy, etc. (3)
   (See Engl 487.)

*488. Interdisciplinary Studies. (3)
   (See Engl 488.)

*490. Seminar in Russian Literature. (3)
   (See Russ 490.)

*500. Introduction to Graduate Study in Comparative Literature. (3)

*510. Criticism. (3)
   (See Engl 510.)

*513. The Middle Ages. (3)
   (See Engl 513.)

*551. Problems. (1-6 hrs. per semester)‡
   For M.A. candidates
*580. Seminar in Modern Languages and Literatures. (1-6)‡
(Also offered as M Long 580.)

*581. Special Topics: History of Ideas, Literary Movements, etc. (3)
(See Engl 580.)

*587. Genre: Comedy, Epic, Satire, Tragedy, etc. (3)
(See Engl 587.)

*599. Master’s Thesis. (1-6 hrs. per semester)

COMPUTING AND INFORMATION SCIENCE

PROFESSORS S. Bell, Ph.D., D. R. Morrison, Ph.D.; ASSOCIATE PROFESSORS E. J. Gilbert, Ph.D.,
J. W. Ulrich, Ph.D.; ASSISTANT PROFESSOR N. Martin, Ph.D.; others to be appointed.
The following members of other departments also assist in the program. Department of
Mathematics: C. Moler, Ph.D., S. Pruess, Ph.D., R. Allen, Ph.D.; School of Business and
Administrative Sciences: F. Newpeck, Ph.D.

MAJOR STUDY
A major in Computing and Information Science is being considered. Students
are advised to consult the Division Office concerning a major. See also, Electrical
Engineering and Computer Science, p. 303.

MINOR IN COMPUTER/COMPUTING SCIENCE
To fulfill the requirements for a minor in Computer/Computing Science,
the student must take 21 hours of credit selected from course offerings in the
Division of Computing and Information Science and computer science courses
in the Department of Electrical Engineering and Computer Science. Certain
introductory courses, such as CIS 105, 155, 156, and EECS 336, may not be
included in the 21 hours. The minor program must be approved by an adviser in
EECS and an adviser in CIS before the completion of 12 hours of the minor.
With approval of both advisers, computer courses in other departments may be
allowed in the minor.

105. Survey of Computing. (3)
Introduction to many of the basic ideas in computing, their history, applications, and
impact on society. <Offered upon demand>

150. Computing for Business Students. (3)
An introduction to BASIC Language programming on a time-shared computer system,
which emphasizes computing techniques useful to prospective business analysts and man­
gers. No prerequisites. <Fall, Spring>

154. Foundations of Computing Sciences. (3)
Introduction to the formal concepts of computing science for the beginning student. Topics
include induction, elementary logic, formal systems, and algorithmic processes. Recom­
mented for students pursuing a major or minor in computing science.

155. Problem Solving with the Computer. (3)
(Also offered as Math 155.) An elementary introduction to the art of computing. The ob­
ject of the course is an understanding of the relationship between computing and solving
problems. A structured programming language will be learned. 3 lectures, 2 hrs. lab.

160. FORTRAN Programming. (1)
An introduction to FORTRAN programming for ALGOLW programmers. Topics will include:
translation of ALGOLW programs into FORTRAN; use of input/output facilities; other
special features of FORTRAN. Prerequisite: 155.

255. Introduction to Computing Systems. (3)
An introduction to machine language, internal representation of instructions and data,
interaction between programs and the basic components of operating systems. Struct­
tured programming in PL 360, a “high level” assembly language. Prerequisites: 155 or
programming experience.

256. Intermediate Programming. [Programming Languages] (3)
A continuation of 155 which deals with large scale problem formulation, recursive pro­
cedures and data structures. Prerequisite: 155.
**300. Block-Structured Programming. (4)**
Programming and problem solving in a block-structured programming language will be learned. Features include: Simple data structures and their implementation, recursive procedures, large program organization, file management. Students may not obtain credit for 300 and for 155/256. 3 lectures, 2 hrs. lab.

*302. The Design of Correct Programs. (3) Gilbert*
Introduction to the techniques of constructing reliable programs whose correctness can be demonstrated. The concurrent design of programs and of correctness proofs in a systematic manner, using the program verification methods developed by Dijkstra, Hoare, Nour and Wirth. Prerequisites: 154, 256, and 300 or permission of instructor. <Spring>

*354. What Computers Can and Cannot Do. (3)*
Exploration of the range of problems that computers can solve. Classical problems in solvability will be discussed using LISP as the Metalanguage. Prerequisites: 154 and either 256 or 300. <Spring>

*355. The Syntax and Semantics of Programming Languages I. (3)*
A comparative survey of the features and structure of common programming languages including ALGOL, FORTRAN, PL/1, LISP, SNOBOL, COBOL. Students will write programs in each of these languages. Relation between form and meaning of programs will be explored with the use of phrase structure grammars. Prerequisites: 154 and 256 or 300.

*356. The Syntax and Semantics of Programming Languages II. [Compiler Construction] (3)*
A continuation of 355: Students will write an interpreter for a programming language; provides a detailed understanding of the relationship between phrase structure grammars and compiler construction. Prerequisite: 355.

*357. Operating Systems Principles. (3)*
Experience in constructing basic software for operating systems. In addition to discussing general principles, students will be expected to first understand a simple supervisor and then to modify it. Prerequisites: 154 and 225 or permission of instructor.

*358. Computer Sorting. (3)*
This course offers an extensive explanation and analysis of all popular sorting techniques including those confined to internal memory, using magnetic tapes, and with disk or drum auxiliary memories. Prerequisite: 256 or 300.

**375. Introduction to Numerical Computing. (3)**
(Also offered as Math 375.) An introductory course covering such topics as interpolation, integration, solution of linear and non-linear equations, and solution of ordinary differential equations. A single effective method will be studied for each topic and computer codes furnished. Emphasis will be on solving problems. Prerequisites: Calculus and some ability at Fortran programming. <Fall>

*401. Modern Computer Architecture. (3)*
A study of the design concepts of major importance in modern computers. Topics will include data bases, microprogramming, language-directed computers, parallel processors, and pipeline computers. Emphasis will be placed on the relationship of hardware design to programming and data structuring. Students will be expected to design a small computer via micro-program using a simulator on the IBM System/360. Prerequisite: 357 and reasonable competence in at least one higher-level language.

*402. Analysis of Algorithms. (3)*
Introduction to the techniques useful in the analysis of the efficiency of algorithms. Prerequisite: 302. <Spring>

*446. [356] Compiler Construction. (3)*
Provides a detailed understanding of the techniques used in the design and implementation of the compiler. The students will construct a compiler for a moderately complex programming language. Prerequisites: 255, 356.

*451. Mathematical Theory of Formal Languages. (3)*

*452. Simulation. (3)*
(Also offered as B&AS 532.) Study of a variety of simulation methods as an aid to managerial decisions involving both micro- and macro-systems. Problems and projects involve active programming of simulations in at least one simulation language. Prerequisites: ability to write programs in some language and B&AS 501 or knowledge of elementary probability and statistics and introductory calculus. <Spring>

*455. Mathematical Logic. (3)*
(Also offered as Math 455.) Formalization of mathematical reasoning. The notion of completeness and consistency will be developed within the context of the first order predicate calculus. The higher order calculus, or the theory of types, will be examined.
Two alternative definitions of mathematical truth will be discussed. There are no prerequisites in particular, but the student should have a reasonably strong background in mathematics with a good intuitive feeling for what constitutes mathematical proofs. Prerequisite: permission of instructor.

*456. Non-Standard and Higher Order Logic. (3)  
(Also offered as Math 456.) Intuitionistic logic and model theory, modal logics, minimal logics, classical theory of types, the Gödel incompleteness theorem, Henkin's theory to types. Prerequisite: 455.

*457. Principles of Artificially Intelligent Machines. (3)  
Survey of artificial intelligence exclusive of pattern recognition. Heuristic search techniques, game playing, introduction of mechanical theorem proving. Prerequisite: 256 or 300. <Offered upon demand>

*475. Numerical Analysis I. (3)  
(Also offered as Math 475.) Numerical solution of linear and nonlinear systems of equations; the algebraic eigenvalue problem; round-off error. Prerequisites: Math 314 or equivalent and some knowledge of Fortran programming. Students with credit for Math 375 should consult with instructor. <Fall>

*476. Numerical Analysis II. (3)  
(Also offered as Math 476.) Approximation of functions, integration and numerical solution of ordinary differential equations. Prerequisites: 316 or 361 or equivalent, and some knowledge of Fortran programming. Students with credit for 375 should consult with instructor. <Spring>

**490. Computing for Liberal Arts Graduate Student. (3)  
Elementary introduction to art of computing including use of Computer Center resources, SOFTWARE packages, and programming. Student will be required to complete term project relating course to his major field of study. Prerequisite: Permission of instructor. Course cannot apply to either minor or master's degree in CIS.

*499. Individual Study. (1-3 hrs. per semester)  
Guided study, under the supervision of faculty member, of selected topics not covered in regular courses. Admission by approval of Division Director.

*500. Foundations of Set Theory. (3)  
(Also offered as Math 500.) Prerequisites: 451, 455, 456. <Offered upon demand>

*553. Computer Evaluation of Mathematical Functions. (3)  
Prerequisites: 475-476 or equivalent, with permission of instructor. <Offered upon demand>

*554. Mathematical Theory of Computation. (3)  
Prerequisite: 455. <Offered upon demand>

*555. Data Structures. (3)  
Prerequisites: CIS 256 or 300 or equivalent, with permission of instructor. <Fall>

*556. Introduction to Information Retrieval. (3)  
Prerequisite: 358, 555, or permission of instructor. <Spring>

*557. Computational Mathematics. (3)†  
(Also offered as Math 557.) <Offered upon demand>

*558. Mechanical Theorem Proving. (3)  
(Also offered as Math 558.) Prerequisite: Mathematical Logic. <Spring>

*559. Topics in Computing. (1-6):†  
Prerequisite: consent of instructor before registration. <Offered upon demand>

*650. Reading and Research. (3):†  
Prerequisite: consent of instructor before registration. <Offered upon demand>

*677. Pattern Recognition. (3)  
(Also offered as Math 677.) <Offered upon demand>

CURRICULUM AND INSTRUCTION
See Education, Curriculum and Instruction.

DANCE
See Theatre Arts, Dance.
# DENTAL HYGIENE


## DENTAL HYGIENE CURRICULUM

See pp. 198-200.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200.</td>
<td>Orientation</td>
<td>(2)</td>
<td>Survey of dental hygiene, dental assisting, dentistry, and related professions. Personal and oral health. Introduction to patient education.</td>
</tr>
</tbody>
</table>
| 201.     | Preclinical Dental Hygiene                 | (2)     | Pederson
          | Didactic introduction to the clinical skills of dental hygiene. | [Fall] |
| 202L.    | Preclinical Dental Hygiene Laboratory      | (2)     | Staff
          | Introduction to the clinical skills of dental hygiene. 6 hrs. lab. | [Fall] |
| 203.     | Clinical Dental Hygiene                   | (2)     | Pederson
tech
          | Techniques of oral hygiene procedures through didactic instruction. | [Spring] |
| 204L.    | Clinical Dental Hygiene Laboratory        | (2)     | Staff
tech
          | Techniques of oral hygiene procedures in a clinical environment. Prerequisites: 100, 102L, 111L. 8 hrs. lab. | [Spring] |
| 210.     | Oral Anatomy                               | (3)     | Novitski
          | Anatomy of head and neck with emphasis on oral structures and their functions. Prerequisite: 200 or permission of instructor. | [Spring] |
| 211L.    | Dental Anatomy                             | (2)     | Novitski
          | Morphology of tooth structure. 1 lecture, 3 hrs. lab. | [Fall] |
| 212L.    | Oral Radiography                           | (1)     | The physics of roentgenology, the operation of the x-ray machine, and the practice of taking and developing dental x-rays. 1 lecture, 2 hrs. lab. | [Spring] |
| 300.     | Integrative Dental Hygiene                | (2)     | Staff
          | Continuation of DH 203. Didactic instruction in dental hygiene sciences. | [Fall] |
| 301L.    | Integrative Dental Hygiene Lab.            | (4)     | Staff
          | Clinical experiences in dental hygiene procedures and practices. 11 hours lab. | [Fall] |
| 302.     | Integrative Dental Hygiene                | (1)     | Staff
          | Continuation of 300. | [Spring] |
| 303L.    | Integrative Dental Hygiene Laboratory     | (5)     | Staff
          | Clinical experience in dental hygiene procedures and practices. Prerequisite: completion of all courses in first three semesters of professional curriculum. 16 hrs. lab. | [Spring] |
| 310.     | Histology                                  | (2)     | Avery
          | Introductory study of cells, tissues, and organ systems of human body with emphasis on oral structures. Prerequisite: 110. 1 lecture, 2 hrs. lab. | [Fall] |
| 312.     | Pathology                                  | (2)     | Avery
          | Introduction to general pathology; pathology of diseases affecting teeth and their supporting structures; oral manifestations of systemic disturbances. Prerequisite: 210L. | [Spring] |
| 320L.    | Dental Materials                           | (2)     | Sei
          | A survey of materials used in dentistry; training in common dental laboratory procedures. Corequisite: 300. 1 lecture, 2 hrs. lab. | [Fall] |
| 322.     | Dental and Public Health Education        | (2)     | Staff
          | Teaching of dental health; methods and materials to use; theory and practice of preventive dentistry and public health. Open to dental hygiene students. | [Spring] |
| 325.     | Nutrition                                 | (3)     | Harris
          | (See H Ec 325.) | |
| 330.     | Oral/Dental Medicine                      | (2)     | Cullen
          | Diagnosis and recognition of the nature and cause of the disease process; principles of treatment; diagnosis, etiology, prevention and control of diseases of teeth, their surrounding and supporting structures. Relation of dental health to total health. Prerequisite: 204. | [Fall] |
342. [242.] Practice Management. (2)
The principles, laws and regulations related to dentistry and dental hygiene; essentials of
office management, record keeping, and practice building. Prerequisite: 4th semester
standing.

400. Seminar. (2) duFault
Critical analysis of literature in the health and education professions. Prerequisite: Ed Fdn
310, permission of instructor. <Offered upon demand>

410. Internship Methods. [Dental Health Education Methods.] (3) duFault
Methods of Programming, Scheduling, Testing and Team Teaching in dental auxiliary
programs. Emphasis on needs of individual students. Prerequisite: Ed Fdn. 300, 310,
C & I 432, 433. <Offered upon demand>

420L. Advanced Clinical Dental Hygiene. (3)
Instruction and clinical practice in the administration of local anesthetic agents and in
periodontal procedures including soft tissue curettage and root planing. 2 lectures, 3 hrs.
lab. <Offered upon demand>

430. Introductory Dental Hygiene Teaching Internship. (3)
Techniques of preclinical instruction of dental hygiene with practice in teaching and
evaluating laboratory performances of students. Prerequisite: Ed Fdn 300, 310, Sec Ed
301; pre- or corequisites: 410, 420L. 1 lecture, 4 hrs. practice. <Offered upon demand>

432. Dental Hygiene Teaching Internship. (4)
Continuation of 430 with emphasis on clinical instruction and evaluation. Prerequisite: 420L.
1 lecture, 8 hrs. practice. <Spring>

DENTAL ASSISTING
CURRICULUM

100. Orientation. (2)
(See DH 200.)

110. Oral Anatomy. (3) Novitski
(See DH 210.)

111L. Dental Anatomy. (2) Novitski
(See DH 211L)

121L. Introductory Dental Sciences. (3)
Dental radiography, principles and practice. Microbiology with emphasis on oral bacteria
and immunology. Principles and practice of sterilization. Introduction to human anatomy,
physiology, and patient and office management. 2 hrs. lectures, 3 hrs. lab. <Fall>

122L. Advanced Dental Science. (3)
Study of materials used in dentistry; laboratory training in handling materials and in
dental laboratory procedures. Introduction to manifestations of oral diseases, the use of
anesthetic agents and the dental auxiliary's role in their administration. Study of dental
specialties, dental literature, and dental health materials. Prerequisites: 121L and 131L.
3 lectures, 3 hrs. lab. <Spring>

131L. Principles of Dental Assisting. (2)
Detailed study of art of dental assisting. 1 lecture, 3 hrs. lab. <Fall>

132L. Practicum in Dental Assisting. (3)
Supervised clinical practice of dental assisting in selected facilities. Prerequisites: 121L and
131L. 12 hrs. lab. <Spring>

ECONOMICS

PROFESSORS G. Boyle, Ph.D., (Chairman); S. Cohen, Ph.D., M. Gisser, Ph.D., P. Gregory, Ph.D.,
D. Hamilton, Ph.D., P. Jonas, Ph.D., A. Kneese, Ph.D., N. Wollman, Ph.D.; ASSOCIATE
PROFESSORS S. Ben-David, Ph.D., P. Chung, Ph.D., A. Parker, Ph.D., D. Tailby, Ph.D.,
P. Therkildsen, Ph.D., L. Zink, Ph.D.; ASSISTANT PROFESSORS L. Brown, Ph.D., A. Church,
Ph.D., R. Guthrie, Ph.D., W. Schulze, Ph.D.

Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY

All programs leading to a major in Economics require a common core consisting of Principles of Economics (Econ 200, 201), Micro and Macro Econ-
omic Theory (Econ 300, 303), and 18 additional hours of economics. Although
majors may select any economics courses to fulfill the 18 hours of electives, past experience indicates that majors specialize in one of the following four areas of interest which are listed for advisement only:

**A. Pre-professional Economics**—Pre-professional students should take the following economics courses: Money and Banking (315), Mathematical Methods in Economics (407), and History of Economic Thought (360). In the Mathematics Department, one year of calculus (Math 162, 163), Statistical Methodology and Linear Algebra with Applications are strongly recommended. This program prepares the student for graduate study in economics.

**B. Pre-Law**—Students wishing to prepare for law school are advised to select among: Statistical Analysis (289), Environmental Economics (342), Government Control of Business (332), History of Economic Thought (360), Public Finance (350), Comparative Economic Systems (450), Consumer Economics (330), and Labor Economics (320).

**C. Business Economics**—Students planning to enter employment in the private or public sector upon graduation are advised to select from among: Statistical Analysis (289), Money and Banking (315), Financial Management (326), Government Control of Business (332) as well as accounting, marketing and organization theory in the School of Business and Administrative Sciences.

**D. Contemporary Economic Problems**—The student interested in contemporary problems which are amenable to economic analysis and controversies in economics is advised to take the following courses: Radical vs. Conservative Economics (229), Consumer Economics (330), The Economics of Poverty (331), Urban Economics (341) and Environmental Economics (342).

**DISTRIBUTED MINOR FOR ECONOMICS MAJORS.** With the consent of the departmental chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see “American Studies.”

**MINOR STUDY**

Econ 200, 201, and 12 hours in upper-division courses in Economics of which at least one course must be either Econ 300 or 303.

100. Introduction to Economics. (3) Origins of capitalism, transplantation and adaptation in the New World, and new institutions in 19th and 20th century America. <Fall, Spring>

200. Principles and Problems. (3) Introduction to macro-theory and money and banking. Emphasis on contemporary economic problems, e.g., inflation, unemployment, poverty. Econ 200 and 201 are prerequisites to all upper division courses. <Fall, Spring>

201. Principles of Economics. (3) Introduction to micro-theory, international trade theory, economic growth and development. Econ 200 and 201 are prerequisites to all upper division courses. <Fall, Spring>

229. Radical vs. Conservative Economics. (3) Gisser, Church The investigation and discussion of controversial socio-economic issues. Includes such topics as the economics of discrimination, distribution of wealth, power and income, economic imperialism, the role of government, minimum wage legislation, and the military-industrial complex. Study will be directed by two or more faculty members who will be advocates of the radical and conservative positions. Utilization of position papers by students, panel discussions, debate, and field work on local issues. Prerequisite: 201. <Fall>

289. Statistical Analysis. (3) (See Math 102.)
**300. Micro-economic Theory.** (3) Intermediate economic analysis with emphasis on equilibrium models under perfect and imperfect competition. Prerequisites: 200, 201. <Fall, Spring>

301-302. Interdepartmental Studies in the Culture of the U.S. (3, 3) (See AMST 301-302.) May be taken for departmental credit only with the consent of the chairman.

**303. Macro-economic Theory.** (3) Gisser Composition, fluctuations, growth, and distribution of national income. Prerequisites: 200, 201. <Fall, Spring>

**315. Money and Banking.** (3) Chung, Parker Principles of money, credit, and banking; organization and operation of the banking system; and the relationship between money, banking, and the level of economic activity. Prerequisites: 200, 201, or consent of instructor. <Fall, Spring>

**320. Economics of Labor Relations.** (3) Cohen, Gregory Labor force, unions, labor-management relations, legislation, wages, and level of employment. Prerequisites: 200, 201. <Fall, Spring>

326. Financial Management. (3) (See B&AS 326.)

*330. Consumer Economics.** (3) Hamilton The theory of consumption. Prerequisites: 200, 201, or consent of instructor.

*331. The Economics of Poverty.** (3) Hamilton Defines the scope of poverty problems, relates the problem to economic theory, and examines possible solutions. Prerequisites: 200, 201, or consent of instructor.

*332. Government Control of Business.** (3) Parker Government and social control of business enterprise, including public utilities; the economics of rate making in public utilities. Prerequisites: 200, 201, or consent of instructor. <Spring>

341. Urban Economics. (3) Church, Schulze Economic analysis of urban problems with a focus on housing, discrimination, local finances, deterioration of the environment, and other problem areas. Theoretical issues and the role of policy will be treated. Speakers will be invited from the community to discuss local problems. Prerequisites: 200, 201 or consent of instructor.

*342. Environmental Economics.** (3) Schulze Economics of "spaceship" earth; causes of environmental deterioration in market as well as non-market economics; role of economic policy in controlling pollution with special emphasis on water, air, and solid waste residuals. Prerequisites: 201 or consent of instructor.

*350. Public Finance.** (3) Boyle, Therkildsen (Also offered as Pol Sc 350.) Taxation, governmental borrowing, financial administration, and public expenditures. Prerequisites: 200, 201.

*360. History of Economic Thought.** (3) Tailby Development of the principal economic doctrines and schools of economic thought from The Physiocrats to Keynes. Prerequisites: 200, 201.

*364. Rise of Modern Industry.** (3) Hamilton Institutional and technological forces in the evolution of the industrial economy. Prerequisites: 200, 201, or consent of instructor.

**400. Economic Theory.** (4) Gisser Emphasis on theory of the Firm and National Income determination. Prerequisites: 300 and 303, or equivalents. <Fall>

**407. Mathematical Methods in Economics.** (3) Brown (Also offered as Math 407.) A survey course designed to develop those mathematical results and methods which find frequent use in economic analysis. Prerequisites: one year of calculus or consent of instructor. <Fall>


**415. Central Banking.** (3) Chung Major developments in central banking theory and practice and comparative analysis of central banking in developed and underdeveloped money markets. Prerequisite: 315.
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*420. Economic Problems of Underdeveloped Countries. (3) Hufbauer, Tailby
  Theories, policies, and practices, with emphasis on Latin American economic problems. Prerequisites: 200, 201.

**421. Latin American Economies. (3) Gregory
  Analysis in non-technical terms of country characteristics and recent growth experience, balance of payments, commodity price stabilization, import substitution, multi-national markets, inflation, land reform, development strategies, and role of foreign assistance. Prerequisites: 200, 201. <Spring>

*422. Economic Security. (3) Therkildsen
  Public and private annuity, unemployment compensation, workmen's compensation, and medical programs. Prerequisites: 200 or consent of instructor.

*424. International Economics (3)
  Trade and balance of payments adjustments, theories of the gains from trade, policy issues. Prerequisites: 200, 201, or consent of instructor.

*425. Trade Unionism in the United States. (3) Cohen, Gregory
  History of American labor movement. The labor management relationship with emphasis on the economics of collective bargaining. Prerequisite: 320.

*426. Economics of the Labor Market. (3) Gregory
  Determinants of labor force, wage levels and structures, and employment; human capital theory and discrimination; economic consequences of trade union and government intervention. Prerequisite: 300.

*427. Labor and Public Policy. (3) Cohen
  Development of public policy toward industrial relations and labor market problems. Emphasis upon economic implications. Prerequisite: 320.

*440. Regional Analysis. (3) Zink
  Analysis of regional economies, economic models. Prerequisites: 200, 201.

*442. Natural Resources. (3) Ben-David, Brown, Kneese, Wollman
  Land, water, mineral, energy resources; development, allocation, pricing; productivity and effects on national income and balance of payments. Prerequisite: 300.

*445. Economics of the Budget Process. (3) Boyle
  (Also offered as Pub Ad 445.) Relationship of private and public sectors of the economy; allocation theory with respect to public resources; economic, political, and administrative aspects of government budgeting. Prerequisite: 350 or permission of instructor.

*450. Comparative Economic Systems. (3) Jonas
  A critical analysis of the proposed major reforms of the existing economic system. Prerequisites: 200, 201.

451-452. Problems. (1-3 hrs. per semester)
  <Fall, Spring, Summer>

*455. The Soviet Economic System. (3) Jonas
  Structure, institutions, growth rate, international position, and economic and military potentials of U.S.S.R. economy. Prerequisites: 200, 201.

*465. City Planning Methods. (3)
  (Also offered as Arch and Pol Sc 465.) Topics include perceptual form of the city; planning and decision-making theory; national and regional policy; public control over development; direct action techniques. This is a multidiscipline introduction to urban studies with emphasis on planning and control. <Fall>

*466. Economics for City Planning. (3)
  (Also offered as Arch 466.) This course introduces quantitative methods of city and development planning. Topics include cost-benefit analysis, including heroic quantification and social physics (simultaneous design of transportation and land use). Prerequisites: 200, 201. <Spring>

*478. Seminar in International Studies. (3) Slavin
  (Also offered as Geog, M&CL, Pol Sci and Soc 478.) Designed to provide seniors from any discipline an opportunity to apply an international perspective to their undergraduate training. Each student will present a term project drawing upon his particular background and relating it to international matters.

*485. Philosophical Foundations of Economic Theory. (3) Evans, Hamilton
  (See Ec-Ph 485.) Prerequisites: 200, 201.

*495-496. Departmental Seminar. (3, 3)
  Problems in economic theory and their relationship with changing character of economy. Prerequisite: undergraduates require approval of department.
497-498. Reading for Honors. (3, 3)
499. Senior Honors Thesis. (4)
*500. Micro-economics. (3) Gisser, Church
Prerequisites: 407 or equivalent; one year of calculus. <Spring>
*501. Advanced Micro-Theory. (3) Gisser
Prerequisites: 500, Math 314. <Fall>
*503. Seminar in Economic Theory and Applied Economics. (3)
Prerequisite: permission of instructor.
*504. Quantitative Analysis II. (3)
(See B&AS 501.)
*505. Macroeconomics. (3)
Prerequisites: 303, Math 180-181. <Spring>
*506. Advanced Macroeconomic Theory. (3)
Prerequisites: 505 and Math 314. <Fall>
*507. Programming and Growth. (3)
Prerequisites: 407 and Math 314.
*508. Data Construction and Evaluation in Economics. (3) Brown
Prerequisites: 289, 407. <Spring>
*509. Econometrics. (3) Brown
Prerequisites: Math 180, 181, 314, 345, and 346.
*510. Econometrics. (3) Brown
Prerequisite: 509.
*511. History of Economic Thought. (3) Tailby
Prerequisite: graduate status in Economics or permission of instructor.
*512. Economic History. (3) Tailby
Prerequisite: graduate status in Economics or permission of instructor.
*515. Theory of Money and Banking. (3) Chung, Parker
Prerequisite: 303 or 315.
*516. Monetary Problems and Policies. (3) Chung, Parker
Prerequisite: graduate standing in Economics.
*520. Seminar in Labor Economics. (3) Cohen, Gregory
Prerequisite: 320 or equivalent and permission of instructor.
*521. Comparative Labor Problems. (3) Cohen
*526. Seminar in European Economic History. (3) Goldsmith
(Also offered as Hist 526.)
*531. Standards and Levels of Living. (3) Hamilton
Prerequisite: graduate status in Economics or permission of instructor.
*532. The Theory of Consumption. (3) Hamilton
Prerequisite: graduate standing in Economics or permission of instructor.
*542. Seminar in Natural Resource Planning. (3) Ben-David, Wallman
Prerequisite: 300 or 500.
*543. Seminar in Natural Resource Planning. (3) Ben-David, Wallman
Prerequisite: 303 or 505.
*544. Special Topics in Environmental Economics. (3) Ben-David, Kneese
Prerequisite: 300 or equivalent. <Fall>
**546. Economic Education. (2 or 4) Parker, Doxtator
(Also offered as Bus Ed 546 and Sec Ed 546.) <Summer only>
*547. Mathematical Economics. (3) Schulze
Prerequisites: 407 and 500. <Fall>
*548. Seminar in Mathematical Economics. (3) Schulze
Prerequisite: 547. <Spring>
*551-552. Problems. (2-3 hrs. per semester)
*560. Theory of Public Finance. (3) Boyle, Church, Therkildsen
Prerequisite: permission of instructor.
*562. State and Local Finance. (3) Boyle, Church, Therkildsen
Prerequisite: 350 or graduate status in Economics or permission of instructor.
ECONOMICS-PHILOSOPHY

The combined major in Economics and Philosophy is an interdepartmental major administered jointly by the two departments. Students interested in this program should consult Professor David Hamilton in the Department of Economics, who is the adviser to all students in the Program.

This major is directed toward a deepened and fuller understanding of the theoretical phases of economics and toward the extension of philosophy into one of its traditional areas of interest; namely, that of value theory and its application.

MAJOR STUDY

Students completing an Economics-Philosophy major are not required to have a minor. The minimum requirement is 45 hours, including: Econ 200, 201, 300, 303, 315, and 360 or 450, and three hours to be selected from 320, 332, 340, 350, 422 or 424; Philosophy, twenty-one hours selected from courses chosen in consultation with your adviser; Economics-Philosophy 485.

MINOR STUDY

Not offered.

*485. Philosophical Foundations of Economic Theory. (3) Evans, Hamilton
(Also offered as Phil 485.) Philosophical backgrounds of classical and neo-classical, socialist and communist, and institutionalist economics. Prerequisite: Econ 201. (Spring 1977 and alternate years)

EDUCATION, ART


CURRICULUM

MINOR STUDY

See p. 110.

110. Creative Arts and Crafts in the Elementary Schools. (4)
   Developing art and craft awareness through comprehension and expression. Companion
   course with Art Ed. 115. <Summer, Fall, Spring>

115. Creative Experiences in Art for the Elementary School. (2)
   Specialized experiences in teaching art in the elementary school. Companion course with
   Art Ed. 110. <Summer, Fall, Spring>

120-121. Techniques of Craft Education. (1-3, 1-3)
   Beginning crafts. <Fall, Spring>

130-131. Techniques of Design Education. (3, 3)
   Design in everyday life. <Fall only>

210. Creative Art in Secondary School. (3)
   Fundamentals of art education in the secondary school setting. This course should be
   taken the semester preceding student teaching in the secondary schools. Prerequisite or
   corequisite: Art Ed. 220. <Summer, Fall, Spring>

211. Creative Art K-9. (3)
   Fundamentals of art education in elementary, middle and junior high schools. Prerequisite:
   Art Ed. 220. <Spring and on demand>

220. Pre-teaching Experience in Art. (3-6)‡‡
   Required for screening into art education, this course includes consideration of child
   development in art and offers introductory teaching experience with children and youth.
   Prerequisite for all art education courses in the major program. <Summer, Fall, Spring>

247. Topics. (1-3)
   Courses on a variety of topics are offered as need and interest dictate. Different section
   numbers indicate different topics. <Spring, Summer, Fall>

285. Recreation Arts and Crafts. (3)
   Exploration of Recreational Arts and Crafts including application of techniques, materials
   and methodology of teaching and supervising Arts and Crafts activities to all age groups
   of a heterogeneous nature. Course includes laboratory and field experiences in pre­
   selected sites. Course designed to develop full potential of students for recreation. <Fall>

351. Problems. (1-3)
   Individual problems are studied under the supervision of a faculty member. Permission of
   faculty member involved required.

400. Student Teaching in the Elementary School. (3-6-9, maximum total allowed 15)
   For Art Education majors only. Prerequisite: 220; corequisite: 402. <Fall, Spring>

401. Children and Art. (3)
   Pre-school through adolescence. For Art Education minors only. Prerequisite: 220.
   <Spring>

*402. Teaching Art in Elementary School. (3)
   Objectives, motivation, and procedures. For Art Education majors only. Prerequisite: 220;
   corequisite: 400. <Fall, Spring>

*429. Workshop. (1-4)
   Various workshops are offered as necessary in the teaching of different aspects of art.
   This course carries graduate credit when specifically approved by the Graduate
   Committee. For degree restrictions see p. 107 of this catalog or consult the Graduate
   School Bulletin.

*434. Teaching Art in Secondary School. (3)
   Objectives, motivation, and procedures. Corequisite: 461. <Spring>

*447. Topics. (1-3)
   Courses on a variety of topics are offered as need and interest dictate. Different section
   numbers indicate different topics.

458-459. Field Experience I and II. (3-6, maximum of 12)
   (Also offered as Bus Ed, C&I, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed,
   Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in
   agency or institutional setting. Prerequisite: permission of instructor.

‡‡ May be repeated for a maximum of 6 hours.
461. Student Teaching in the Secondary Schools. (3-6-9)
   For Art Education majors only.
   Prerequisites: Art Ed 220 and 210; corequisite: Art Ed 434. <Spring>

*465. Art and the Exceptional Child. (3)
   (Also offered as Spec Ed 465.) Course designed to acquaint Special Education teachers
   value and therapeutic uses of art in Special Education classroom and to acquaint Art
   Education majors with adaptations of art to various exceptionalities. <Fall>

*500. Seminar. (1-3)†
   <Summer, Fall, Spring>

*529. Workshop. (1-3)

*547. Topics. (1-3)

*551-552. Problems. (1-3 hrs. each semester)

*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
   (Also offered as C&I, Ed, Fdn, Bus Ed, Ed Adm, Phys Ed, Rec, Ind Ed, H Ec
   Ed, Sec Ed 558-559.) Prerequisite: acceptance into a graduate program and permission
   of instructor. <Summer, Fall, Spring as demanded>

*561. Practicum in the Supervision of Instruction. (3)
   (See C&I 561.)

*585. Research Applications to Education. (3)
   (Also offered as Ed Fdn 500.)

*590. Current Trends and Issues in Art Education. (3)
   <On demand>

*599. Master's Thesis. (1-6 hrs. per semester)
   See the Graduate School Bulletin for total credit requirements.

*610-611. Internship I and II. (3-6, 3-6)

*699. Doctoral Dissertation. (1-9 hrs. per semester)
   See the Graduate School Bulletin for total credit requirements.

EDUCATION, CURRICULUM AND INSTRUCTION (GENERAL)

The Department of Elementary Education and the Department of Secondary
Education (see these departments for faculty listing) jointly offer graduate and
undergraduate courses in the area of Curriculum and Instruction. Also available
through these departments is a graduate plan leading to the award of Education
Specialist in Curriculum and Instruction (Sixth-Year Program). See the Graduate
School Bulletin for further information.

*429. Workshop. (Taller Pedagogico) (1-4)
   For degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin.

*432. Production and Utilization of Instructional Materials. (3)
   (Also offered as Lib Sc 432.) Includes training in the use of media production and
   display equipment, production of graphic materials, overhead transparencies, slides,
   8mm motion pictures, audio recordings, basic principles of black and white photography,
   and criteria for effective design and use of media materials. Materials fee required.
   <Summer, Fall, Spring>

*433. Audiovisual Methods and Technology. (3)
   (Also offered as Lib Sc 433.) Application of instructional design and development
   principles to the planning and production of mediated units of instruction. Includes a
   systematic approach to specifications of content and objectives; assessment of entering
   behavior; determination of strategy; organization of groups; allocation of time and
   space requirements; selection of appropriate media resources and evaluation of per­
   formance. Students will be required to produce one packaged unit of instruction.
   Materials fee required. Prerequisite: 432 or permission of instructor. <Summer, Fall
   Spring>

*435L. Remedial Reading Problems. (3) Van Dongen, Zintz
   Includes 3 hrs. supervised laboratory each week. Prerequisite: El Ed 431 or permission
   of instructor. 3 lectures, 1 hr. lab. <Summer, Fall, Spring>

*447. Topics. (1-3)
*448. Career Education. (3) Wagoner, Runge
(Also offered as Sec Ed 448.) A study of new career education concepts, objectives, models, occupational clusters, USOE, state and local curriculum materials and implementation guidelines. Class activities include use of resource persons, field trips, and contacts with the business community. <Fall, Spring, Summer>

*456. Science, Technology, and Human Values: Implications for Education. (3)
(Also offered as Ed Fdn, I Ed, Sec Ed 456.) Examination of the continuing impact of science and technology, with emphasis on changing values and traditions. Structure, function, and curriculum of educational institutions will be analyzed with a view toward assisting their clientele to cope with, and to influence, scientific and technological change.

458-459. Field Experience I and II. (3-6 maximum of 12)
(Also offered as Art Ed, Bus Ed, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

*460. Organization and Administration of Media Centers. (3)
(Also offered as Lib Sc 460.) Study of the organization and management of media centers, of facility design and services related to the production and distribution of materials and equipment. <Spring, Summer>

*480. Second Language Pedagogy. (3)
(Also offered as M Lang 480)

*481. Education Across Cultures in the Southwest (3) Pfeiffer, Zintz
<Summer, Fall, Spring>

*482. Teaching English as a Second Language. (3) Brodkey, Pfeiffer, Spolsky, White, Zintz
Prerequisites: Ling 292 or Engl 440 (may be taken concurrently) and permission of instructor. <Summer, Fall, Spring>

*500. Advanced Instructional Strategies. (3)
(Also offered as Ed Ed 500, Sec Ed 500.) <Spring>

*506. The Middle School. (3) Stoumbis
(Also offered as Sec Ed 506.) <Fall, Spring or Summer on demand>

*512. Arranging Learning Environments. (3) Loughlin
(Also offered as Ed Ed 512.) <Fall>

*515. Remedial Teaching Techniques. (3) Zintz
<Summer, Spring 1977 and alternate years>

*529. Workshop. (1-4) <Offered upon demand>

*530. Adult Education. (3)
(Also offered as Ed Adm 530.) <Spring>

*532. The Reading Process. (3) Van Dongen, White, Zintz
Prerequisites: 535L and Ed Ed 531 and permission of instructor. <Spring, Summer 1975 and alternate years>

*535L. Practicum in Learning Disabilities (Reading). (3) Van Dongen, Zintz
Includes 3 hr. supervised laboratory each week. Prerequisites: 435L and Ed Ed 531 or Sec Ed 520. 3 lectures, 1 hr. lab. <Summer, Fall, Spring>

*541. Principles of Curriculum Development. (3) Drummond, Howard, Ivins, Mann
<Spring 1977, Summer, and alternate years>

*542. Curriculum Theory Seminar. (3) Mann
Prerequisite: permission of instructor. <Fall>

*547. Topics. (1-3)

*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
(Also offered as Art Ed, Bus Ed, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 558-559.) Prerequisite: acceptance into a graduate program and permission of instructor. <Summer, Fall, Spring>

*560. Supervision of Instruction (Elementary and Secondary). (3)
(Also offered as Ed Adm 560.) <Summer, Fall, Spring>

*561. Practicum in the Supervision of Instruction. (3) Auger, Ivins
May be repeated for a maximum of 12 hours. <Fall, Spring>

*570. The Analysis of Teaching Physical Education. (3) Locke
(Also offered as P E 570) Prerequisite: permission of instructor. <Summer, Fall>
*580. Curriculum Development for Bilingual/Bicultural Programs. (3)
Offered with either Spanish-English emphasis (competency in Spanish language required)
or with Navajo-English emphasis. Prerequisite: permission of instructor. <Fall, Spring>

*581. Bilingual Education. (3) Jaramillo, Pfeiffer, Spolsky, Zintz
Prerequisite: 481. <Spring, Summer>

*601. Curriculum Appraisal and Improvement of School Programs. (3) Crawford, Ivins
(Also offered as Sec Ed 601.) <Fall>

*610-611. Internship I and II. (3-6, 3-6)
<Summer, Fall, Spring>

EDUCATION, EDUCATIONAL ADMINISTRATION

ASSOCIATE PROFESSOR P. A. Pohland, Ph.D. (Chairman); PROFESSORS J. Aragon, Ed.D.; R. E.
Hale, Ph.D.; H. W. Lavender, Ph.D.; ASSISTANT PROFESSORS J. H. Jaramillo, Ph.D.; S.
Pogrow, Ph.D.

The programs offered in this department are at the graduate level. Information concerning these programs is contained in the Graduate School Bulletin.

*412. Public Education in New Mexico (3)
A comprehensive survey of the New Mexico public school system and its tax supported
system of higher education. <Fall, Spring>

*429. Workshop. (1-4)
Carries graduate credit when specifically approved by the Graduate Committee. For
degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin.
<Offered upon demand>

*447. Topics. (1-3)
458-459. Field Experience I and II. (3-6 maximum of 12)
(Also offered as Art Ed, Bus Ed, C&I, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed
458-459.) Planned and supervised professional laboratory or field experiences in agency
or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

*509. Introduction to Educational Administration. (3)

*510. School-Community Relations. (3)

*520. The School Principalship. (3)

*521. Public School Finance. (3)

*522. School Business Management. (3)

*526. Educational Planning and the School Plant. (3)

*529. Workshop in Educational Administration. (1-4)
For degree restrictions consult the Graduate School Bulletin. <Offered upon demand>

*530. Adult Education. (3)
(Also offered as C&I 530.)

*531. Administration of Staff Personnel. (3)

*532. Current Educational Problems. (3)

*547. Topics. (1-3)

*551-552. Problems. (1-3 hrs. each semester)

*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
(Also offered as C&I, Art Ed, Bus Ed, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed
558-559.) Prerequisite: acceptance into a graduate program and permission of instructor.
<Summer, Fall, Spring>

*560. Supervision of Instruction (Elementary and Secondary.) (3)
(Also offered as C&I 560.)

*561. School Law. (3)

*564. School and Community Surveys. (3)

*571. State and Federal Educational Administration. (3)

*581. Seminar in Educational Administration. (1-3)

*612-613. Field Experiences in Educational Administration. (3, 1-3)

*626. Educational Buildings and Equipment. (3)
**EDUCATION, EDUCATIONAL FOUNDATIONS**


Explanation of footnotes not indicated will be found on p. 210.

247. Topics. (1-3)
251. Problems. (1-3)

284. Afro-American History. (3)
(Also offered as Hist 284.) Survey of Afro-American history beginning with Africa and continuing to contemporary Black America.

290. Foundations of Education. (3) Bachelor, Rosasco, Vogel, Zepper
An introduction to the philosophical, social, historical, and comparative foundations of education. <Summer, Fall, Spring>

292. Introduction to the Study of Language. (3 or 4)
(See Ling 292.)

300. Human Growth and Development. (1-3) Berch, Dahmen, Harris, John-Steiner, Moellenberg, Rosasco
Principles of growth and development and implications for the school curriculum. <Summer, Fall, Spring>

310. Learning and the Classroom. (3) Berch, Blackwell, Dahmen, Harris, John-Steiner, Rosasco
The basic principles of learning and their application to classroom situations. <Summer, Fall, Spring>

351. Problems. (1-3)

352. African Politics. (3) Criddle
(Also offered as Pol Sc 352.) Course examines political development of new African states, impact of colonial rule, and problems of building new nation-states.

*362. Language Testing and Multilingual Education. (3)
(See Ling 362.)

383. Education of the Mexican-American: Trends, Issues, Problems. (3)
(Also offered as Spc Ed 383)

*411. History of American Education. (3) Vogel, Zepper
The development of American education from the Colonial period to the present. An analysis of the contributions of teachers, statesmen, philanthropists, psychologists, sociologists, and philosophies to educational thought and practice in the U.S.A. Prerequisite: a course in American history. <Offered upon demand>

*412. History of Education. (3) Vogel, Zepper
The development of education in world civilizations (with the exception of the U.S.A.). An analysis of educational thought and practice in historical perspective. Prerequisite: courses in world history. <Offered upon demand>

*415. Philosophies of Education. (3) Vogel, Zepper
A survey of philosophical systems and their application to education. Prerequisite: 290 or equivalent. <Summer, Fall, Spring>

*416. Workshop in Intercultural Relations. (4)
<Offered upon demand>
*420. Small Group Communication. (3) Rosenfeld
(Also offered as Sp Com 420.) Theory and practice of human interaction in small groups, including role behavior, conflict resolution, nonverbal communication, and phases in group development; special application to the classroom. <Spring>

*421. Sociology of Education. (3) Bachelor
(Also offered as Soc 421.) The comparative study of the structure and functioning of educational institutions in the developing and developed societies. <Summer, Fall, Spring>

*422. Education and Anthropology. (3) G. Levis-Matichek
(Also offered as Anth 422.) An overview of educational implications from the field of anthropology. <Offered upon demand>

*429. Workshop in Foundations of Education. (1-4):1:, For degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin. <Offered upon demand>

*447. Topics. (1-3)

*456. Science, Technology, and Human Values: Implications for Education. (3)
(Also offered as C&I, 1 Ed, Sec Ed 456.) Examination of the continuing impact of science and technology, with emphasis on changing values and traditions. Structure, function, and curriculum of educational institutions will be analyzed with a view toward assisting their clientele to cope with, and to influence, scientific and technological change.

458-459. Field Experience I and II. (3-6 maximum of 12)
(Also offered as Art Ed, Bus Ed, C&I, Ed Adm, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

*474. Evaluation in the School Curriculum. (3) Blackwell, Cooper, Moellenberg, Moore
An analysis of the educational and psychological tests used in a school testing program. <Summer, Fall, Spring>

*500. Research Applications to Education. (3) Cooper, Harris, Resto
(Also offered as Art Ed 585.)

*501L. Research Methods in Education. (3) Berch, Cooper, Dahmen, Harris, Moellenberg

*503. Seminar in Human Growth and Development. (3) Berch, Dahmen, Harris, Moellenberg

*504. Computer Applications to Education. (Computer Applications in Educational Research.)
(3) Cooper, Moore

*510. Seminar in Classroom Learning. (3) Berch, Blackwell, Dahmen, Harris

*515. Comparative Philosophies of Education. (3) Vogel, Zepper

*516. Educational Classics. (3) Zepper

*517. Educational Ideas in Literature. (3) Vogel

*518. Comparative Education. (3):1, Bachelor, Zepper

*533. Behavior Modification in Education. (3) Harris

*547. Topics. (1-3)

*551-552. Problems. (1-3 hrs. each semester)

*555. Seminar in Linguistics and Language Pedagogy. (1-3) John-Steiner, Oller
(Also offered as Ling 555.)

*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
(Also offered as C&I, Art Ed, Bus Ed, Ed Adm, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 558-559.) Prerequisite: acceptance into a graduate program and permission of instructor. <Summer, Fall, Spring>

*562. [502] Seminar. (3):1
(Also offered as Ling 562.)

*563. [553] Seminar in Language Acquisition. (3)
(Also offered as Ling 563.)

*574. Theory and Construction of Educational Measures. (3) Blackwell, Harris, Moore

*581. Seminar: Sociology of Education. (3) Bachelor
(Also offered as Soc 521.)

*599. Master's Thesis. (1-6 hrs. per semester)
(See Graduate Bulletin for total credit requirements.)
EDUCATION, EDUCATIONAL MEDIA

The area of Educational Media includes library science and audiovisual courses. Three programs in library science are offered: a minor of 24 semester hours credit for undergraduates in elementary and secondary education, an outside minor of 21 hours for undergraduates in the College of Arts and Sciences, and public school library certification. The requirements for New Mexico State certification of school librarians include (1) a valid teaching certificate for the level at which the librarian will serve, and (2) a planned program of 18 hours in library science. One course in children’s literature and one AV course will be accepted as part of the 18 hours. If a candidate chooses to become certified for grades 1-12 and holds a valid teaching certificate for only elementary or only secondary, he may qualify for certification by completing a planned program of 24 hours in library science. Some Educational Media courses serve other departments as part of the teacher training program.

MAJOR STUDY

Not offered.

MINOR STUDY FOR UNDERGRADUATES IN EDUCATION

Lib Sc 424, 425, 427, 432, 433, 437, 460 and at least 3 hours from the following: 351, 441, 451.

MINOR STUDY FOR UNDERGRADUATES IN ARTS AND SCIENCES

Lib Sc 424, 425, 427, 432, 437, 460, and either 429, 451, 441 or 433.

LIBRARY SCIENCE

351. Problems. (1-3) <Offered upon demand>

*424. Fundamentals of Library Science. (3)
A survey of the history of libraries and books, social forces that have and are affecting the purposes and functions of libraries; types of libraries; their roles in society; the role of the professional librarian. <Fall>

*425. Reference and Bibliography. (3)
Study of materials and methods for locating information in general works, encyclopedias, dictionaries, indexes, bibliographical works, media guides, and other major tools in subject fields. <Spring>

*427. Classification and Cataloging. (3)
Study of the purpose, history, theory, and principles of classification, cataloging, and general arrangement of books and other media. Practical application of the Dewey Decimal classification and Sears List of Subject Headings to both book and non-book materials. <Spring>

*429. Workshop. (1-4) <Offered upon demand>

*432. Production and Utilization of Instructional Materials. (3)
(Also offered as C&I 432). Includes training in the use of media production and display equipment, production of graphic materials, overhead transparencies, slides, 8mm motion pictures, audio recordings, basic principles of black and white photography and criteria for effective design and use of media materials. Materials fee required. <Summer, Fall, Spring>
*433. Audiovisual Methods and Technology. (3)
(Also offered as C&I 433.) Application of Instructional Design and Development principles to the planning and production of mediated units of instruction. Includes: a systematic approach to specifications of content and objectives; assessment of entering behavior; determination of strategy; organization of groups; allocation of time and space requirements; selection of appropriate media resources and evaluation of performance. Students will be required to produce one packaged unit of instruction. Materials fee required. Prerequisite: 432 or permission of instructor. <Summer, Fall, Spring>

*437. Selection of Materials for Libraries and Media Centers. (3)
Study of the principles of selection and evaluation for developing collections of print and non-print materials; includes acquisition policies, criteria and tools for selection. <Summer, Fall>

*441. Children’s Literature. (2)
(Also offered as El Ed 441.) Pre- or corequisite: El Ed 331L. <Summer, Fall, Spring>

*451. Books and Related Material for Young Adults. (3)
A survey of books and non-book materials suitable for students of junior and senior high school age. Emphasis on utilization and evaluation of materials, adolescent reading, viewing and listening interests. <Fall>

*460. The Organization and Administration of Media Centers. (3)
(Also offered as C&I 460.) Study of the organization and management of media centers, of facility design and services related to the production and distribution of materials and equipment. <Spring, Summer>

EDUCATION, ELEMENTARY


CURRICULA
See pp. 112-115.

§100. Directed Experiences with Children for Auxiliary Personnel, Level I. (1-6) Peterson
Fall>

§129. Workshop: The Paraprofessional in the Classroom. (1-6) Peterson
Fall>

§200. Directed Experiences with Children for Auxiliary Personnel, Level II. (1-6) Peterson
Prerequisite 100. <Fall, Spring>

§229. Workshop: Working with Children in Elementary Schools. (1-6) Peterson
Prerequisite: 129. <Fall, Spring>

247. Topics. (1-3)†

251. Problems. (1-3) <Summer, Fall, Spring>

300. Bilingual Teaching Methods—Materials and Techniques. (9)
Involves theory and practice in bilingual education emphasizing the Spanish language and culture dimension of the bilingual program. Prerequisite: admission to Elementary Education Bilingual Minor Program. <Spring>

305. Teaching in the Kindergarten—Primary Years. (3) Loughlin
Strategies and materials of effective learning experiences and classroom organization for young children. <Spring>

319. Physical Education in the Elementary School. (3) Moolenijzer
(Also offered as PE 319.) Four class meetings a week. <Summer, Fall, Spring>

321L. Teaching of Social Studies in the Elementary School. (3) Auger, Darling, Drummond, Mann, Van Dongen
3 lectures, 1 hr. lab. <Fall, Spring>

331L. Teaching of Reading in the Elementary School. (3) Auger, Darling, Drummond, Mann, Van Dongen, Zintz
3 lectures, 1 hr. lab. <Fall, Spring>

§ Open to students in the A.A. in Educ (Elem) program only.
333L. Teaching Oral and Written Language in the Elementary School. (2) Auger, Darling, Drummond, Jaramillo, Loughlin, Mann, Van Dongen 
2 lectures, 1 hr. lab. <Fall, Spring>

341. Techniques of Literary Presentations. (2-3) 
Exploration of the art and materials of storytelling in schools and recreation centers. Folk and fairy tales, myths, legends, fables, epics, and hero tales, and realistic stories will be studied, presented, and evaluated. <Offered upon demand>

351. Problems. (1-3) <Summer, Fall, Spring>

*353L. Teaching of Science in the Elementary School. (3) Auger, Darling, Drummond, Mann, Tweeten, Van Dongen
<br><br>361L. Teaching of Mathematics in the Elementary School. (2) Auger, Darling, Drummond, Mann, Van Dongen 
Prerequisite: Math 111, 112, 2 lectures, 1 hr. lab. <Fall, Spring>

400. Student Teaching in the Elementary School. (3-6-9-12-15) Auger, Darling, Drummond, Loughlin, Mann, Van Dongen 
Pre- or corequisite: 321L, 331L, 333L, 353L, 361L. See also additional requirements on p. 105. Special fee of $10 is charged. <Fall, Spring>

405. Curriculum for Early Childhood. (3) Auger, Loughlin 
Education of children 2-5. Prerequisite: H Ec 408L. <Fall, and upon demand>

*421. The Social Studies Program in the Elementary School. (Estudios Sociales en la Escuela Primaria) (3) Drummond 
Prerequisite: 321L. <Summer 1975 and alternate years, Fall>

*429. Workshop. (1-4) (Taller Pedagogico) 
Carries Graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin. <Offered upon demand>

*431. The Reading Program in the Elementary School. (El Programa de Lectura en la Escuela Primaria) (2 or 3) Auger, Van Dongen, Zintz 
Prerequisite: 331L. <Summer, Fall, Spring>

*441. Children's Literature. (Literatura Infantil.) (2) 
(Also offered as Lib Sc 441.) Prerequisite: 331L. <Summer, Fall, Spring>

*442. Games and Songs of New Mexico. (3) 
Course to cover theory and content of the games and songs of culture in which course is offered. Prerequisite: Proficiency in the language in which course is taught. <Summer, Spring>

*447. Topics. (2 or 3)†

*453. The Science Program in the Elementary School. (3) Tweeten 
Prerequisite: 353L.

*454. Environmental Education through Camping. (3) 
Designed to teach both the methods and techniques of teaching environmental education through camping to elementary school students, and to acquaint recreation personnel with the operation of a school-camp program.

*461. The Mathematics Program in the Elementary School. (3) Darling 
Prerequisite: 361L. <Fall 1974, Summer 1975 and alternate years>

*470. Supervision of Student Teaching in Elementary Schools. (3) 
Overview of teacher preparation programs including program of UNM. Restricted to cooperating teachers working with program. Prerequisite: graduate or non-degree status.

497. Reading and Research in Honors. (3-6) 
Prerequisite: see p. 100. <Fall, Spring>

*500. Advanced Instructional Strategies. (3) 
(Also offered as C&I 500.) <Spring>

*505. Seminar in Early Childhood Education. (3-12) Auger, Loughlin

*507. Developing Curriculum for Middle Schools. (3) Stoumbis 
(Also offered as Sec Ed 507.) <Fall or Spring, Summer on demand>
EDUCATION, GUIDANCE AND COUNSELING


EDUCATION, GUIDANCE AND COUNSELING


GUIDANCE

*410. Rehabilitation Concepts and Process. (3) Morgan
Provides the philosophical, historical, and legislative foundations of rehabilitation including an overview of rehabilitative services. Consideration of definitions of rehabilitation and handicapping conditions: physical, emotional, mental, social, and economic. Prerequisite: permission of instructor. <Fall>

413. Career Development in the Classroom. (3) Keppers
To familiarize the student with the world of work and career development and how to integrate this knowledge into the regular classroom, with emphasis on the group discussion approach. Appropriate for all levels of instruction. <Summer, Fall, Spring>

*415. Foundations of Counseling. (3) Staff
Designed to provide the student with a basis for examination and development of a meaningful philosophy of counseling services, and to understand the principles of counseling practices in keeping with that philosophy. Prerequisite: permission of instructor. <Summer, Fall, Spring>

429. Workshop in Counseling. (1-4) Staff
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions, see p. 107 of this catalog or consult the Graduate School Bulletin. <Offered upon demand>

*430. Dynamics of Human Behavior. (3) Zick
To permit the student to achieve a broader base with respect to an understanding of the various theorists and theories of personality which, in turn, would allow for greater concentration in the areas of philosophy and techniques of counseling. <Summer, Fall, Spring>

*431. Theories of Human Interaction. (3) Staff
Provides a comprehensive picture of man and the problems of human existence and personal adjustment with emphasis upon the self and one's interaction with others. Prerequisite: permission of instructor. <Fall, Spring>

*447. Topics. (1-3) Staff
*510. Techniques of Parent-Teacher Counseling. (3) Micali
(Also offered as Spec Ed 510.) Two systems employed in intervention counseling by counselors and special educators and their practical application in a variety of institutional settings. Prerequisite: 415 or permission of instructor. <Fall>

*512. Differential Diagnosis I. (3) Heisey, Maes, Micali
(Also offered as Spec Ed 512.)

*513. Socio-Economic Information in Counseling. (3) Keppers

*514. Organization and Supervision of Counseling Services. (3) Staff

*515. Differential Diagnosis II. (3) Staff
(Also offered as Spec Ed 515.)

*516. Clinical Case Study. (3) Maes, Micali

*517. Group Counseling. (3) Fishburn, Zick

*518. Theories of Counseling. (3) Zick

*519. Practicum in Counseling. (1-6) Dahmen, Keppers, Micali

*529. Workshop in Counseling. (1-4) Staff
For degree restrictions, consult the Graduate School Bulletin. <Offered upon demand>

*540. Counseling in the Elementary School. (3) Staff

*541. Counseling and Play Therapy with Children. (3) Heisey

*547. Topics. (1-3) Staff

*550. College Personnel Work (3) (Whiteside)

*551-552. Problems. (1-3 hours each semester) Staff

*599. Master's Thesis. (1-6 hours per semester) Staff
See the Graduate School Bulletin for total credit requirements.

*610-611. Internship I and II. (3-6, 3-6) Staff

*620. Seminar in Counseling. (3) Staff

*621. Advanced Theories of Counseling and Psychotherapy. (3) Levin, Staff

*622. Advanced Group Counseling and Psychotherapy. (3) Fishburn

*630. Advanced Practicum in Counseling, Counselor Education, and Supervision. (3-6) Staff

*699. Doctoral Dissertation. (1-9 hrs. per semester) Staff
See the Graduate School Bulletin for total credit requirements.

EDUCATION, HEALTH, PHYSICAL EDUCATION AND RECREATION


The Department offers a number of programs. The service program in Physical Education (see Professional Courses) is open to all students in the University and is required by some of the degree granting colleges (for specific requirements, refer to group requirements of each individual college). The instructor in each course should be consulted concerning proper clothing or uniform.

The Department offers curricula leading to undergraduate and graduate degrees in the preparation of community health educators and teachers of Health Education and Physical Education. In addition, it offers undergraduate and graduate degree programs in Recreation designed to train recreation leaders and administrators. A park and recreation field service is operated by the Department. The Center for Leisure and Recreation, a program of the Institute for Social Research and Development works closely with this Department.
HEALTH EDUCATION

164. First Aid. (2) Preparation in knowledge and skills to meet the needs in most situations where first aid care is needed. Students eligible for Standard Red Cross First Aid Certificate. <Summer, Fall, Spring>

171. Personal and Community Health. (3) Exploration of the major areas of health information pertinent to understanding how to achieve, maintain, and promote positive health. Topics covered include mental health, drugs, human sexuality, prevention and control of diseases, nutrition, consumer health and ecology. <Summer, Fall, Spring>

212. Fundamentals of Human Sexuality. (3) Basic knowledge about human sexuality including anatomical, physiological, psychosocial, and ethical components. Broad consideration of sexual behavior. Emphasis on discussion of viable topics from varying points of view. <Fall, Spring>

247. Topics. (1-3)

301. General Safety Education. (3) Basic principles of safety education. Current safety programs as they apply to school, home, and community. <Spring and alternate summers beginning with Summer 1975>

333. An Experiential Approach to Developing Mental-Emotional Health in the Classroom. (3) An affective, experiential approach to understanding the ramifications of the mental-emotional health component in teaching. Development of personal and professional qualities to maximize positive teacher-student relationships.

345. Professional Experience in School and Community Health Education. [Professional Laboratory Experiences in Health Education.] (1-4) <Summer, Fall, Spring>

351. Problems. (1-3) Prerequisite: permission of Health Education Coordinator. <Summer, Fall, Spring>

400. Student Teaching in Elementary Schools. (3-6-9) <Fall, Spring>

402. Traffic Safety Education in Secondary Schools. (3) Those enrolling must be licensed drivers. Discussion includes improvements of traffic conditions; the school's part in the safety program, the need for high school courses; methods and equipment for skill tests; insurance costs, and records for behind-the-wheel training; classroom teaching methods; and physical tests for drivers. <Summer only>

*429. Workshop. (1-4) Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin. <Offered upon demand>

442. Emergency Health Care. (3) Information and skills in recognizing and managing emergencies due to illness or injury. Limited to juniors/seniors. Prerequisite: permission of Health Education Coordinator. <Summer, Fall, Spring>

*447. Topics. (1-3)

458-459. Field Experience I and II. (3-6 maximum of 12) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of Health Education Coordinator. <Summer, Fall, Spring>

461. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15) <Fall, Spring>

462. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15) <Fall, Spring>

*469. Elementary School Health and Health Education. (3) Stress is placed on understanding current information related to health of elementary school children, planning and directing learning experiences in health and safety, pro-

* Limited to juniors and seniors only.
moting a healthy environment for learning, and ways of working as an effective member of the school health team. Open to health specialists, elementary school administrators, and classroom teachers. Prerequisites: 171, Ed Fdn 300, or permission of instructor. <Summer, Fall, Spring>

470. Secondary School Health and Health Education. (3)
Development of needed competencies for teaching Health Education at the secondary level. Emphasis on planning, methodology and classroom techniques, observations, practice, and critical study of problem areas related to classroom instruction and healthful school environment. Prerequisites: H Ed 171, Ed Fdn 300 or permission of instructor. <Fall, Spring>

475. Alternative Approaches in Drug Education. (3)
Teaching skills necessary to communicate effectively in this subject material. Emphasis on methodology, curriculum and teacher qualities. Permission of the instructor required. <Spring and every other summer>

495. Introduction to Community Health. [Studies in Community Health] (3)
New developments in research in major health problems, the ecology of local, national, and world health problems; motivational research as applied to changing health behaviors. Prerequisite: permission of instructor. <Offered upon demand>

496. Investigations in School Health. (3)
Analysis of current developments and problems in school health at national, state, and local levels. Special attention is directed to the individual and joint responsibilities of various school health personnel. Prerequisite: 469 or 470 or permission of instructor. <Offered upon demand>

497. Readings and Research in Honors. (3-6)
Prerequisite: see p. 100.

504. Research Seminar. (1)

Prerequisite: minimum of an undergraduate minor in Health Education or permission of instructor. <Summer and upon demand>

511. Administrative Aspects of School and Community Health. [Administration of School Health.] (3)

516. Seminar in Health Education. (3)

520. Teaching Human Sexuality. (3)

529. Workshop. (1-4)
For degree restrictions consult the Graduate School Bulletin.

547. Topics. (1-3)

551-552. Problems. (1-3 hrs. each semester)
Only by permission of Health Education Coordinator.

558-559. Advanced Field Experiences I and II. (3-6, 3-6)
Prerequisites: acceptance into a graduate program and permission of instructor. <Summer, Fall, Spring>

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

610-611. Internship I and II. (3-6, 3-6)

699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

PHYSICAL EDUCATION

PROFESSIONAL SERVICE COURSES—PHYSICAL EDUCATION

Most activity courses are offered every semester.

100. Beginning Swimming. (1)
Instruction for students who have not been in the water or have a fear of water.

101. Intermediate Swimming. (1)
Instruction in all basic strokes. For students who can swim.

102. Advanced Swimming. (1)
Instruction and practice in perfecting all swimming strokes; competitive skills; synchronized skills.

* Limited to juniors and seniors only.
103. Diving. (1)  
Instruction in basic fundamentals of springboard diving, primarily on one meter board.

104. Water Polo. (1)  
Basic skills, strategy, rules and terminology to play and officiate the game.

105. Lifesaving. (1)  
Instruction and practice in lifesaving techniques which lead to advanced Red Cross Lifesaving Certificate. Prerequisite: Ability to swim, basic strokes.

106. Water Safety Instruction. (2)  
Instruction in swimming, teaching techniques for those who want to become teachers of swimming. Prerequisite: Current Red Cross Senior Lifesaving Certificate.

107. Small Water Craft Operations. (2)  
Instruction and practice in canoeing, sailboating, kayaking, and in operation of small motor craft.

108. Skin and Scuba Diving. (2)  
Special Fees. Fundamental skills of skin and scuba diving, use of equipment, medical and safety aspects, dive planning, oceanography and marine life.

109. Advanced Scuba. (2)  
Special Fees. Instruction in technical aspects of diving such as repetitive, deep decompensation and high altitude diving, equipment maintenance and repair, underwater navigation, search and recovery, light salvage diving, life saving and first aid.

115. Gymnastics. (Women only) (1)  
A course to acquaint the student with fundamental skills of tumbling, balance beam, trampoline, uneven parallel bars and vaulting to better acquaint the student with gymnastics.

117. Apparatus Stunts. (Men only) (1)  
Instruction in activities in tumbling, vaulting, parallel bars and trampoline to better acquaint the student with gymnastics.

118. Individual Tumbling. (Men only) (1)  
A class for the beginner to help develop coordination, agility, flexibility, a Kinesthetic sense and neuromuscular control.

120. American Country Dance. (1)  
Instruction in the basic movements of square, contra and round dance.

122. International Folk Dance. (1)  
Instruction of selected folk dances of the world.

123. Intermediate-International Folk Dance. (1)  
Instruction dependent upon experience of students in folk dances of the world.

124. Ballroom Dance. (1)  
Instruction in the basic movements of the fox trot, waltz, lindy, rhumba, tango and cha-cha.

125. Intermediate Ballroom Dance. (1)  
Instruction dependent upon experience of students in basic movement of all segments of ballroom dance.

126. Modern Dance I. (1)  
(Also offered as Dance 109.) The techniques and practice of basic motor skills and their application to aesthetic communication.

128. Mexican-New Mexican Dance. (1)  
Instruction in the basic movement of Mexican-New Mexican folk dance.

135. Wrestling. (Men only) (1)  
Instruction in the techniques and strategies of the collegiate wrestling.

136. Personal Defense. (1)  
Instruction in the basic skills needed to defend oneself against assault.

137. Beginning Judo. (1)  
Ancient Japanese methods of barehanded fighting, a special uniform is necessary.

138. Karate. (1)  
Instruction in the basic skills, blocks, strikes and kicks of Japanese Karate.

140. Beginning Golf. (1)  
Instruction in the basic skills, equipment, rules, etiquette and shot-making.

141. Intermediate Golf. (1)  
Instruction emphasizes actual play.
142. Advanced Golf. (1)
   For the low handicap player. Emphasis is on the refining of skills and strategies of competitive golf.

143. Beginning Tennis. (1)
   Instruction in the basic skills and rules of tennis.

144. Intermediate Tennis. (1)
   Instruction dependent upon experience and skills of students in basic fundamentals. Perfection of strokes.

145. Advanced Tennis. (1)
   Instruction for the consistent player with emphasis upon advanced skills.

146. Bowling. (1)
   Special Fees. Instruction and practice in the basic skills of bowling.

147. Topics. (1-2)
   New activities offered on an exploratory basis.

148. Archery. (1)
   Instruction in the basic skills and knowledge of range archery.

149. Badminton. (1)
   Instruction in the basic skills, rules and strategy of competitive play.

150. Fencing. (1)
   Instruction in the basic skills and knowledge of French foil fencing.

151. Handball. (1)
   Instruction and practice in all the four wall handball shots and rules.

152. Racquetball. (1)
   Instruction and practice in the skills and rules of racquetball.

153. Track and Field. (1)
   Instruction in the basic techniques of track and field events for both men and women.

154. Weight Training. (1)
   Individual training programs for development of general strength, tone, endurance and weight control.

155. Developmental Physical Education—Weight Control. (1)
   Combined weight training and running for over-all development.

156. Aerobics. (1)
   Individualized running programs for improved cardiorespiratory endurance.

157. Movement Fundamentals. (1)
   Individualized programs for improvement and development of posture and fitness.

158. Yoga. (1)
   Introduction to five areas of Yoga which are particularly significant to the Western World.

159. Basketball. (Women only) (1)
   Instruction and practice of game skills with consideration given to the ability levels of students.

160. Basketball. (Men only) (1)
   Instruction and practice of game skills with consideration given to the ability levels of students.

161. Softball-Team Handball. (1)
   Practice in playing and learning the fundamentals of softball and team handball, a team game which can be described as being similar to a combination of basketball and hockey, sometimes called European Handball.

162. Soccer-Speedaway. (1)
   Instruction and practice of basic skills of soccer and speedaway.
184. Ice Skating. (1)
   Special fees. Basic and intermediate skating, including figure skating, basic broom
   hockey, ice skating, and precision skating.

186. Beginning Skiing. (1)
   Special Fees. Instruction leading to wide-track parallel skiing.

187. Intermediate Skiing. (1)
   Special Fees. Review of beginning skills including beginning parallel skiing and instruction
   in more advanced techniques.

189. Cross Country Skiing. (1)
   Special Fees. Instruction and practice in techniques leading to cross country touring.

190. Casting and Angling. (1)
   Instruction in skills and techniques for fishing in New Mexico.

191. Camping Experiences. (2)
   Instruction and field experiences designed to develop skills in shelter, food, warmth and
   safety.

192. Horseback Riding. (1)
   Special Fees. Basic fundamentals of horsemanship in relationship to trail and recreation
   riding. (First meeting at Johnson Gymnasium, remainder at Horse Country Club.)

194. Wilderness Experience. (2)
   Special Fees. Creation of stressful situations in the wilderness environment to help
   students learn more about themselves.

195. Bicycling. (1)
   Instruction in bicycle maintenance, safety, speed trial riding and touring includes speed
   trials and tours of various distances.

198. Therapeutic Physical Education. (1)
   Therapeutic physical education works subordinate to Student Health Services supplying
   corrective and adaptive program for students incapable of regular program participation.
   Prerequisite: permission of University Health Service.

PROFESSIONAL COURSES—PHYSICAL EDUCATION

Some of the following courses are scheduled to meet more periods or hours
per week than indicated by the number of credit hours. These courses, in
addition to lectures, include professional activity, laboratory, or field types of
class experiences. To identify these courses, the number of class meetings or
hours per week is stated after the course description.

201. Gymnastics. (2)
   The professional course in gymnastics. Prerequisite: 118. 4 class meetings per week.
   <Fall>

202. Theory and Practice of Baseball. (2)
   The professional course in the coaching of baseball. 4 class meetings per week. <Fall>

203. Teaching of Wrestling. (2)
   The professional course in wrestling. 4 class meetings per week. <Spring>

204. Theory and Practice of Track and Field. (2)
   The professional course in coaching of track and field. 4 class meetings per week.
   <Spring>

205. Fundamentals of Basketball. (2)
   The professional course in the coaching of basketball. 4 class meetings per week. <Fall>

206. Fundamentals of Football. (2)
   The professional course in the coaching of football. 4 class meetings per week. <Spring>

207. Swimming. (2)
   A professional course in swimming. Prerequisite: ability to swim. 4 class meetings per
   week. <Fall, Spring>

208. Body Mechanics and Self-Testing Activities. (1)
   Three class meetings per week. <Fall>

209. Physical Fitness and Body Mechanics. (2)
   The professional course in physical fitness programs. 4 hours per week <Fall, Spring>

210. Folk Dance. (2)
   Four class meetings per week. <Fall, Spring>
211. Competency in Sports and Dance I. [Competency in Individual and Dual Sports] (4)  
   Three class meetings per week. <Spring>
212. Competency in Sports and Dance II. [Competency in Team Sports] (4)  
   Three class meetings per week. <Fall>
218. Rhythms for the Elementary Schools. (2)  
   Fundamentals of rhythm (and dance) for elementary school children. <Spring>
219. Practicum in Elementary School Physical Education. (2)  
   Designed to provide beginning teacher experiences at the elementary school level under 
   the direct supervision and guidance of University personnel. <Spring>
220. Movement Exploration for the Elementary School. (2)  
   Rationale and development of movement education concepts and their application in 
   teaching physical education on the elementary school level. <Spring>
245. Professional Laboratory Experiences in Physical Education. (2)  
   For Physical Education Majors only. May be repeated to a maximum of 8 semester hours. 
   <Fall, Spring>
247. Topics. (1-3)  
   <Summer, Fall, Spring>
260. Officiating in Sports. (2)‡  
   Discussion and practice in officiating techniques in soccer, speedball or field hockey, 
   volleyball, basketball, etc. Prerequisite: permission of instructor. 4 hrs. per week. Not 
   restricted to Education students. <Fall, Spring>
273. Introduction to Athletic Training. (2)  
   <Fall, Spring>
301. Teaching of Team Sports. (2)  
   Prerequisite: 209, 211 or permission of instructor. 4 hours per week. <Fall>
302. Teaching of Individual and Dual Sports. (2)  
   Prerequisite: 209, 211, or permission of instructor. 4 hours per week. <Spring>
307. Team Sports in the Secondary School (2)  
   Prerequisite: 211 or permission of instructor. 4 hours per week. <Fall>
308. Individual and Dual Sports in the Secondary School. (2)  
   Prerequisite: 211 or permission of instructor. 4 hours per week. <Spring>
309. Teaching of Gymnastics. (2)  
   Prerequisite: 211 or permission of instructor. 4 hours per week. <Fall>
310. Folk Dance in the School Program. (2)  
   Prerequisite: 211 or permission of instructor. 4 hours per week. <Fall>
319. Physical Education in the Elementary School. (3)  
   (Also offered as El Ed 319.) 4 hours per week. <Summer, Fall, Spring>
326L. Physiology of Exercise. (3)  
   (Also offered as Biol. 326L.) <Fall, Spring>
351. Problems. (1-3)  
   Prerequisite: permission of Physical Education Coordinator. <Summer, Fall, Spring>
366. Theory and Practice of Teaching Dance. [Teaching of Modern Dance.] (3)  
   (Also offered as Dance 366) Selection of methods and materials for teaching modern 
   dance. Supervised practice teaching in local schools; elementary, junior, and high school 
   levels. 3 class meetings per week. <Spring>
373. Advanced Course in Athletic Training. (3) Diehm  
   Expansion of the knowledges and techniques of training room procedures, principles and 
   ethics of medical aspects of athletic training, organization and administration of athletic 
   training programs, athletic therapy, emergency care. Prerequisite: 273.
*388. [488] Motor Learning and Performance. (3)  
   Psychological and neurophysiological factors related to the development of motor skill; 
   emphasis on the teacher’s role in facilitating learning. Prerequisite: Psych 210 or Ed Fdn 
   310, or permission of instructor. <Fall>
397. Kinesiology. (4)  
   Science of human motion. Prerequisites: Biol 136, 139L. <Fall, Spring>
398. Principles of Physical Education. (3)  
   The aims and objectives of physical education; physiological, psychological, and sociolog­
   ical principles which underlie practices in the profession. Prerequisite: permission of 
   instructor. <Fall, Spring>
399. Organization and Administration of Physical Education. (3)
Program building including criteria for the selection of activities and progression, and
other factors affecting course of study such as facilities, equipment, budget, laws, policies,
professional responsibilities. Prerequisite: 398 or permission of instructor. <Fall, Spring>

400. Student Teaching in the Elementary School. (3-6-9, maximum total allowed 15)
Prerequisites: Ed Fdn 290, 300, 310, PE 245, 319, 301, 302, 309, 310, 489, and 326L.
<Fall, Spring>

429. Workshop. (1-4)
Carries graduate credit when specifically approved by the Graduate Committee. For
degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin.
<Summer>

444. Teaching of Physical Education. (3)
(Also offered as Sec Ed 444.) Prerequisites: Ed Fdn 290, PE 209 & 245, 211, and 319.
<Fall>

447. Topics. (1-3)
<Summer, Fall, Spring>

452. Organization of Sports Programs. (3)
(Also offered as Recrea 452) Organization and administration of games and sports in
intramural, interschool, and community recreation programs. Prerequisite: permission of
instructor. <Fall, Spring>

458-459. Field Experiences I and II. (3-6 maximum of 12)
(Also offered as Art Ed, Bus Ed, C&I, Ed Adm, Ed Fdn, Rec, Ind Ed, H Ec Ed, Sec Ed
458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

461. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15)
Prerequisites: 245, 326L, 301, 302, 309, 310, 444, 489, and Ed Fdn 290, 300, 310.
<Fall, Spring>

464. Theory of Football. (3)
To review and enlarge the student's knowledge of the basic techniques of football and
to acquaint him with the principles, techniques, and strategy of coaching football at the junior high, high school, and college levels. Prerequisites: 206 and senior standing.
<Fall>

465. Theory of Basketball. (3)
To review and enlarge the student's knowledge of the basic techniques of basketball and
to acquaint him with the principles, techniques, and strategy of coaching basketball at the junior high, high school, and college levels. Prerequisites: 205 and senior standing.
<Fall>

466. Special Physical Education. (3)
The field of adaptive and corrective physical education and its relationship to the
regular curriculum in PE. Prerequisite: 397. <Fall, Spring>

467. Survey of Physical Defects (3)
(Also offered as Spc Ed 467) To investigate the etiology, characteristics, and treatment
programs necessary for teaching the physically handicapped child. Prerequisite: Spc Ed 211 or permission of instructor. <Fall>

486. Principles of Therapeutic Recreation and Physical Education. (3)
Philosophy, principles, relationships, and contributions of therapeutic recreation as
background for the recreation leader, physical educator, hospital administrator, and
other personnel. <Spring>

489. Tests and Measurements in Physical Education. (3)
Techniques to determine abilities, needs, and placement in the physical education
program. <Fall, Spring>

490. Supervision of Physical Education Programs. (3)
Supervisory techniques stressing cooperative planning will be applied to city and county programs in New Mexico. Each student will be required to develop a problem in terms of his particular needs and situation. Prerequisite: permission of instructor.
<Fall>

491. Administration of Varsity Athletics. (3) <Summer, Fall>

492. History of Physical Education. (3) <Spring>
494. Clinical Program for Corrective Therapy or Athletic Training. (3-6) Lectures and actual clinical experience in corrective therapy or athletic training. <Summer, Fall, Spring>

497. Reading and Research in Honors. (3-6-9) Prerequisite: see p. 100. <Summer, Fall, Spring>

503. Philosophies of Inquiry in Health, Physical Education and Recreation. (3) Lersten Philosophies of inquiry; their development, nature and place in Health, Physical Education and Recreation. Graduate Standing.

504. Research Seminar. (1)

505. Foundations for a Philosophy of Physical Education. (3) Prerequisite: at least 3 hours in history, principles, or methods of physical education. <Summer, Fall>

510. Curriculum Construction in Physical Education. (3) <Spring, Summer>

514. The Remedial Program in Physical Education. (3) <Spring, Summer>

516. Seminar in Physical Education. (3) <Summer, Fall, Spring>

521. Clinical Program in Therapeutic Physical Education. (3-6) (Also offered as Spc Ed 521) <Summer, Fall, Spring>

523. Biomechanics. (3) <Spring, Summer>

527. Physiological Aspects of Exercise and Sport. (3) <Summer, Fall>

529. Workshop. (1-4) For degree restrictions consult the Graduate School Bulletin. <Summer>

530. Laboratory Procedures in Exercise Physiology. [Laboratory Investigations in Exercise Metabolism.] (3) Prerequisite: undergraduate course in exercise physiology and permission of instructor. <Summer, Fall>

540. Sport in American Culture. (3) Prerequisite: Soc 101 or equivalent. <Spring, Summer>

547. Topics. (1-3) <Summer, Fall, Spring>

551-552. Problems. (1-3 hrs. each semester)

558-559. Advanced Field Experiences I and II. (3-6, 3-6) (Also offered as C&I, Art Ed, Bus Ed, Ed Adm, Ed Fdn, Rec, Ind Ed, H Ec Ed, Sec Ed 558-559.) Prerequisite: acceptance into a graduate program and permission of instructor. <Summer, Fall, Spring>

570. The Analysis of Teaching Physical Education. (3) (Also offered as C&I 570.) Prerequisite: permission of instructor. <Summer, Fall>

588. Psychological Aspects of Sports. (3) Prerequisite: Psych 230 or 332 or equivalent. <Spring, Summer>

595. Facilities Planning, Construction, and Utilization. (3) <Spring, Summer>

599. Master's Thesis. (1-6 hrs. per semester) See the Graduate School Bulletin for total credit requirements.

610-611. Internship I and II. (3-6, 3-6) <Summer, Fall, Spring>

699. Dissertation. (1-9 hrs. per semester) See the Graduate School Bulletin for total credit requirements.

RECREATION

175. Foundations of Recreation. (3) History of leisure and recreation; concepts of play and recreation; major recreation agencies. <Fall, Spring>

247. Topics. (1-3) <Offered on demand>

275. Camp Leadership. (3) To introduce students to camp experiences, and to study organizational and administrative aspects with emphasis on leadership functions. <Spring>

285. Recreation Arts and Crafts. (3) (See Art Ed 285.)
290. Creative and Social Arts for Recreation. (3)
Experience in selection of materials, and leadership techniques in group work in social
and recreational activities for use in recreation programs. Field trips. <Fall, Spring>

301. Recreational Sports. (2)
The professional course in recreational sports. Prerequisite: permission of instructor. 3
class meetings per week. <Fall>

302. Recreational Sports. (2)
Continuation of 301. <Spring>

311. Man and Leisure. (3)
Background in leisure problems of today with emphasis on the individual's role and
relationship to those problems. <Fall, Spring>

321. Recreational Leadership. (3)
Methods and materials in recreational leadership; theory, principles, and practice. Prereq­
uisites: 175, 290. <Fall, Spring>

345. Professional Laboratory Experiences in Recreation. (3)
Must be taken in conjunction with 321. <Fall, Spring>

351. Problems. (1-3) <Summer, Fall, Spring>
Prerequisite: permission of the recreation coordinator.

378. Outdoor Recreation. (3)
The development and organization of outdoor recreation in the United States. Includes
economics, land planning, trends, and projections. <Fall>

385. Introduction to Recreation for Special Populations. (3)
Survey analyses and techniques of recreation and leisure delivery services for special
populations in a variety of settings. Field trips. <Fall>

*407. [*507.] History and Philosophy of Recreation in the United States (3)
The historical development of recreation concepts and philosophies. <Fall>

*429. Workshop. (1-4)
Carries graduate credit when specifically approved by the Graduate Committee. For
degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin.
<Offered upon demand>

*447. Topics. (1-3)
<Offered upon demand>

452. Organization of Sports Program. (3)
(Also offered as PE 452) Organization and administration of games and sports in
intramural, interschool, and community recreation programs. Prerequisites: permission
of instructor. <Fall, Spring>

*454. Development of Recreation Programs. (3)
The course is concerned with all phases of the planning and evaluation of the recrea­
tion programs: promotion, utilization of resources and facilities and leadership. Pre­
requisite: 321. <Fall>

458. Field Experience. (3-6)
Prerequisite: 345. <Summer, Fall, Spring>

459. Field Experience. (3-6)
Prerequisite: 458. <Summer, Fall, Spring>

*477. Recreation in Special Settings. (3)
Planning, organizing, and conducting recreation programs in industry, hospitals, com­
mercial settings, private agencies, and other types of institutions. Prerequisite: permission
of instructor. <Spring>

*479. Park Management. (3)
The principles, practices, and problems involved in public park management, with em­
phasis upon facility design, maintenance, finance, and administration. Prerequisite: permis­
sion of instructor. <Fall>

480. Administration of Recreation Programs. (3)
The organization, administration, and conduct of recreation programs on the com­
unity level. Prerequisite: 454. <Spring>

*485. Interpretative Services in Outdoor Recreation Programs. (3)
<Spring>

*490. Tourism and Recreation. (3)
The role of tourism and its relationship to recreation in the United States with emphasis
on the Southwest Region and New Mexico. <Summer, Spring>
497. Reading and Research in Honors. (3-6)
   Prerequisite: see p. 100. <Offered upon demand>

*504. Research Seminar. (1)
   (See PE 504.)

*508. Recreation Administration. (3)
   <Fall>

*516. Seminar in Recreation. (3)
   <Spring>

*524. Evaluation of Park and Recreation Resources and Programs. [Evaluation of Recreation
   Resources and Programs.] (3)

*529. Workshop. (1-4)
   <Offered upon demand>

*540. Systems Approach For Outdoor Recreation Planning. (3)
   <Spring>

*547. Topics. (1-3) <Offered upon demand>

*551-552. Problems.

*555. Socio-Psychological Concepts of Leisure. (3)
   <Spring>

*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
   Also offered as C&I, Art Ed, Bus Ed, Ed Adm, Ed Fdn, Phys Ed, Ind Ed, H Ec Ed, Sec Ed
   558-559.) Prerequisite: acceptance into a graduate program and permission of instructor.
   <Summer, Fall, Spring>

*586. Principles of Therapeutic Recreation. (3)
   <Spring>

*599. Master's Thesis. (1-6 hrs. per semester)
   See Graduate School Bulletin for total credit requirements.

*610-611. Internship I and II. (3-6, 3-6)
   <Summer, Fall, Spring>

*699. Dissertation. (1-9 hrs. per semester)
   See the Graduate School Bulletin for total credit requirements.

EDUCATION, HOME ECONOMICS

CHAIRMAN To be appointed; PROFESSORS E. Snell, Ed.D.; ASSOCIATE PROFESSORS E. Sanders,
   M.S.; M. M. Smith; M.S.; ASSISTANT PROFESSORS C. Bruner, Ph.D.; C. Geer, M.S.; I. H.
   McMurray, M.S.

MAJOR STUDIES AND CURRICULUM
   See pp. 121-123.

HOME ECONOMICS

101. Freshman Seminar. (2) Snell
   Individual's role as a home economist and her relationship with families. Required of all
   majors. <Fall>

102. Infant Growth and Development. (3) Bruner
   Basic needs and growth factors of the child with emphasis on the prenatal period, infancy,
   and through the second year. <Fall, Spring>

120L. Food Science. (3)
   Principles of selection and preparation of food including economic aspects. 1 lecture, 3
   hrs. lab., 1 hr. discussion. <Fall, Spring>

125. Introductory Nutrition. [Food for Man.] (3)
   Nutritive needs of normal individuals of all age groups; relation of nutrition to health.
   <Fall, Spring>

150L. Clothing Construction. (2) McMurray
   Fitting and altering patterns and garments, methods or techniques in construction
   processes, use and upkeep of equipment. 2 2-hour labs. <Fall, Spring>
218. Marriage and Personal Development. (3) Development of specific interpersonal skills, with opportunities to practice behaviors and apply knowledge as related to marriage relationships. <Fall, Spring>

222L. Meal Management. (3) Principles of selection and preparation of food. Meal planning and service. Prerequisite: 120L or equivalent. 1 lecture, 4 hrs. lab. <Fall>

247. Topics. (1-3)

250. Clothing and Human Behavior. (2) McMurray An interdisciplinary approach to study of clothing: origin of dress, factors of clothing in behavior, decision-making as a consumer. Prerequisites: Psych 102, Soc 101, and Art Ed 130. <Spring>

252. Textiles. (3) McMurray Construction, identification, use and care of clothing and household textiles. Consumer education related to textile products. <Fall, Spring>

254L. Tailoring. (3) McMurray Construction of a wool suit or coat emphasizing fitting and techniques of finishing. 1 lecture, 4 hrs. lab. <Fall>

303. Practicum. (3) Sanders On-the-job training assignment topics for study are developed that lead to the understanding of the role and responsibilities of a clinical dietitian. Prerequisites: Junior standing. <Summer>

325. Intermediate Nutrition. (3) Nutrition related to the chemistry, physiology of the human body; interrelationships of nutrients, analysis of nutritive value of foods. Prerequisites: H Ec 125 and Organic and Inorganic Chem. <Spring>

326L. Nutrition Laboratory. (1) Calculating and visualizing amounts and proportions of nutrients in foods, and analysis of recipes to determine nutritive value. Concurrent with 325. 2 hrs. lab. <Spring>

341. House and Its Environment. (3) Guides in the selection of a house with emphasis upon the use of space for function, economy, and beauty. <Fall>

351. Problems. (1-3)

403. Practicum—Hospital (4) Sanders Student demonstrates and practices the role and responsibility of a clinical dietitian. Prerequisites: Senior standing concurrent with H Ec 426, 404. <Fall, Spring>

404. Practicum—Community (4) Sanders Student demonstrates and practices the role and responsibility of a clinical dietitian. Prerequisites: Senior standing concurrent with H Ec 426, 403. <Fall, Spring>

405L. Evaluation Practicum, Community Nutrition. (4) Sanders Determination of students competencies as a Community Nutritionist. Prerequisites: senior standing, Community Dietetic Program, concurrent enrollment 406. <Spring>

406. Seminar, Community Nutrition. (2) Sanders Classic and recent literature on Community Nutrition integrated with student experience. Concurrent with 405L. <Spring>

408L. Growth & Development of the Pre-School Child [Child Growth and Development] (3) Bruner Developmental principles and recent research on social-emotional, cognitive and physical development of the preschool child. Laboratory experiences. Prerequisites: Psych 102, H Ec 102. Junior standing; 2 lec., 3 hours lab experience. <Fall, Spring>

418. Family Relationships. (3) Basis for discussion of contemporary issues in family life are the historical roots of the family in the culturally pluralistic United States. Prerequisite: H Ec 218. <Fall, Spring>

425. Introduction to Clinical Nutrition. (3) Owens (Also offered as Clin Sci 425) Determination of nutritional status of normal persons by the health team, using research methodology. Prerequisites: Physiology, H Ec 325, 326L, Biochemistry or concurrently 500 Med. Biol. I. <Fall, Spring>

426. Clinical Nutrition. (4) Sanders Practice, under supervision, the role of a nutrition educator in a health organization; the facilitator of continuing nutritional care through the life cycle; and the responsibilities of professional status. Prerequisites: Senior standing concurrent enrollment in H Ec 403, 404. <Fall, Spring>
427L. Large Quantity Food Production. (3) Lockett
Standard methods of food production in quantity; food cost control; standardization of formulas, menu planning and food service. Prerequisites: 120L, 222L. <Spring>

428. Diet Therapy. (3) Harris
The adoption of diets in the treatment of impaired digestive and metabolic conditions. Prerequisites: Chem 141L, 281.

*431L. Experimental Foods (3)
Experimental methods applied to food preparation, food marketing and food laws. Prerequisites: Chem 141L. 2 lectures, 3 hrs. lab.

434. Organization and Management. (3) Lockett
A study of the principles of organization and management applied to food service installations. Prerequisite: Psych 102; pre- or corequisite; B&A 306.

443. Family Decision Making. (3) Smith
Family decisions in the allocation and use of resources to meet family goals. Prerequisites: Soc and Anthro. Junior standing. <Fall, Spring>

*444. Family Finance. (3) Smith
Economic problems of direct concern to the family. Prerequisites: a basic course in Economics, Family Decision Making, Psychology, and Sociology. <Spring>

445L. Home Management Lab. (4) Smith
Experiences in dealing with families with varying value structures and for identifying values and goals held by others. Prerequisite: 443. Special fee $50.00. <Fall, Spring>

*447. Topics. (1-3)

*456L. Dress Design. (3) McMurray
Dress designing through manipulation of a basic pattern. Prerequisites: advanced standing—majors and minors only. 1 lecture, 4 hrs. lab. <Spring>

*509L. Organization and Management of Nursery Schools and Kindergarten. (3)

*510. Young Child At Home and School. (3)

*518. Working with Parents and Children. (3) Prerequisites: BA in H Ec, Educ Psych or related discipline.

*520. Family Living in Modern Society. (3) Olson

*529. Workshop. (1-4)

*535. Seminar in Nutrition. (3) Harris

*547. Topics. (1-3)

*549. Managing Family Resources. (3) Smith

*551-552. Problems. (1-3 hrs. each semester)

*554. Socio-Psychological Aspects of Clothing. (3) McMurray

*555. Seminar in Textiles. (3)

*610-611. Internship I and II. (3-6, 3-6)

HOME ECONOMICS EDUCATION

351. Problems. (1-3)

361. Pre-Student Teaching Experience in Secondary Education. (3) Snell
Two hour seminar, three hours field work weekly. Concurrent with 437. <Spring>

*429. Workshop. (1-4)
For degree restrictions see p. 107 of this catalog. <Offered upon demand>

*437. Teaching of Home Economics. (3) Snell <Spring>

458-459. Field Experience I and II. (3-6 maximum of 12) (Also offered as Art Ed, Bus Ed, C&I, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

461. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15) Prerequisite: 437. <Fall, Spring>

462. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15) <Fall, Spring>

463. Student Teaching in the Secondary Schools: Professional Education Block. (6-15) <Fall, Spring>
465. Home Economics Seminar. (2) Snell
   Trends in Vocational Home Economics Education. <Fall, Spring>

*475. Evaluation in Home Economics. (3) Snell
   Newer concepts concerning evaluation and testing instruments and techniques for home
   economics. The construction and use of evaluative devices for home economics in the
   classroom and ways of determining their value. Pre- or corequisite: 461. <Offered upon
   demand>

*480. Curriculum Development for Home Economics. (3) Snell
   Curriculum, methods, and facilities for courses which use home economics knowledge and
   skills. Prerequisite: major in home economics and teaching experience. <Offered upon
   demand>

497. Reading and Research in Home Economics. (3-6)
   Prerequisite: see p. 100. <Offered upon demand>

*529. Workshop. (1-4)

*551-552. Problems. (1-3 hrs. each semester)

558-559. Advanced Field Experiences I and II. (3, maximum total allowed 6.)
   (Also offered as C&I, Art Ed, Bus Ed, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, Sec Ed
   558-559.) Prerequisite: acceptance into a graduate program and permission of instructor.
   <Summer, Fall, Spring>

*570. Seminar in Home Economics Education. (3) Snell

EDUCATION, INDUSTRIAL
   See Education, Secondary

EDUCATION, LIBRARY SCIENCE
   See Education, Educational Foundations, Educational Media.

EDUCATION, MUSIC
   See Music Education.

EDUCATION, PHYSICAL

EDUCATION, SECONDARY

SECONDARY EDUCATION


BUSINESS EDUCATION

ASSOCIATE PROFESSOR E. J. Weber, Ph.D. (Assistant Chairman); ASSISTANT PROFESSOR C.
   McQUEEN, M.B.A., and new appointments to be made.

INDUSTRIAL EDUCATION

ASSISTANT PROFESSOR F. R. Field, Ed.D. (Assistant Chairman); ASSOCIATE PROFESSOR R. D.
   Nesbitt, M.Ed.; ASSISTANT PROFESSORS G. E. Cunico, Ed.D.; and new appointments to be
   made.

   In this Department, programs are offered for secondary school teachers of
   academic subjects, Business Education teachers, Industrial Arts teachers, and general
   courses in curriculum and instruction for teachers and curriculum specialists.

CURRICULA

   Secondary Education, see pp. 126-131.
   Business Education, see pp. 110-111.
   Industrial Education, see pp. 123-124.
SECONDARY EDUCATION

Explanation of footnotes not indicated will be found on p. 210.

351. Problems. (1-3)
<Offered upon demand>

§§361. Pre-Student Teaching Experience I. (3)
Three hours seminar, six hours field work weekly. <Fall, Spring>

§§362. Pre-Student Teaching Experience II. (3)
<Fall, Spring>

*429. Workshop. (1-4)
Carries graduate credit when specifically approved by the Graduate Committee; For degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin. <Offered upon demand>

430. Teaching of Communication Arts. (3) Hirshfield, White
Prerequisite: 361, 362 and Ling 292 or English 440. <Fall>

431. Teaching of Sciences. (3) Tweeten
Prerequisite for 461-Science. Prerequisite: to be taken concurrently with 362. <Fall, Spring>

432. Teaching of Social Studies. (3) Doxtator, Esparza, Stoumbis
Prerequisite: consult instructor for prerequisites. <Fall, Spring>

433. Teaching of Industrial Subjects. (3) Nesbitt
(See Ed 433)

434. Teaching Art in Secondary School. (3)
(See Art Ed 434)

§435L. Teaching of Biology. (3) Degenhardt
Prerequisites: 361, Biol 122L. 2 lectures, 3 hrs. lab. <Fall>

436. Teaching of English. (3) Logan, Hirshfield, White
Prerequisites: 361, 362 and Ling 292 or English 440. Carries credit both in Education and in English. <Fall, Spring>

*437. Teaching of Home Economics. (3) Snell
(See Hec Ed 437)

§438. Teaching of Mathematics. (3) Mierzwa, Mitchell
Prerequisite: 361 and 362. <Fall>

439. Teaching of Business Subjects. (3)
(See Bus Ed 439)

*440. Teaching of French. (3) T. Book
(Also offered as French 440) Prerequisite: Sec Ed 361. <Spring>

*441. Teaching of Spanish. (3) Macias
(Also offered as Spanish 441.) Applies linguistics basis acquired in Spanish 440 to problems of teaching. Required for Teaching Certificate. Does not count for Spanish major or minor. Students are advised to take 441 prior to student teaching. Prerequisite: Sec Ed 361. <Fall, Spring>

*442. Teaching of Reading. (3) White
Prerequisite: 361 and Ling 292 or English 440. <Summer, Fall>

*443. Coordination Techniques in Vocational Cooperative Programs. (3) Runge
(Also offered as Bus Ed 443 and I Ed 443.) Development of present practices in work experience programs for secondary school students. Special emphasis is given to organization and administration of vocational education cooperative part-time work plans for distributive office and industrial occupations. <Summer only>

444. Teaching of Physical Education. (3) Hinger
(Also offered as PE 444) <Fall>

*445. Teaching of German. (3) Jesperson
(Also offered as German 445) Prerequisite: Sec Ed 361 and 362. <Offered upon demand>

*447. Topics. (1-3)

§§ Students in Sec Ed 361 must enroll concurrently in the appropriate section of Ed Fdn 300. Students in Sec Ed 362 must enroll concurrently in the appropriate section of Ed Fdn 310 (consult Schedule of Classes).

§ Credit for undergraduate teaching majors and graduates in Education only.
**448. Career Education.** (3) Wagoner, Runge
(Also offered as C&I 448.) New career education concepts, objectives, models, occupational clusters, USOE, state and local curriculum materials and implementation guidelines. Class activities include use of resource persons, field trips, and contacts with the business community. <Fall, Spring, Summer>

**449. Teaching the Native Language to the Native Speaker.** (3) Macias
A comprehensive examination of characteristics, behavior, and language of the native-speaking student, with specific implications for teaching the native language to the native-speaking in secondary schools. Prerequisites: Proficiency in the native language (Spanish, Navajo, etc.), Sec Ed 361, 362, 441, and permission of instructor. <Fall and on demand>

**450. Teaching in Bilingual Programs in Secondary Schools.** (3) Macias
Bilingual education philosophy and programs will be examined with specific implications for applying theory to practice in teaching in interdisciplinary bilingual programs in secondary schools. Prerequisites: Sec Ed 361, 362, and permission of instructor. <Spring and on demand>

**456. Science, Technology, and Human Values: Implications for Education.** (3)
(Also offered as C&I, Ed Fnd, I Ed 456.) Examination of the continuing social impact of science and technology, with emphasis on changing values and traditions. Structure, function, and curriculum of educational institutions will be analyzed with a view toward assisting their clientele to cope with, and to influence, scientific and technological change.

458-459. Field Experience I and II. (3-6, maximum of 12)
(Also offered as Art Ed, Bus Ed, C&I, Ed Adm, Ed Fdn, Phys Ed, Ind Ed, Rec, H Ec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

**461. Student Teaching.** (3-6-9, maximum total allowed 15)
Observation and teaching in secondary schools for one or more semesters. Weekly seminar meetings required with University supervisors. Prerequisites listed on pp. 103-104. <Summer, Fall, Spring>

**462. Student Teaching.** (3-6-9, maximum total allowed 15)
A second student teaching experience.

**463. Professional Education Block.** (6-15)
Combines foundations, methods, pre and student teaching in one semester. Students should apply for admission at least one semester in advance to the program director. See instructors for special prerequisites and scheduling.

**497. Reading and Research in Honors.** (3-6)
Prerequisites: see p. 100. <Offered upon demand>

**500. Advanced Instructional Strategies.** (3)
(Also offered as C&I 500.)

**501. High School Curriculum.** (3)

**502. The Junior High School.** (3)

**503. Student Activities in the Secondary School.** (3)

**504. The Two Year College Curriculum.** (3)

**506. The Middle School.** (3)
(Also offered as C&I 506.) <Fall or Spring, Summer on demand>

**507. Developing Curriculum for Middle Schools.** (3)
(Also offered as El Ed 507.) <Fall or Spring, Summer on demand>

**508. Instructional Strategies for Middle Schools.** (3)
(Also offered as El Ed 508.) <Fall or Spring, Summer on demand>

**509. [508] Seminar in Supervision of Student Teaching.** (1-3)

**510. Developments in Industrial and Vocational Education.** (3)
(Also offered as Bus Ed 510 and I Ed 510.)

**520. Instructional Trends in the Communication Arts.** (3)

**521. Seminar in English Curriculum and Instruction.** (2-5)

**527. Studies in Rhetoric for Teachers.** (3)
(Also offered as Engl 527.)

**528. Studies in Reading and Literature for Teachers.** (3)
(Also offered as Engl 528.)
EDUCATION, SECONDARY 287

*529. Workshop. (1-4)
*530. Seminar in Science Teaching. (3)
*540. Instructional Trends in the Social Studies. (3)
546. Economic Education. (2 or 4)
   (Also offered as Econ 546 and Bus Ed 546.)
*547. Topics. (1-3)
549. History Education. (3)
   (Also offered as Hist 549.)
550. Seminar in History Education. (3)
   (Also offered as Hist 550.)
*551-552. Problems. (1-3 each semester)
*556. Proseminar in Problems of Language Instruction. (3)
   (See Span 543.)
*558. Advanced Field Experiences I. (3-6)
*559. Advanced Field Experiences II. (3-6)
*590. Seminar. (3)
*599. Master's Thesis. (1-6 hrs. per semester)
601. Curriculum Appraisal and Improvement of School Programs. (3)
   (Also offered as C&I 601.)
*610-611. Internship I and II. (3-6, 3-6)
*699. Dissertation. (1-9 hrs. per semester)

BUSINESS EDUCATION

I. SECRETARIAL

NOTE: Students should consult with Business Education advisers for proper placement and credit before enrolling in skill courses BE 111, 112, 113, 114.

111. Beginning Typewriting. (2)
   Use of the touch system in learning basic typewriting. One lecture, 2 hours laboratory.
   <Offered upon demand>

112. Intermediate Typewriting. (3)
   Development of speed and accuracy in business letters, forms, manuscripts, and tabulations. Prerequisite: knowledge of typewriter operation and keyboard. Two lectures and 2 hours laboratory. <Fall, Spring>

113. Shorthand Theory. (3)
   Gregg theory and essentials of writing shorthand; speed goal: 60 wpm minimum. Two lectures and 2 hours laboratory. <Fall, Spring>

114. Shorthand Dictation. (3)
   Review of theory; building dictation speed and development of transcription; speed goal: 80 wpm minimum. Prerequisites: 111, 113, or equivalent. Two lectures and 2 hours laboratory. <Fall, Spring>

117. Office Machines and Filing. (2)
   Laboratory work in listing and non-listing calculators, filing, transcription from recorded dictation. Prerequisites: 112 or equivalent. One lecture and 2 hours laboratory. <Fall, Spring>

201. Introduction to Data Processing for Business Education. (3)
   Unit record systems and applications along with elementary card-computer systems. Basic flow charting, programming in FORTRAN, and an opportunity to use the computer and the terminal. <Fall, Spring>

253. Shorthand Transcription. (3)
   Review of theory; dictation and transcription from shorthand notes correctly and speedily; mailable letters are required; speed goal: 100 wpm minimum. Prerequisites: 112, 114, or equivalent. Two lectures and 2 hours laboratory. <Fall, Spring>

* Available for graduate credit except for graduate majors in Economics or History.
§ Maximum of 6 hours credit allowed in Arts and Sciences. No credit allowed in Pharmacy.
¶ No credit allowed toward degrees in Colleges of Arts and Sciences and Pharmacy.
257. Secretarial Administration. (3)
Development of the ability to apply secretarial skills to office duties and to handle efficiently the responsibilities of a secretarial position. Prerequisites: 112, 113, or equivalent. <Fall, Spring>

262. Advanced Typewriting. (3)
Proficiency in production of office problem material including letters, reports, manuscripts, tabulations, rough drafts, legal documents, and study of skill performance problems from point of view of teacher and/or office supervisor. Prerequisites: 112 or equivalent. Two lectures and 2 hours laboratory. <Fall, Spring>

265. Business Communications. (3)
Development of psychologically sound business communications in correct and forceful English. All outside assignments must be in typewritten form. <Fall, Spring>

350. Vocational Office Laboratory. (2-3)
Work experience for college credit under supervision in approved work stations. Prerequisites include business education skills courses and permission of instructor. <Fall, Spring>

II. PROFESSIONAL

351. Undergraduate Problems. (1-3) Weber
429. Workshop in Business Education. (1-4) McQueen
<Offered upon demand>
439. Teaching of Business Subjects. (3) McQueen
<Offered upon demand>

*443. Coordination Techniques in Vocational Cooperative Programs. (3) Runge
(Also offered as Sec Ed 443 and I Ed 443.) Development of present practices in work experience programs for secondary school students. Special emphasis is given to organization and administration of vocational education cooperative part-time plans for distributive office and industrial occupations. <Summer only>

*447. Topics. (1-3)
458-459. Field Experience I and II. (3-6, maximum of 12) Weber
(Also offered as Art Ed, C&I, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

461. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15)
McQueen, Weber
<Fall, Spring>

462. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15)
McQueen, Weber
<Fall, Spring>

463. Student Teaching in the Secondary School: Professional Education Block. (6-15)
McQueen, Weber
<Fall, Spring>

III. GRADUATE

*501. Foundations of Vocational Business Education. (3)
*503. Readings in Vocational Business Education. (3)
*510. Developments in Industrial and Vocational Education. (3)
(Also offered as Sec Ed 510 and I Ed 510)
*511. Instructional Trends and Research in Typewriting Education. (3)
*512. Instructional Trends and Research in Shorthand Education. (3)
*513. Instructional Trends and Research in Bookkeeping and Accounting Education. (3)
*514. Instructional Trends and Research in Socio-Business Education. (3)
*515. Methods and Materials in Vocational Office and Distributive Education. (3)
*529. Workshop in Business Education. (1-4)

*546. Economic Education. (2 or 4)
(Also offered as Econ 546 and Sec Ed 546.)

*551-552. Graduate Problems. (1-3 hours each semester)

* Available for graduate credit except for graduate majors in Economics or History.
*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
(Also offered as C&I. Art Ed, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 558-559.) Prerequisites: acceptance into a graduate program and permission of instructor.

<Summer, Fall, Spring>

INDUSTRIAL EDUCATION

Explanation of footnotes not indicated will be found on p. 210.

I. TECHNICAL (Courses in this section will also be offered upon demand in summer session)

101. Technical Math. (3) Cunico
Practical application of algebra, geometry, and trigonometry in the solution of applied problems found in the industrial arts. Also to include metrification, graphical mathematics and an introduction to the use of handbooks and data tables. <Fall, Spring>

110L. Machine Woodworking. (3) Cunico
Introduction to the woodworking area. Emphasis on the proper use of hand tools, power machinery, and basic finishing methods. 2 lectures, 3 hrs. lab. <Fall, Spring>

111L. Industrial Graphics (Drafting) and Design I. (4)
The graphical approach in construction and manufacturing industrial processes as applied to the planning functions of industry and elementary systems. Design processes in industry via team organization, brainstorming, data analysis, technical reports, oral presentations and creative problem solving. 3 lectures, 3 hrs. lab. <Fall>

112L. Industrial Graphics (Drafting) and Design II. (4)
Descriptive geometry, spatial analysis of geometric elements, vectors, data analysis, triangulation, intersections, developments and graphical applications in a variety of construction and manufacturing areas. Product development, utilizing team dynamics, technical writing, PERT, human engineering, and oral presentation. 3 lectures, 3 hrs. lab. Prerequisite: 111L. <Spring>

120L. Machine Metalworking. (3) Field
Introduction to machine metalworking technology with emphasis upon use of tools and machines and their operations. 2 lectures, 3 hrs. lab. <Fall, Spring>

225L. Design in Industrial Arts. (3)
Theory and utilization of design principles in the development and use of the various materials of industry. 2 lectures, 3 hrs. lab. Prerequisites: 110L, 111L. <Offered upon demand>

230L. Power Mechanics. (3) Nesbitt
A basic course pertaining to the internal combustion engines. Experiences in the maintenance and repair, with reference to the consumer, on the automobile and various other small engines. 2 lectures, 3 hrs. lab. <Fall, Spring>

245. Slide Rule. (2)
The use of the various scales for solving technical problems. <Offered upon demand>

261L. Drafting Conventions and Simplified Standards. [Descriptive Geometry] (2)
Instruction in arrowless and tabular dimensioning, simplified drafting, point-to-point dimensioning and datum line dimensioning, the International Standards Organization and true positional dimensioning. 1 lecture, 3 hrs. lab. <Fall>

265L. Finishing and Maintenance. (3) Cunico, Field
Techniques, processes and application of finishes on the various kinds of wood. Practice in tool and machine maintenance, and repair. 2 lectures, 3 hrs. lab. Prerequisites: 110L, 120L. <Fall, Spring>

280L. Electricity and Electronics I. (3) Cunico
An introductory course in electrical theory and electronics. Individual and group experiences are derived through experimentation. 2 lectures, 3 hrs. lab. <Fall, Spring>

285L. Welding. (3) Field, Nesbitt
Arc and oxyacetylene welding with some tungsten inert gas welding. Techniques, methods, and processes are considered with emphasis on the welding and cutting of the common metals. 2 lectures, 3 hrs. lab. <Fall, Spring>

312L. Architectural Drafting. (2)
Principles of style and design of residential dwellings are studied with emphasis upon architectural drawing and construction details. 1 lecture, 3 hrs. lab. Prerequisite: 111L. <Spring>
335L. Intermediate Power Mechanics. (3) Nesbitt
Hydraulic and mechanical methods of transmitting power. Theory and function of gear and hydraulic transmission. 2 lectures, 3 hrs. lab. Prerequisite: 230L or equivalent. <Fall>

350L. Cabinet Making. (3) Cunico
Advanced instruction in the use of power woodworking machinery. Emphasis on cabinet and furniture designing and construction. 2 lectures, 3 hrs. lab. Prerequisite: 110L or equivalent. <Spring>

365L. Advanced Machine Metalworking. (3) Field
Advanced course in the machine tool area. Includes experiences in the various processes and practices of metal machining. Emphasis on work with the metal working lathe, shaper, surface grinder, and the horizontal and vertical milling machines. Maintenance and repair of tools and machinery. 2 lectures, 3 hrs. lab. Prerequisite: 120L or equivalent. <Spring>

380L. Electricity and Electronics II. (3) Cunico
Application of the theories and principles involved in the use of vacuum tubes, power supplies, amplifiers, receivers, and transmitters. An introduction to transistor principles and their application. 2 lectures, 3 hrs. lab. Prerequisite: 280L or permission of instructor. <Fall>

386L. Metal Fabrication. (3) Field, Nesbitt
An introduction to the various aspects and basic processes in the hot and cold forming of metals. Techniques will be developed in the use of the tools and equipment for metal fabrication, which includes such areas as sheet metal, metal spinning, forging and ornamental metal. 2 lectures, 3 hrs. lab. Prerequisite: 285L. <Spring>

415L. Hot Metal Processes. (3) Field, Nesbitt
Introduction to hot metal processes; covering basic foundry technology (pattern making, core boxes, and non-ferrous casting), forging, heat treatment of metal (casehardening, tempering, and annealing), and basic metallurgy. 2 lectures, 3 hrs. lab. Prerequisites: 110L and 120L; 111L recommended. <Fall, Spring>

470L. Carpentry. (3)
Plot layouts, foundations, floor and wall framing, roof construction, inside and outside finishing. 2 lectures, 3 hrs. lab. Prerequisite: 110L or equivalent. <Spring>

475L. Metal Technology. (1-3) Field, Nesbitt
Advanced course designed to meet the individual needs of students wishing to concentrate in a specialized area of metalworking. Lab hours arranged. Prerequisite: 120L, 285L, 365L. <Fall, Spring>

480L. Wood Technology. (1-3) Cunico
Advanced course designed to meet the individual needs of students wishing to concentrate in a specialized area of woodworking. Lab hours arranged. Prerequisite: 110L, 350L. <Fall, Spring>

II. PROFESSIONAL

105. Introduction to Industrial Education. (1) Cunico, Field, Nesbitt
Seminar in history, philosophy, and current trends, including an orientation to industrial education teacher preparation. <Fall>

247. Topics. (1-3) <Fall, Spring>

351. Problems. (1-3) <Fall, Spring>

429. Workshop in Industrial Education. (1-4)
For degree restrictions, see p. 107 of this catalog. <Offered upon demand>

433. Teaching of Industrial Subjects. (3) Cunico, Field, Nesbitt
Methods of developing instructional units, teaching methods associated with industrial curricula, and the selection and evaluation of teaching materials used in the classroom. <Fall or Spring>

458-459. Field Experience I and II. (3-6 maximum of 12)††
(Also offered as Art Ed, Bus Ed, C&I, Ed Adm, Ed Fdn, Phys Ed, Rec, H Ec Ed, Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. <Summer, Fall, Spring>

461. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 12)
Prerequisite: 433. <Fall, Spring>

462. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 12)
Prerequisite: 433. <Fall, Spring>
466. Theory and Organization of Industrial Education. (3) Cunico, Field, Nesbitt
   An analysis of organizing and teaching of industrial subjects as found in the modern
   school. <Spring>

III. GRADUATE STUDY <Will be offered upon demand>

*443. Coordination Techniques in Vocational Cooperative Programs. (3) Cunico, Runge
   (Also offered as Sec Ed 443 and Bus Ed 443,) <Summer only>

*447. Topics. (1-3) Staff

*456. Science, Technology and Human Values: Implications for Education. (3) Mierzwa
   (Also offered as C&I 456, Ed Fdn 456, Sec Ed 456.)

*490. Measurement and Evaluation Techniques. (3) Cunico, Field, Nesbitt

*492. Instructional Analysis. (3) Cunico, Nesbitt

*498. World of Construction. (3) Field
   An in-service instructional system in a career orientation to the management—personnel—
   production system that industry uses to produce our man-made world of structures. IACP
   rationales, special educational techniques, special concepts and special “in-practices”
   activities are developed and practiced. <Summer>

*499. World of Manufacturing. (3) Field
   An in-service instructional system in a career orientation to the management—personnel—
   production system that industry uses to produce our man-made world of structures. IACP
   rationales, special educational techniques, special concepts and special “in-practices”
   activities are developed and practiced. <Summer>

*505. Development, Selection, Use and Organization of Instructional Materials. (3) Cunico,
   Nesbitt

*510. Developments in Industrial and Vocational Education. (3) Nesbitt, Runge
   (Also offered as Bus Ed 510 and Sec Ed 510.) <Summer only>

*511. Laboratory Planning and Design. (3) Field, Nesbitt

*515. Industrial Accident Prevention. (3) Nesbitt

*520. Administration of Industrial and Vocational Programs. (3) Cunico, Field, Nesbitt

*525. Advanced Technical Knowledge and Skills. (3) Cunico, Field, Nesbitt

*529. Workshop. (1-4)
   For degree restrictions consult the Graduate School Bulletin.

*547. Topics. (1-3)

*551-552. Problems. (1-3 hrs. each semester)

*558-559. Advanced Field Experiences I and II. (3, maximum total allowed 6)††

EDUCATION, SPECIAL EDUCATION

PROFESSORS G. W. Adamson, Ed.D. (Chairman); F. E. Papscy, Ph.D.; ASSOCIATE PROFESSORS
   Shelton, Ph.D.; ASSISTANT PROFESSORS B. Apodaca, Ph.D.; J. S. Everett, Ed.D.; E. R.
   Gonzales, Ph.D.; INSTRUCTOR M. Pynn, M.S.; ADJUNCT ASSOCIATE PROFESSOR G. W.

CURRICULUM

See pp. 132-134.

§202. Communicative Disorders. (3)
   (Also offered as Com Dis 302.) Nature of communicative disorders, including speech,
   hearing, and language disorders in children and adults. Methods of identification and
   remediation.

210. Introduction to Special Education. (2)
   Work experience and seminars in Special Education settings. Required of all under-
   graduates. Corequisites: 211, student must receive “B” or better before being screened
   into the Special Education Teacher Training Program. <Fall, Spring>

211. Education of the Exceptional Child. (3)
   Survey of the characteristics and educational needs of exceptional children. Corequisite:
   210, student must receive “B” or better before being screened into the Special Education
   Teacher Training Program. 211 or equivalent is required of all students. <Fall, Spring>

§ Offered at the Gallup Branch.
221. Nature and Needs of the Mentally Retarded. (3)
Social, medical, emotional, physical and mental characteristics of mentally retarded children. Methods of classifying, diagnosing and treating retarded children from medical, psychological, sociological and educational points of view. Prerequisites: 210, 211. (Special permission required to take 210, 211 and 221 together.) <Summer, Spring>

294. Teaching Music in the Elementary Schools. (2)
(Also offered as Mus Ed 294.) Prerequisite: 293 for non-music majors; 194 for music majors. <Summer, Fall, Spring>

297. Music For Special Education. (2)
(Also offered as Mus Ed 297.) The therapeutic and educational values of music in the development of children in Special Education. Methods and materials of instruction to assist teachers in their work with physically, mentally and emotionally disturbed children.

300. Adaptive Instructional Techniques in Special Education. (6)
Instructional strategies for teaching exceptional children. Corequisites: 317, student must have Program of Studies (Contract) on file and must complete pre-student teaching form (Green) one semester before enrollment in Special Education 300. 5 hrs./wk. pre-student teaching required. <Fall, Spring>

302. Communicative Disorders. (3)
(Also offered as Com Ds 302.) Nature of communicative disorders, including speech, hearing and language disorders in children and adults. Methods of identification and remediation. Prerequisite: Com Ds or Sp Com 280, or permission of instructor. <Spring>

317. Methods and Materials in Special Education. (3)
Culminating experience to be taken in conjunction with Special Education 300. Interpretation, design, development, and implementation of methods and materials in special education. Corequisite: 300, student must have Program of Studies (Contract) on file. UNDERGRADUATES ONLY. <Fall, Spring>

322. Teaching the Mentally Retarded. (3)
Objectives, curriculum, content, methods, organization of work. Prerequisites: 210, 211 and 221 and Program of Studies (Contract) on file. <Summer, Fall, Spring>

351-352. Problems. (1-3)
Prerequisite: permission of instructor. <Summer, Fall, Spring>

362. Teaching the Severely Mentally Retarded. (3)
Strategies and techniques for teaching the severely handicapped (TMR) child. Prerequisites: 210, 211, 221 and Program of Studies (Contract) on file. <Spring>

383. Education of the Mexican-American: Trends, Issues, Problems. (3)
(Also offered as Ed Fdn 383.) Educational trends, issues and problems of the Mexican-American and the solutions necessary to alleviate these problems. Prerequisite: permission of instructor. <Summer, Fall, Spring>

400. Student Teaching in the Elementary School. (3-6-9, maximum total allowed 15)
Corequisites: 410 and permission of department; student must have Program of Studies (Contract), signed by major adviser, on file in the Department of Special Education and must complete student teaching application form (Yellow) one semester before enrollment into Special Education 400. <Fall, Spring>

*404. Teaching Children with Learning Disabilities. (3)
Identifying and educating children with learning disabilities. Open to all students. <Fall, Spring>

*405. Special Education in the Regular Classroom. (3)
A functional curriculum approach for educating the minimally handicapped child within the regular classroom with major emphasis on how and why to modify specific, definite learning experiences. Prerequisite: student must have Program of Studies (Contract) on file in the Department of Special Education. <Fall, Spring>

410. Undergraduate Seminar in Special Education. (3)
This course allows the student the opportunity for technical assistance from his/her peers and the Department of Special Education staff while in student teaching. Corequisite: must be taken with Special Education 400 or 462. <Fall, Spring>

*415. Social and Psychological Problems in Special Education. (3)
Cultural, social, intellectual, affective, and educational factors relevant to the understanding of ideological and therapeutic problems in Special Education. Prerequisites: 210, 211 and Program of Studies (Contract) on file. <Summer, Fall, Spring>
*427. Problems of the Hearing Impaired. (3)
(Also offered as Comm 427.) Problems encountered by the deaf and hard of hearing, including communication abilities, psychological and sociological adjustment, educational achievement, and vocational placement. <Fall, Spring>

*429. Workshops in Special Education. (1-4)
Prerequisite: permission of instructor. <Offered upon demand>

*431. Characteristics of the Emotionally Disturbed Child. (3)
An introductory course in the education of the emotionally handicapped child with emphasis on psychological, sociological and educational implications. Open to all students. <Fall, Spring>

*447. Topics. (1-3)

458-459. Field Experience I and II. (3-6 maximum of 12)
(Also offered as Art Ed, Bus Ed, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 458-459.) Planned and supervised professional laboratory or field experiences in agency or institutional setting. Prerequisite: permission of instructor. <Summer, Fall, Spring>

462. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15)
Corequisites: 410 and student must have Program of Studies (Contract) on file and must have student teaching application form (Yellow) completed one semester before enrollment into Special Education 462. <Fall, Spring>

463. Student Teaching in the Secondary Schools: Professional Education Block. (6-15)
<Summer, Fall, Spring>

*466. Art and the Exceptional Child. (3)
(Also offered as Art Ed 466.) <Fall, Spring>

*467. Survey of Physical Defects. (3)
(Also offered as PE 467.) To investigate the etiology, characteristics and treatment programs necessary for teaching the physically handicapped child. Prerequisites: 210, 211 and student must have Program of Studies (Contract) on file. <Fall>

*481. Education of Gifted Children. (3)
Survey of the characteristics and educational needs of gifted children. Prerequisite: permission of instructor. <Spring>

*500. Techniques of Parent Counseling. (3)
(Also offered as Guid 510.)

*512. Differential Diagnosis I. (3)
(Also offered as Guid 512.)

*514. Instructional Strategies in Special Education. (3)

*515. Differential Diagnosis II. (3)
(Also offered as Guid 515.)

*517. Curriculum Development in Special Education. (3)

*521. Clinician Programs in Therapeutic Physical Education. (3-6)
(Also offered as PE 521.)

*529. Workshops in Special Education. (1-4)

*532. Education of Emotionally Disturbed Children. (3)

*534. Clinical and Behavioral Aspects of the Emotionally Disturbed Child. (3)

*542. Learning Disabilities. (3)

*547. Topics. (1-3)

*551-552. Problems. (1-3 hrs. each semester)

*558-559. Advanced Field Experiences I and II. (3-6, 3-6)
(Also offered as Art Ed, Bus Ed, Ed Adm, Ed Fdn, Phys Ed, Rec, Ind Ed, H Ec Ed, Sec Ed 558-559.)

*562. Education of the Severely Retarded. (3)

*576. Seminar in Special Education. (3)

*574. Organization and Supervision of Special Education Programs. (3)

*576. Diagnosis and Remediation of Learning Disabled. (3)

*580. Practicum in Special Education. (3-6)

*599. Master's Thesis. (1-6 hrs. per semester)

*610-611. Internship I and II. (3-6, 3-6)

*699. Doctoral Dissertation. (1-9 hrs. per semester)
ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
See Engineering, Electrical

ELEMENTARY EDUCATION
See Education, Elementary

ENGINEERING

The courses listed in this category are of three types: (1) engineering courses for students not majoring in engineering, (2) general courses for engineering students, and (3) courses taken by students participating in the Engineering Cooperative Education Program.

I. ENGINEERING COURSES FOR STUDENTS NOT MAJORING IN ENGINEERING

These Courses are designed for students in the humanities, social sciences, fine arts, and education.

**320. Engineering in its Social Context. (3)
Impact of technology on society; conflict and resolution between human values and technological society; public decision making and individual moral-ethical-political considerations; systems approach to analysis and design incorporating socio-economic, ecological, ethical and political factor. <Fall, Spring>

**337. Water Pollution Control. (3)
The practices of water use, the technology of water pollution control, the measurement of water pollutants, and the impact of polluted water on the environment. Laboratory demonstrations. <Fall>

**338. Air Management and the Environment. (3)
For non-engineers, surveys the field of air pollution and presents concepts in a non-mathematical way. Air pollution is placed in perspective with other ecological problems. Topics include: environmental services management; pollutants and sources: technological, meteorological, biomedical, social, economic, political, and legal considerations. <Spring>

340. Electronics and Your World. (3)
Non-mathematical introduction to electronics and its interactions with the lives of individuals in the modern world. Topics include discussions of the basic operating principles involved in radio, television, the telephone, electronic musical instruments, computers, and the reproduction of sound (hi-fi, stereo, quadraphonic, etc.). Demonstrations will be provided where applicable. No prerequisites. <Fall>

**350. Transportation and Society. (3)
For non-engineers, surveys the history, present state, and possible future developments in the field of transportation. Topics will include the economic, environmental, and social impact of transportation systems and the studies and planning that go into their selection and location. The interdependence of transportation and urban planning will be stressed. <Spring>

**360. Computers and Society. (3)
Interrelation between technology and society via computers. Logic structures underlying use of computers in design, analysis, communication, and control will be studied together with application to law, society, finance, art and technology. Basic knowledge of algebra will be assumed. Approach is non-mathematical. <Fall>

**362. Information and Communication. (3)
What is information? Can it be measured? This course will answer these two questions and will develop ways to measure the information content of messages and data. These techniques will be applied to problems of storage and retrieval of information, coding of messages, and communication capacity of various types of communication channels. The principles of allocation of channels for public and private communication will be discussed. The interchangeability of communication and transportation facilities, e.g., telephone vs. travel, catalog vs. showroom, and the electronic post office and library will be considered. <Spring>

370. Materials in Today's Environment. (3)
Modern day devices and products from space vehicles to the tiniest transistor, from aluminum baseball bats to artificial hearts, owe their very existence to new materials.
Explores the technology which provides a wide range of materials in our technological age and discusses critically the societal impact: history of materials, basic materials science, concepts of material selection, and materials disposal and recycling. <Spring>

372. Chemical Technology. (3)
"Better things for better living . . . through chemistry." Examines critically the validity of this slogan. Life in the twentieth century has been influenced greatly by chemical technology: petroleum products, synthetic fibers, plastics, explosives, fertilizers, pesticides, and detergents. The societal impact of production, utilization and disposal of these and other chemical products is discussed. <Fall>

**380. Applications to Nuclear Energy. (3)
Designed to acquaint the non-technical student in the humanities with nuclear energy and its peaceful applications in many areas affecting human affairs. Includes atomic and nuclear structure, fission, fusion, nuclear reactors, nuclear explosives, accelerators, applications of radioisotopes, and socio-economic considerations. <Spring>

**382. Energy and the Environment. (3)
For non-engineers on the subject of energy resources, energy conversion, and the effect on the environment. Includes survey of world and U.S. energy supply and demand; energy and the economy; comparison of fuels—fossil, nuclear, hydro, solar, winds, and others; energy conversion processes; and the associated environmental effects—air pollution, water pollution, thermal pollution, nuclear radiation and others. No prerequisites. <Fall>

390. Understanding Your Technological Environment. (3)
Operating principles, consumer economics, environmental impact, and safety for some technological devices. Typical topics: automobile, housing, recreational equipment, appliances. <Spring>

II. GENERAL COURSES FOR ENGINEERING MAJORS

101L. Introduction to Engineering. (4)
Description of engineering, design of new products by groups of students, and development of graphical, analytical, communicative and other engineering skills. 1 lecture, 6 hrs. lab. <Fall, Spring>

102L. Engineering Computational Methods. (3)
Graphical methods applied to empirical equations; calculus of finite differences; applied engineering computer programs; digital computer programming (FORTRAN IV and WHATIFIVE). Corequisite: Math 162 or equivalent. 2 lectures, 4 hrs. lab. <Fall, Spring>

301. Seminar in Engineering Practice. (1)
A series of presentations by practicing engineers, emphasizing the many facets of engineering in the real world. <Fall, Spring>

III. COOPERATIVE EDUCATION PROGRAM

Students enrolled in the Cooperative Education Program (see p. 137) are required to register in Engr 100 while on work phase and in one of the appropriate evaluation courses during the semester immediately following each work phase.

100. Cooperative Education Work Phase. (0) $10.00 fee (Required each work phase).

109. Evaluation of Cooperative Education Work Phase 1. (1)
110. Evaluation of Cooperative Education Work Phase 2. (1)
209. Evaluation of Cooperative Education Work Phase 3. (1)
210. Evaluation of Cooperative Education Work Phase 4. (1)
309. Evaluation of Cooperative Education Work Phase 5. (1)
310. Evaluation of Cooperative Education Work Phase 6. (1)
CURRICULUM
See pp. 141-142.

251. Chemical Calculations. (3)
More extensive problem work in the stoichiometric principles of chemistry, including composition changes; the material and energy balance; units and dimensions. Prerequisite: Chem 102L or equivalent. <Fall>

252. Introduction to Transport Phenomena. [Industrial Stoichiometry.] (3)
The mechanism and the related mathematical analysis of momentum, heat, and mass transfer. Molecular and turbulent mechanisms; fluid flow. Prerequisites: 251L, Math 264. <Spring>

301. Thermodynamics. (3)
(Also offered as ME 301.) Principles of thermodynamics. First and second laws, properties and equations of state Prerequisites: Chem 101L, Physcs 161, Math 264. <Summer; Fall, Spring>

**302. Chemical Engineering Thermodynamics. (3)
Continuation of 301 with applications to chemical engineering processes; physical and chemical equilibria. <Spring>

311. [411] Unit Operations I. (3)
Unit Operations and their applications to the chemical industries: problems in conductive, convective, and radiative heat transfer as well as related topics. Prerequisites: 252 <Fall>

312. [412] Unit Operations II. (3)
A continuation of Unit Operations; problems in mass transfer, simultaneous mass and heat transfer, and related topics. Prerequisite: 311. <Spring>

314. [414L] Chemical Engineering Laboratory I. [Unit Operations Laboratory I.] (2)
Laboratory practice and experimental study of Unit Operations covered in 311. Corequisite: 311. Six hours lab. <Fall>

315L. [415L] Chemical Engineering Laboratory II. [Unit Operations Laboratory II.] (2)
Experimental laboratory study of the Unit Operations covered by 311 and 312. Prerequisite: 314L; corequisite: 312. Six hours lab. <Spring>

**317. Computer Applications to Process Calculations. (3)
Application of computer techniques to solve process problems, using various numerical methods; curve fitting, solution of differential equations for use in design of reactors and solution of energy and material balances. Prerequisite: 252. <Fall>

**341. Air Pollution Control. (3)
(Also offered as ME 341L) Technical analysis of problems of air pollution control presented. Relationships between sources and effects of air pollution studied. Methods for minimizing hazards of air pollution are considered from viewpoints of industrial manager, legislator, engineer, control official, and public. Information presented applied to study of local problems. Practical projects in pollution control conducted. Prerequisites: Math 264, Physcs 161, Chem 101L, or equivalents, and junior standing. <Offered upon demand>

370. Engineering Materials Science. (3)
(Also offered as CE and ME 370.) Structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials; metals, ceramics, and polymers. Prerequisite: 301; recommended CE 302. <Fall, Spring>

*413. Advanced Chemical Engineering Principles. [Unit Operations III.] (3)
The integration of the principles of transport phenomena, kinetics, process analysis, and related topics to obtain fundamental understanding of chemical process systems. Prerequisite: 454L. <Spring>

*431. Petroleum Process Engineering. (3)
Oil and natural gas recovery, secondary recovery methods. The processing of petroleum, refinery design methods, and operation. The manufacture of petro-chemicals from petroleum feed stocks. <Offered upon demand>

450. Chemical Engineering Economics. (3)
Factors other than engineering and chemical which determine the feasibility of putting a chemical on the market. Particular reference to control of raw materials, markets, competition, patent situation, and related topics. Prerequisites: 312, Econ 200 or equivalent. <Spring>
451-452. Seminar. (1, 1)
Senior year. Reports on selected topics and surveys; presentation and discussion of papers from current technical journals, and topics of interest to the chemical engineer. <Fall, Spring>

Application of special mathematical techniques to the analysis of chemical processes and the elements of process control. Computer experience suggested. Prerequisite: Math 316. <Fall>

**461. Applied Chemical Kinetics. (3)
The kinetics of homogeneous and heterogeneous catalytic and non-catalytic reactions for flow and non-flow processes. Elementary principles of chemical reactor design and operation. Prerequisite: 302, Math 316. <Fall>

*470. Materials for Energy Production. (3)
(Also offered as Nucl E 470) Fundamentals of materials selection and development for energy production in chemical, nuclear, geothermal, and solar systems. Recommended prerequisite: 370 or equivalent. <Offered upon demand>

**472. Chemical Engineering Materials. (3)
Modern theory of corrosion, electrochemical principles, and electrolytic processes with applications. Methods of production of polymers and effect of controlled structure on properties. Use of polymers as engineering material. <Offered upon demand>

*474. Polymer Science and Engineering (3)
Basic chemistry and synthesis reactions of polymers. Effect of polymer structure and composition on mechanical properties. Viscoelastic behavior of amorphous polymers and response of crystalline polymers to stress. Electrical and optical properties. Fabrication, selection, and evaluation of plastics. Prerequisites: 461 or equivalent; recommended: Chem 301. <Offered upon demand>

*477. Diffusion in Solids. (3)
Atomic theory of diffusion in metals, alloys and compounds, solution of the diffusion equations, physical and thermodynamic aspects of diffusion, thermal diffusion, electromigration, experimental methods. <Offered upon demand>

481L. Chemical Engineering Process Laboratory I. (1)
Senior research and development laboratory studies on chemical processes and products. Emphasis on creativity in pursuing research objectives. Literature survey, laboratory notebook, oral presentations, and report writing stressed. Prerequisites: 302, 312, 315L, Chem 311. 6 hrs. lab. <Fall, Spring>

482L. Chemical Engineering Process Laboratory II. (2)
Continuation of 481L, but may be taken as an independent unit. 6 hrs. lab. <Fall, Spring>

*491-492. Special Topics in Chemical Engineering. (1-3, to a maximum of 6)‡
Advanced studies in various areas of chemical engineering. <Fall, Spring>

**493L. Introduction to Design. (1) Steele
Introduction to principles used in chemical engineering design, including: process flowsheets, feasibility studies, equipment specification, and related topics. <Fall>

**494L. Chemical Engineering Design. (3)
Practice in engineering creativity and decision-making. Selection of the optimum process for making a given product. Process design of equipment. Prerequisites: 302, 413. 2 lectures, 3 hrs. lab. <Spring>

*501-502. Chemical Engineering Seminar. (1-3; 1-3)‡‡<br>&lt;501 Fall, 502 Spring&gt;

*521. Advanced Transport Phenomena I. (3)
Prerequisite: 413 or equivalent. <Fall>

*522. Advanced Transport Phenomena II. (3)
Prerequisite: 521 or equivalent. <Spring>

*523. Equilibria and Staged Operations. (3)
&lt;Spring&gt;

*530. Process Optimization. (3) Nuttall
&lt;Offered upon demand&gt;

*541. Catalysis. (3)
&lt;Offered upon demand&gt;
*542. Advanced Chemical Engineering Thermodynamics. (3)  
<Offered>

*543. Irreversible and Statistical Thermodynamics. (3)  
<Offered upon demand>

*551-552. Problems. (1-3 hrs. each semester)†   ‡

*554. [454] Advanced Process Dynamics and Control. (3)  
Prerequisite: 454L. <Offered upon demand>

*561. Kinetics of Chemical Processes. (3)  
<Offered upon demand>

*571. Thermodynamics of Materials. (3)  
Recommended prerequisite: 542 or equivalent. <Offered upon demand>

*575. Selected Topics in Material Science. (1-3)‡  
<Offered upon demand>

*576. Strengthening Mechanisms in Solids. (3)  
Recommended prerequisite: 571. <Offered upon demand>

*577. Phase Transformations in Solids. (3)  
Recommended prerequisite: 571. <Offered upon demand>

*599. Master's Thesis. (1-6 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

*699. Dissertation. (1-9 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

ENGINEERING, CIVIL


CURRICULUM

See pp. 143-144.

202. [202L] Engineering Statics. (3)  
Statics of particles and rigid bodies in two and three dimensions using vector algebra as an analytical tool; centroids; distributed loads; trusses, frames; friction. Prerequisite: Physics 160, Math 163. <Summer, Fall, Spring>

§211. [211 L] Introduction to Architectural Structural Analysis. (3)  
Behavior of architectural structures under typical loads and resulting force systems; simply-supported and continuous beams; properties of structural materials and shapes. Elementary mechanics of materials. Computer methods for solving typical problems. Prerequisite: minimum of one semester of calculus. <Spring>

270L. Construction Materials. (1)  
A laboratory study of the physical, mechanical, and chemical properties of engineering materials. 3 hrs. lab. <Fall, Spring>

281L. Engineering Measurements. (3)  
Principles and theories of physical measurements of spatial quantities; theory of probable error and adjustment of observations; use of measuring instruments and systems using surveying techniques where desirable. Prerequisite: Math 162 or permission of instructor. 2 lectures, 3 hrs. lab. <Fall, Spring>

282L. Engineering Surveys. (2)  
Engineering applications of theories and principles developed in 281L; horizontal and vertical control surveys, topography, alignment curve geometrics, modern survey systems and instruments; introduction to photogrammetry and geodesy. Prerequisite: 281L. 1 lecture, 3 hrs. lab. <Fall, Spring>

302. Mechanics of Materials. (3)  
Stresses and strains associated with elastic and plastic behavior of members stressed in tension, compression, torsion, and flexure; Mohr's circle construction; principles of combined stresses and resultant deformation; columns and buckling phenomena; preliminary consideration of statically indeterminate members. Prerequisite: 202, Math 264. <Summer, Fall, Spring>

§ No credit allowed in College of Engineering.
303L. Mechanics of Materials Laboratory. (1)
Laboratory practice in the application of strain measuring and indicating devices directed at verification of fundamental principles developed in 302; mechanical, electrical and photoelastic equipment usage. Corequisite: 302. 3 hrs. lab. <Fall, Spring>

305. Structural Analysis I. (2)
Analysis of determinate structures including beams, frames, roof and bridge trusses subjected to both fixed and moving loads by algebraic and graphical methods; introduction to deflection theory, moment-area, conjugate beams, and virtual work. Corequisite: 302. <Fall>

**306. Structural Analysis II. (3) G. May**
Analysis of statically indeterminate structures; use of moment-area, conjugate structure, energy, slope-deflection, and moment distribution methods; sidesway; influence lines; non prismatic and curved members. Prerequisite: 305 or permission of instructor. <Spring>

§312. Architectural Structures. (3)
Approximate and simplified methods of design of building frame members in wood, metals, and reinforced concrete, including foundations, in accordance with current codes. Prerequisite: 211. <Fall>

324L. Structural Design in Metals. (3)
Methods of design of tension, compression, and flexure members of metal including their connections; the analysis and design of structural elements of metal as consistent with modern practice. Prerequisite: 305. 2 lectures, 3 hrs. lab. <Spring>

**331L. Fluid Mechanics. (3) Carney, Martinez**
The mechanics of incompressible and compressible flow; fluids at rest; geometry of fluid motion; general equations of motion; laminar and turbulent flow, boundary layer, lift, form drag; flow through pipes, pipe systems, and open channels; laboratory study of basic principles of fluid mechanics. Prerequisite: 202; corequisite: ME 206L. 2 lectures, 3 hrs. lab. <Fall>

**332. Water Resources and Hydraulic Engineering I. (3) Carney, Martinez**
Pipe networks, open channel hydraulics, similitude, hydraulic machinery, water resources economics, basic aspects of hydrology. Prerequisite: 331L. <Spring>

**336L. Sanitary Engineering I. (3) Martinez, Matthews**
The principles of sanitary science as applied to the control of the environment, water supply and waste-water disposal, air and water pollution, and solid waste disposal. Corequisite: 332. 2 lectures, 3 hrs. lab. <Spring>

360L. Soil Mechanics. (3)
Physical, chemical, and mechanical properties of soil as an engineering material; relation of properties to engineering problems. Prerequisite: 302. 2 lectures, 3 hrs. lab. <Spring>

370. Engineering Materials Science. (3)
(Also offered as Ch E 370 and ME 370.) The structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials: metals, ceramics and polymers. Prerequisite: 302; corequisite: ME 301. <Fall, Spring>

380L. Cartography. (3)
Map projection and use of maps to show areal distribution and graphic representation of statistical data. Prerequisite: permission of Instructor. 2 lectures, 3 hrs. lab. <Spring>

382. Transportation Engineering. (2)
Administration, planning, geometric design, development, economics, operation, and social impact of transportation systems. Prerequisite: junior standing. <Fall>

*401. Advanced Mechanics of Materials. (3) Johnson, G. May, Varan*
(Also offered as ME 401.) State of stress and strain at a point, stress-strain relationships; topics in beam theory such as unsymmetrical bending, curved beams, and elastic foundations; torsion of non-circular cross-sections, energy principles. Prerequisites: 302, senior standing. <Spring>

*402. Tensor Analysis and Continuum Mechanics. (3)*
(Also offered as ME 402.) Tensor analysis in Euclidean space, kinematics of continua, the stress tensor, linear constitutive equations for elastic solids, compressible viscous fluids, and viscoelastic media. Prerequisites: 302, Math 265. <Fall>

*403. Linear Viscoelasticity. (2) Cottrell, Albrecht*
Viscoelastic models, beams, vibrations, waves, buckling; viscoelasticity in three-dimensional problems, applications. Prerequisite: 370 or permission of instructor. <Offered upon demand>

§ No credit allowed in College of Engineering.
411. Reinforced Concrete Design. (3)
Structural mechanics of concrete beams, slabs, columns, walls, and footings; checking
and proportioning of members and connections in accordance with specifications for
elastic, ultimate, and prestressed concrete design. Prerequisite: 306. <Fall>

*415. Intermediate Structural Analysis. (3) Johnson, G. May, Varan
Classical problems in structural analysis solved by use of matrix procedures; displace­
ment and force methods with application to two dimensional, statically indeterminate,
framed structures. Prerequisite: 306 or permission of instructor. <Fall>

*416L. Design of Structural Systems. (3)
Topics to be selected from the following systems: buildings, bridges, aerospace structures,
plates, cylindrical shell panels, space frames. Structural model analysis. Prerequisite: per­
mission of instructor. 2 lectures, 3 hrs. lab. <Offered upon demand>

§**417. Structures Workshop I. (2) Gafford
Advanced topics in structures for Architectural majors. Prerequisite: permission of in­
structor. <Fall>

§**418. Structures Workshop II. (2) Gafford
Advanced topics in structures for Architectural majors. Prerequisite: permission of instruc­
tor. <Spring>

Inelastic behavior of materials, ultimate capacities of structural elements; basic theorems
of limit analysis; deflection estimates; application to structures. Special topics. Prereq­
Uisite: 306 or permission of instructor. <Fall>

*421. Introduction to Structural Dynamics. (3) Cottrell
Basic theory of structural vibrations; structural response to dynamic loads; laboratory
simulation of dynamic response of structures with electrical and mechanical analogies
and applications of analog computer. Prerequisites: 306, ME 206L, Math 316. <Spring>

*430. Applied Hydrodynamics. (3) Carney, Martinez
Principles of dimensional analysis, dynamic similarity, flow nets, irrotational flow, gravity
flow, unsteady flow, boundary layer theory, separation, cavitiation, drag; pumps and
bubbles. Prerequisites: 311L. <Offered upon demand>

*431. Intermediate Hydrology. (3) Carney, Martinez
Hydrometeorology, soil moisture, runoff cycle, losses, overland flow, flood routing, run­
off routing, ground water flow. Prerequisites: 332 and permission of instructor. <Fall
1975 and alternate years>

*432. Water Resources and Hydraulic Engineering II. (3) Carney, Martinez
Applied hydrology, hydraulics, water law, engineering economy, and water resources
planning. Prerequisite: 332. <Fall 1976 and alternate years>

*436. Sanitary Engineering II. (3) Martinez, Matthews
Design of wastewater treatment plants using traditional design parameters and experi­
mental design parameters. Population forecasting, plant hydraulics, stream sanitation,
optimization analysis. Prerequisite: 336L. <Spring>

*437. Water and Wastewater Analysis. (3) Matthews
Use of analytical methods to quantitatively define the character of water and waste­
water. Water quality measurements applicable to the establishment of water and
wastewater standards, design and control of treatment processes, and analysis of
industrial waste. Prerequisite: 336L or permission of instructor. <Fall>

*440. Arid Land Engineering. (3) Huzarski
Engineering studies related to problems of air, water, ground, and culture, relevant to
arid and semi-arid regions. Prerequisite: senior standing and permission of instructor.
<Offered upon demand>

*450. Introduction to Probabilistic Methods in Engineering. (3) Bleyl
Applications of the theory of probability and statistics to engineering problems such as
measurement errors, traffic flow, sanitary engineering, water resources, hydrology, con­
struction management, yield and fracture strength of metals. Prerequisite: permission of
instructor. <Fall>

*451. Engineering Analysis. (3) Cottrell
Methods of theoretical analysis of typical engineering systems. Applications of ordinary
and partial differential equations, finite differences and matrices to solve engineering
problems. Prerequisites: Math 316 or equivalent and permission of instructor. <Offered
upon demand>

§ No credit allowed in College of Engineering.
**452L. Computer Applications in Civil Engineering.** (3) Bleyl
Use of digital computers to solve typical problems in various areas of Civil Engineering, including use of stored programs and preparation of original programs. Prerequisites: Engr 102L or EECS 336, senior standing in Engineering. 2 lectures, 3 hrs. lab. <Spring>

**453. Numerical Methods in Civil Engineering.** (3)
Methods of discrete analysis of engineering systems. Applications of numerical techniques to solve engineering problems. Prerequisites: Engr 102L or EECS 336, Math 316 or equivalent. <Offered upon demand>

**461. Soil Engineering for Highways and Airfields.** (3) Carney, Clough
Remote sensing of soils, air photo interpretation, seismic and resistivity soils surveys, soil mapping, excavation and embankments, slope stability and stabilization. Prerequisite: 360L. <Fall>

**462. Engineering Foundations.** (3) Carney, Clough, Triandafillidis
Application of principles of soil mechanics to analysis and design of footings, piles, caissons, cofferdams, and other substructures. Prerequisite: 360L <Fall>

**463. Intermediate Soil Mechanics.** (3) Carney, Clough, Triandafillidis
Soil-water relationships, shear strength, consolidation, introduction to physico-chemical properties of soils. Prerequisite: 360L. <Fall>

**464. Rock Mechanics.** (3) Triandafillidis
Geologic considerations; physical properties and engineering classification of intact rock; in situ behavior of rock masses; effect of geologic discontinuities on physical properties; application of rock mechanics principles to specific foundation problems; reinforcement of rock masses; controlled blasting and blast induced vibrations. Prerequisite: 360L. <Offered upon demand>

**470. Construction Methods and Equipment.** (3) Clough
Comprehensive study of the ownership and operating costs, production rates, and operating characteristics of the major construction equipment types. Prerequisite: senior standing. <Fall>

**471. Building Construction.** (3) Gafford
Engineering and architectural details within the framework of a building; floor and roof systems; bearing curtain walls; use and relative costs of materials; building codes. Prerequisite: senior standing in Engineering or Architecture or permission of instructor. Architecture students must have successfully completed 312 or its equivalent. <Spring>

**472. Construction Contracting.** (3) Clough
Management principles as applied to the conduct and control of a construction contracting business; estimating methods, bidding, construction contracts, bonds, insurance, project planning and scheduling, cost accounting, labor law, labor relations, and safety. Prerequisite: senior standing. <Fall, Spring>

**475L. Materials Technology.** (3) Martinez
Theories of concrete-mix proportioning, use of concrete additives; testing of concrete aggregates and cement; asphalt; design of bituminous paving mixtures. Prerequisite: senior standing in Engineering. 2 lectures, 3 hrs. lab. <Offered upon demand>

**476. Highway and Airport Pavements.** (3) Martinez
Principles of highway and airport pavement design. Prerequisite: 360L. <Spring>

**482. Traffic Engineering.** (3) Bleyl, M. May
Introduction to the concepts and techniques of highway traffic engineering including traffic characteristics, studies, geometric design, regulations, control, planning, and environmental considerations. Prerequisite: senior standing in engineering. <Spring>

**483. Traffic Engineering Studies and Characteristics.** (3) Bleyl, M. May
Highway traffic speed, volume, capacity, accidents, origin-destination, and parking; the road users and vehicles in traffic; models and theories describing traffic flow. Prerequisite: 382 or permission of instructor. <Fall>

**484. Seminar in Transportation Engineering.** (2) Bleyl, M. May
Guest lecturers on contemporary problems and issues related to transportation engineering. <Spring>

**490. Professional Problems in Engineering.** (2)
Ethical and professional considerations in the engineer's relationship to other engineers, his clients, and society; contractual agreements common to engineering; professional economics. Prerequisite: senior standing in Engineering. <Fall>

**491-492. Special Topics in Civil Engineering.** (1-3 to a maximum of 6)
Advanced studies in various areas of civil engineering.
493. Special Topics in Civil Engineering—Honors. (1-3 to a maximum of 6)
   Prerequisite: 3.2 grade-point average. <Offered upon demand> 
494. Honors Seminar. (3)
   Prerequisite: 3.2 grade-point average. <Offered upon demand>
*501. Advanced Structural Analysis. (3) Johnson, G. May, Varon
   Prerequisite: 415 or permission of instructor. <Spring>
   Prerequisite: permission of instructor. <Fall>
*505. Advanced Reinforced Concrete. (3) Hulsbos
   Prerequisites: 306, 411. <Offered upon demand>
*506. Prestressed Concrete. (3) Hulsbos
   Prerequisite: 411. <Spring 1977 and alternate years>
*507. Design of Concrete Plates and Shells. (3) Hulsbos
   Prerequisite: 411. <Spring 1976 and alternate years>
*510. Advanced Structural Design in Metals. (3) Johnson, Varan
   Prerequisite: 324L. <Offered upon demand>
*516. Theory of Plates. (3) Cottrell, G. May, Varan
   Prerequisite: 401 or permission of instructor. <Offered upon demand>
*517. Discrete and Macro Mechanics. (3) Varan
   Prerequisite: permission of instructor. <Offered upon demand>
*518. Elastic Stability. (3) Cottrell, Varan
   Prerequisites: 401 or 402, Math 312, or permission of instructor. <Spring>
*519. Theory of Shells. (3) Cottrell, Varan
   (Also offered as ME 519.) Prerequisites: ME 516 and Math 312. <Spring>
*520. Vibration of Elastic Systems. (3) Cottrell
   Prerequisites: 421 or ME 414, and Math 312. <Offered upon demand>
*521. Design of Structures for Dynamic Loads. (3) Cottrell
   Prerequisites: 415, 421 or ME 414. <Offered upon demand>
*523. Random Vibrations. (3) Cottrell
   (Also offered as ME 523.) Prerequisite: 520 or permission of instructor. <Offered upon demand>
*531. Advanced Water Treatment and Plant Design. (3-4)
   Prerequisite: permission of instructor. <Fall 1975 and alternate years>
*532. Advanced Waste Water Treatment and Plant Design. (3-4)
   Prerequisite: permission of instructor. <Fall 1976 and alternate years>
*533. Water Resources Engineering. (3)
   Prerequisite: permission of instructor. <Offered upon demand>
*534L. Advanced Sanitary Lab. (3)
   Prerequisite: permission of instructor. 1 lecture, 6 hrs. lab. <Offered upon demand>
*535. Open Channel Hydraulics. (3) Carney, Martinez
   Prerequisite: 332. <Offered upon demand>
*536. Hydraulic Structures. (3) Carney, Martinez
   Prerequisite: 535. <Offered upon demand>
*551-552. Problems. (1-3 hrs. each semester)
*560. Advanced Soil Mechanics. (3) Carney, Clough, Triandafilidis
   Prerequisites: 401 or 402, 463. <Offered upon demand>
*561L. Advanced Soil Mechanics Laboratory. (2) Carney, Clough
   Corequisite: 463. 1 lecture, 3 hrs. lab. <Offered upon demand>
*562. Advanced Foundation Engineering. (3) Carney, Clough, Triandafilidis
   Prerequisite: 463. <Spring>
*563. Earth Structures. (3) Carney, Clough
   Prerequisite: 463. <Spring>
*568. Physico-Chemical Properties of Soils. (3)
   Prerequisite: 463. <Offered upon demand>
*572. Construction Project Management. (3) Clough
   Prerequisite: permission of instructor. <Spring>
*581. Highway Traffic Operations. (3) Bleyl
   Prerequisite: 382 or permission of instructor. <Fall>
*582. Highway Traffic Design. (3) Bleyl
Prerequisite: 483. <Spring>

*583. Urban Transportation Planning. (3) Bleyl
Prerequisite: 483. <Spring>

*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*623. Random Processes in Mechanics. (3)
Prerequisite: 523 or permission of instructor. <Offered upon demand>

*650. Research. (1-6 to a maximum of 12)

*660. Soil Dynamics. (3) Triandafilidis
Prerequisites: 401 or 402, 463. <Offered upon demand>

*691-692. Seminar. (1-3 hrs. each semester) <Fall, Spring>

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ENGINEERING, ELECTRICAL AND COMPUTER SCIENCE


CURRICULUM

See pp. 145-146.

203. Introduction to Electrical Engineering I. (3)

204. Introduction to Electrical Engineering II. (3)
Electronic devices. Rectifier circuits. Triode, pentode and transistor amplifier models. Electronic instrumentation and measurements. Basic open-loop and closed-loop control systems. Electromechanical energy conversion. Prerequisites: 203 and Physcs 161. (Normally not taken by EE majors.) <Fall>

206L. Electrical Engineering Laboratory I. (2)
Solution of engineering problems by experimental and analytic techniques. Corequisite: 203. 1 lecture, 3 hrs. lab. <Fall, Spring>

207L. Electrical Engineering Laboratory II. (2)
Corequisite: 206L; corequisite: 213. 1 lecture, 3 hrs. lab. <Spring>

213. Circuits and Systems I. (4)
Conceptual models of basic electrical components. Laws of circuit analysis. Detailed study of simple circuits and their signal processing capabilities. Introduction to signal decomposition. Prerequisites: C or better in 203, Math 316; corequisites: 207L, Math 264. <Summer, Fall, Spring>

231. Digital Computation in Electrical Engineering. (2) Sparks
Application of computer methods to the solution of problems in electrical engineering. Topics covered—solutions of simultaneous linear equations, numerical differentiation and integration, elementary statistics and numerical solutions to ordinary differential equations. Prerequisites: Engr 102L, Math 163; corequisite: 203 or permission of instructor. <Fall>

234L. Digital Systems Laboratory. (2) Erteza, Peterson, Sparks
Corequisite: 238. 1 lecture, 3 hrs. lab. <Spring>

238. Digital Systems. (4) Erteza, Peterson, Sparks
Basic digital systems concepts, data structures, digital and computer system attributes. Problem formulation and solution implementation. Corequisite: 234L. <Spring>
**301. Electronic Applications.** (3)  
Principles of basic electronic devices, circuits, and modules. Applications in sensors, measurements, instrumentation, and feedback systems. An introductory course primarily for advanced students interested in experimental techniques. Not for engineering majors. Prerequisite: permission of instructor. *(Fall, Spring)*

**302. Clinical Instrumentation.** (3) Williams  
(Also offered as Nurs 302.) A survey of electrical and electronic instrumentation used in clinical medicine. Topics covered include basic principles of electricity, physiological effects of electrical shock, ECG, EEG, intensive care instrumentation, surgery instrumentation, and diagnostic instrumentation. Prerequisites: Biol 237L, 2 hrs. lecture, 2 hrs. lab. *(Offered upon demand)*

**313. Circuits and Systems II.** (4)  
General study of linear lumped time-invariant systems: differential equations, transfer functions, frequency response, state-variable description, introduction to analog and digital simulation. Prerequisite: C or better in 213. *(Fall, Spring)*

**321. Electronics I.** (3) Boatwright, Kelly  
Fundamentals of linear and nonlinear transistor and vacuum tube circuits, amplifiers, feedback theory, oscillators modulation and demodulation. Prerequisite: grade of C or better in 213; corequisite: 325L. *(Fall, Spring)*

**322. Electronics II.** (3) Boatwright, Kelly  
Continuation of 321. Prerequisite: 321; corequisite: 326L. *(Fall, Spring)*

**325L. Electronics Laboratory I.** (2) Boatwright  
Prerequisite: 207L; corequisite: 321. 1 lecture, 3 hrs. lab. *(Fall, Spring)*

**326L. Electronics Laboratory II.** (2) Kelly  
Continuation of 325L. Prerequisite: 325L; corequisite: 322. *(Fall, Spring)*

§**335. Introduction to Digital Computers.** (3) Erteza, Peterson, Sparks  
Computer organization, Computer Logic, binary and decimal arithmetic units, coding and basic programming including use of the PDP-11 and PDP-8 computers. Prerequisites: junior standing or permission of instructor. *(Summer, Fall, Spring)*

**336. Introduction to Digital Computer Programming.** (2) Sparks  
Flow diagramming, introduction to time-share system control language, FORTRAN programming. Emphasis is on solution of problems using the computer. Prerequisite: junior standing or permission of instructor. Credit allowed for 336 or Engr 102, but not for both. *(Summer, Fall, Spring)*

§**337. Introduction to Computer Science.** (3)  
Introduction to algorithms, stored program computers, and programming languages. Concept and properties of an algorithm, language and notation for describing algorithms. Prerequisite: 335 or equivalent. *(Fall)*

**340. Statistical Methods in Electrical Engineering.** (3)  
Problems in electrical engineering involving the application of probabilities and statistical methods to noise in amplifiers and communication links, reliability quality control, tolerance assignment in design, planning of tests, calibration. Prerequisite: 313. *(Spring)*

361. Electromagnetic Fields and Waves I.** (3) Bradshaw, Byatt  
Static electric and magnetic fields; vector calculus; Maxwell's equations; plane, cylindrical and spherical waves. Applications to transmission lines, wave guides, coaxial lines and antennas. Prerequisite: grade of C or better in 213; corequisite: 313. *(Fall, Spring)*

362. Electromagnetic Fields and Waves II.** (3) Bradshaw, Byatt  
Continuation of 361. Prerequisite: 361. *(Fall, Spring)*

*370. Physical Properties of Electrical Engineering Materials.** (3) Colclaser, Southward  
Electric, dielectric, and magnetic properties of materials pertaining to their electrical engineering applications. Qualitative description of physical electronics as applied to electronic, thermoelectric, magnetic, superconducting, and quantum electronic devices. Prerequisite: Physcs 262. *(Spring)*

Matrices and linear systems; computer matrix manipulation-rank, Gauss elimination, inversion, factorization. Transform methods in linear systems. Prerequisites: senior standing, programming knowledge. *(Fall, Spring)*

§ Not available for graduate credit for students specializing in computers.
*404. Biomedical Instrumentation. (3) Bolle
Design of instruments for measuring medically important physiological parameters, with emphasis on biosensors, signal conversion, and display. Applications to artificial limbs and organs, intensive care systems, and closed-loop therapeutics. Prerequisites: 204 and senior standing, or permission of instructor. <Fall, Spring>

*407. Modeling in Biomedical Engineering. (3) Williams
The application of engineering techniques to modeling of physiological systems. Prerequisite: Senior standing or permission of the instructor. <Offered upon demand>

*408. Bioelectric Phenomena. (3) Williams
Biomedical engineering approach to electrodes, passive and active membrane phenomena, volume conductor fields, electrocardiography and electroencephalography. Prerequisite: Math 316. <Offered upon demand>

*409. Electrical Circuits, Devices, and Systems. (3) Williams
(Also offered as Art St 409.) A theoretical and practical survey of electrical circuits, devices, and systems. Intended primarily for majors in the visual arts. Prerequisite: Art 313, or permission of instructor. <Fall>

*412. Analysis of Nonlinear Systems. (3) Karni
Characteristics of nonlinear devices: two terminal and multi-terminal; graphical and numerical analysis of resistive and dynamic nonlinear networks. Prerequisite: Senior standing in EECS or permission of instructor. <Fall>

*415. Minicomputer Techniques and Applications. (3) Cordaro
Basic operation, assembly language programming and I/O interface problems. Emphasis on the use of minicomputers in digital communications, control, signal processing, and instrumentation. Prerequisite: 335 or permission of instructor. <Spring>

*418L. Analog and Hybrid Computer Techniques. (3) Bradshaw
Advanced analog computations; basic concepts of hybrid computers; parallel hybrid computer techniques. Solution of practical engineering problems. Prerequisites: senior standing or permission of instructor. 2 lecture, 3 hrs. lab. <Spring>

*421. Electronics III. (3) Kelly
Computer and waveforming circuits. Linear waveshaping, diode gates, large-signal transistor models, breakpoint and driving-point-impedance techniques, transient response of diode and transistor circuits, limiters (clippers), clampers, arbitrary current-voltage and transfer characteristics, logic circuits, stretchers, multivibrators, and sweep circuits. Prerequisite: 322. <Spring>

*422. Electronics IV. (3) Kelly
Driving-Point Impedance Methods. Extension of driving-point-impedance techniques and breakpoint techniques to feedback amplifiers: operational amplifiers, regulated power supplies, special topics on Field Effect and Unijunction transistors. Emphasis on analysis by inspection. Prerequisite: 421. <Spring>

*425L. Electronics Laboratory III. (2) Kelly
Prerequisite: 326L; corequisite: 421. 1 lecture, 3 hrs. lab. <Fall>

*426L. Electronics Laboratory IV. (2) Kelly
Continuation of 425L. Prerequisite: 425L; corequisite: 422. 1 lecture, 3 hrs. lab. <Spring>

*430. Simulation Languages. (3) B. Peterson
Use of digital computers to simulate physical systems using simulation language such as SIMSCRIPT. Structure of simulation language will be studied and Model Languages will be constructed. Prerequisite: 336 or equivalent programming knowledge. <Fall>

*431. Cobol and Decision Tables Techniques. (3) Study of structure and syntax of COBOL programs of DATA files (sequential, random, indexed sequential). Decision table techniques discussed as they apply to documenting and manipulating DATA files. Prerequisite: 336 or equivalent programming knowledge. <Fall>

*432. Programming in PL/1. (3) List processing, string and symbol manipulation using PL/1. Table searching and sorting techniques. DATA attributes of PL/1 covered as well as the four classes of PL/1 storage. Prerequisite: 431 or equivalent. <Spring>

*433. Digital Computer Graphics and Communications. (3) Sparks
Introduction to graphic display devices, scopes, vector generation, character generation, and light-pen keyboard entry devices. Programming computer displays. Concepts of online operation including telecommunications. Methods of direct graphical design input. Prerequisite: 335 or equivalent. <Fall>
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*434L. Logic Design Laboratory. (2) DeVries  
Corequisite: 438. 1 lecture, 3 hrs. lab.  <Fall, Spring>

*435. Introduction to Design of Assemblers. (3) Erteza  
Construction of Assemblers is studied, with modification of a skeleton assembler a major project in the course. Prerequisites: 335 and 337.  <Fall>

*436. Advanced Engineering Programming. (3)  
Solving engineering problems using discipline-oriented special programs. Large scale problems are solved using programs such as CSMP (Continuous System Modeling Program), SCEPTRE, CINDA. Prerequisite: knowledge of FORTRAN.  <Spring>

*437. Digital Computer Operating Systems. (3) Sparks  
Analysis of time-share operating systems, basic functions of the systems. The performance of operating systems is studied using a simulation model. Prerequisite: 337.  <Fall, Spring>

*438. Logic Design. (3) DeVries  
Number systems and codes; switching algebra; combinatorial circuits; fundamental-mode, pulse-mode, and clocked-sequential circuits; hazards. Prerequisite: senior standing.  <Fall, Spring>

*439. Computer Methods in Engineering Analysis. (3) Erteza  
Methods of engineering analysis, with emphasis on numerical and computer solutions. Includes problem formulation, numerical methods, and programming for computer solution. Prerequisites: senior standing, and knowledge of Fortran programming.  <Spring>

*440. Digital Data Communications. (3)  
A quantitative overview of computer data communication in Band limited systems. Data communication codes, error detecting and correcting. Data transfer formats in transparent and non-transparent modes. Students will write PDP-11 computer programs to accomplish data communication.  <Offered upon demand>

*441. Introduction to Communication Systems. (3)  
Principal types of communication systems, including radar systems; amplitude, angle, and pulse modulation; noise; capacity of communication channels. Prerequisite: 313.  <Offered upon demand>

*443L. Communications Laboratory I. (2)  
Corequisites: 441 and permission of instructor. 1 lecture, 3 hrs. lab.  <Offered upon demand>

*444. Microprocessors (3)  
Design of ROM controlled state machines, design and use of microprocessors, micro-computers. Applications, including design of I/O controllers. Prerequisite: 438.  <Spring>

*445. Control and Systems Components. (3)  
Examination of the dynamic characteristics of electrical, mechanical, hydraulic; thermal, and other components and structures used for signal and power transfer in open-loop and feedback systems. Prerequisite: 313.  <Fall>

*446. Feedback Control Systems. (3)  
Principles of feedback. Analysis of steady-state and transient performance of electrical, mechanical, and other systems. Design of control systems for stability and specified static and dynamic characteristics. Prerequisite: 313.  <Spring>

*448L. Servomechanisms Laboratory. (2)  
Corequisite: 446. 1 lecture, 3 hrs. lab.  <Spring>

*461. Electromagnetic Propagation. (3)  
Application of Maxwell's equations to the solution of simple wave propagation problems; reflection and refraction of plane waves; Poyntings' vector; radiation from dipoles and loop antennas; ground and tropospheric wave propagation; the role of the ionosphere in propagation. Prerequisite: 362.  <Fall>

*462. Microwave Theory. (3) Gurbaxani  
Theoretical and practical considerations associated with microwave devices and circuits. Prerequisite: 362.  <Spring>

*465L. Microwave and Traveling Wave Laboratory. (2)  
Corequisite: 462. 1 lecture, 3 hrs. lab.  <Spring>

*470. Introductory Semiconductor Physics. (3) Colclaser, Grannemann, Southward  
For students who plan to pursue graduate study in solid state or related areas. Quantum and statistical mechanics concepts, crystal structure, thermal properties, bands, equilibrium and nonequilibrium carrier statistics, drift and diffusion. Prerequisite: 370.  <Fall>
*471. Device Physics and Models. (3) Colclaser, Southward
Physical descriptions of semiconductor rectifying and amplifying devices, including diodes, transistors, and field effect devices. The relationships between the physical descriptions and small-signal, large-signal, and non-linear circuit models. Models suitable for computer aided design and circuit analysis. Frequency effects. Prerequisite: 370 or Physics 330. <Spring>

*472. Microelectronics. (3) Colclaser
The technology of monolithic and MOS integrated circuits, and thick-film and thin-film hybrid microelectronics. Design philosophy and techniques. Computer aided design. Large scale integration and semiconductor memories. Prerequisite: 370 or equivalent. <Fall>

*473. Theory and Applications of Field Effect Transistors. (3) Grannemann
Surface phenomena, metal-insulator—semiconductor interfaces, theory of depletion and inversion, and thin film, enhancement mode, depletion mode field effect transistors; equivalent circuits, applications to microcircuits, simple circuit applications. Prerequisites: 370 or equivalent. <Fall>

*474. Optoelectronic Devices and Applications. (3) Southward, Gurbaxani
Topics in physical optics and devices in optoelectronic sources, amplifiers and sensors. Practical applications in communications, computer technology and contemporary display techniques using lasers, liquid crystals, LEDs, solid state vidicons, holograms and optical memories. Prerequisites: 370 or permission of the Instructor. <Spring>

*475L. Hybrid Microelectronics Laboratory. (2) Colclaser
Passive semiconductor device processing. Thick-film hybrid microelectronics design and fabrication. Prerequisite: senior standing. 1 lecture, 3 hrs. lab. <Fall>

*476L. Active Semiconductor Device Fabrication Laboratory. (2) Colclaser
Design and fabrication silicon bipolar transistors, MOS transistors, and monolithic integrated circuits. 1 lecture, 3 hrs. lab. Prerequisite: senior standing. <Fall>

*477. Direct Energy Conversion. (3) [563]
Thermoelectric materials and devices, Seebeck-Peltier-Thompson effects, thermionic converters, optical and infrared flux concentrators, solar cells and Photovoltaic phenomena, Piezoelectric materials and devices. <Offered upon demand>

*480. Electric Power Systems Analysis. (3) Bradshaw
Generation and distribution of electric power; computer modeling of power distribution systems. Prerequisite: 203 and knowledge of FORTRAN. <Fall>

*481. Electrical Transients in Power Systems. (3) Karni
Switching transients; 3-phase symmetrical components; recovery voltages; overload protection, parameters for transient calculations. Prerequisite: EECS 480 or equivalent. <Spring>

490. Seminar in Laboratory Teaching Techniques. (1)
Prerequisite: senior standing and permission of instructor. <Fall, Spring>

491. Undergraduate Problems. (1-6 hrs. per semester)++
Registration for more than 3 hrs. requires permission of department chairman. <Fall, Spring>

493. Honors Seminar. (1-3)
A special seminar open only to honors students. Registration requires permission of the Department Chairman. <Fall, Spring>

494. Honors Individual Study. (1-6)
Open only to honors students. Registration requires permission of the Department Chairman and of the supervising professor. <Fall, Spring>

*495, 496, 497. Special Topics. (1-3 hrs. each semester)†
Prerequisite: senior standing and permission of instructor.

*498. Seminar. (1-3)
Prerequisite: senior standing and permission of instructor. <Fall, Spring>

499. Seminar. (1-3)
Prerequisite: senior standing and permission of instructor. <Fall, Spring>

All courses following are understood to have the prerequisite of graduate standing in Electrical Engineering or permission of instructor.

Prerequisite: 400 or equivalent. <Fall>
**501.** Introduction to the Theory of Continuous Systems. (3)
Prerequisite: 400 or equivalent. <Spring>

**502.** Electrical Engineering Principles for Advanced Students. (3)
Prerequisite: knowledge of differential equations and computer programming. <Offered upon demand>

**506.** Methods of Operation Research 1. (3)
Prerequisite: 400. <Fall>

**507.** Methods of Operations Research II. (3)
Prerequisite: 506 or equivalent, or permission of instructor. <Spring>

**508.** Bioelectric Phenomena. (3) Williams, Hawkins
Prerequisite: Math 316. <Fall>

**512.** Modern Network Theory. (3) Karni
Prerequisite: permission of instructor. <Spring>

**513.** Modern Filter Theory and Design. (3)
Prerequisite: 512 or permission of instructor. <Fall>

**515.** Graph Theory and Applications. (3)
Prerequisites: 400 or permission of instructor. Programming knowledge. <Offered upon demand>

**516.** Video Pattern Recognition. (3) de Vries
Prerequisite: 415. <Fall 1976 and alternate years>

**531.** Error-Correcting Codes. (3) de Vries
Prerequisite: 438. <Fall 1975 and alternate years>

**532.** Theory of Automata. (3) de Vries
Prerequisite: 438. <Fall>

**533.** Image Processing by Digital Computer. (3) Koschmann
Prerequisite: knowledge of Fourier Analysis, linear system theory, and digital computers. <Offered upon demand>

**534.** Symbol Manipulation and Heuristic Programming. (3) Sparks
Prerequisites: 431, 432, or equivalent. <Fall>

**535.** Principles of Threshold Logic. (3)
Prerequisite: 438. <Spring>

**536.** Advanced Logic Design. (3) de Vries
Prerequisite: 438. <Fall 1976 and alternate years>

**537.** Formal Languages and Automata. (3) de Vries
Prerequisite: 532. <Spring>

**538.** Design of Digital Systems. (3) de Vries
Prerequisite: 438. <Spring>

**539.** Computer Methods of Signal Analysis I. (3)
Prerequisites: knowledge of FORTRAN, advanced calculus, Laplace transforms. <Fall>

**541.** Random Signal Processing. (3)
Prerequisites: 400, 340 or equivalent. <Fall>

**542.** Statistical Communication Theory. (3) Koschmann, Petersen
Prerequisites: 400, 340 or equivalent. <Spring>

**543.** Digital Communication and Data Transmission. (3) Staff
Prerequisite: 541 or equivalent. <Offered upon demand>

**545.** Vehicle Navigation and Control. (3) D. Petersen
Prerequisites: 445, 446, and 500. <Offered upon demand>

**546.** Automatic Control Theory. (3) Knudsen
Prerequisites: 446 and 500. <Spring>

**547.** Neural Networks. (3) Bolle, Hawkins
Prerequisite: graduate standing in mathematics, physics, physiology, or engineering. <Fall>

**548.** System Modelling. (3)
Prerequisite: 340, 500 or permission of instructor. <Fall>

**551-552.** Problems. (1-3 each semester)†† <Offered upon demand>

**561.** Electromagnetic Waves I. (3) <Fall>
*562. Electromagnetic Waves II. (3)
Prerequisite: 561. <Spring>

*570. Quantum Theory of Solids I. (3)
Prerequisite: 370 or Physics 330. <Fall>

*571. Quantum Theory of Solids II. (3) Byatt
Prerequisite: 570. <Spring>

*572. Semiconductor Properties. (3) Southward, Grannemann, Colclaser
Prerequisite: 470. <Spring>

*573. Magnetic and Dielectric Properties of Solids. (3)
Prerequisite: 570. <Offered upon demand>

*574. Processing Techniques in Solid State Technology. (3)
Pre- or corequisite: 470. <Spring>

*575. Theory of Solid State Devices. (3) Colclaser, Grannemann, Southward
Prerequisite: 470. <Spring>

*590. Seminar in Engineering Education. (1)
Prerequisite: permission of instructor. <Fall, Spring>

*595, 596, 597. Special Topics. (1-3 hrs each semester)†
Prerequisite: permission of instructor. <Summer, Fall, Spring>

*599. Master’s Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*613. Nonlinear Systems. (3)
Prerequisite: 500. <Fall 1976 and alternate years>

*614. Modern Filters. [Active Networks.] (3)
Prerequisite: 513. <Offered upon demand>

*635. Theory of Micro Programming. (3) Erteza
Prerequisite: 538. <Fall>

*636. Decomposition Theory. (3) De Vries
Prerequisite: 536 or permission of instructor. <Spring 1977 and alternate years>

*639. Computer Methods of Signal Analysis II. (3)
Prerequisite: 539. <Spring>

*641. Information Theory and Coding. (3) Koschmann
Prerequisite: 542. <Offered upon demand>

*643. Special Topics in Communication Theory. (3)
<Offered upon demand>

*646. Optimal Processes. (3) Knudsen
Prerequisite: 546. <Fall 1975 and alternate years>

*647. Introduction to Artificial Intelligence. (3) Bolie
Prerequisites: graduate standing in Math, Physics, Physiology or Engineering and permission of instructor. <Spring>

*649. Special Topics in Control Theory. (3)
Prerequisite: 546. <Offered upon demand>

*651-652. Problems. (1-3 hrs. each semester)††
<Offered upon demand>

*661. Antennas. (3) Williams
Prerequisite: 562. <Offered upon demand>

*662. Microwave Techniques. (3) Byatt
Prerequisite: 562. <Offered upon demand>

*663. Magnetohydrodynamics. (3) Byatt, Erteza, Grannemann
Prerequisite: 562. <Fall 1975 and alternate years>

*664. Advanced Electromagnetic Propagation. (3) Byatt
Prerequisite: 562. <Offered upon demand>

*669. Seminar in Electromagnetic Waves. (3)
<Offered upon demand>

*671. Charge Transport in Solids. (3) Byatt, Grannemann
Prerequisite: 571. <Fall 1976 and alternate years>

*672. Quantum Electronics. (3) Southward
Prerequisite: 570 or permission of instructor. <Spring 1976 and alternate years>
Prerequisite: 572 or permission of instructor. <Fall>

*679. Seminar in Solid State Theory. (3)
<Offered upon demand>

*695, 696, 697, 698. Seminar. (3, 3, 3, 3)
<Offered upon demand>

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ENGINEERING, MECHANICAL

CURRICULUM
See p. 147.

201L. Introduction to Engineering Design. (3)
Deals with elements of engineering design; conception, feasibility, analysis, engineering drawing, materials, manufacturing methods, and selection of components. These design elements are used in shop exercises in which students design, construct, and test simple devices. Students use shop and laboratory facilities. Creativity and the design process are emphasized. Corequisite: CE 202L. 2 lectures, 3 hrs. lab. <Fall, Spring>

206L. Dynamics. (3)
Principles of dynamics. Kinematics and kinetics of particles, systems of particles, and rigid bodies. Prerequisite: CE 202L; corequisite: Math 264. 2 lectures, 3 hrs. lab. <Summer, Fall, Spring>

273. Engineering Shop Practice. (1)
Principles of and practice with hand and machine tools of the Mechanical Engineering Metal Shop. Measurements, drilling, welding, sawing, benchwork, grinding; and lathe milling machine, and sheet metal operations are covered. Course designed to meet the needs of engineering students for future course projects. Prerequisite: sophomore standing. 40 hrs. lab. <Offered upon demand>

300. Mechanical Engineering Analysis. (3)
Principles and applications of similitude and analysis of engineering systems. Prerequisite: Math 265; junior standing in Engineering. <Fall>

301. Thermodynamics. (3)
(Also offered as CHE 301.) Principles of thermodynamics. First and second laws, properties and equations of state. Prerequisites: Chem 101L, Physcs 161, Math 265 or equivalent. <Summer, Fall, Spring>

**302. Thermochemistry and Gas Dynamics. (3)
Thermodynamics of reactions and requirements of equilibrium. Isentropic flow, thermodynamics of shock waves, supersonic characteristics of internal and external flow. Prerequisites: 301, 317 or permission of instructor. <Spring>

314L. Dynamics of Mechanical Systems. (3)
Kinematic and kinetic analysis of machine elements and systems. Balancing of machine elements. Prerequisite: 206L. 2 lectures, 3 hrs. lab. <Fall>

**317. Fluid Mechanics. (3)
Basic concepts and principles of viscous compressible fluids, including continuity, momentum, and energy principles. Applications to incompressible, laminar, or turbulent flows over flat plates, inside of tubes, and around solid objects. Prerequisite: 206L; corequisite: 301. <Fall>

318L. Mechanical Engineering Laboratory I. (2)
Experiments which relate basic physical concepts to mass, length, time and temperature. Techniques of measurements. Corequisites: 301, 314L, 317. 6 hrs. lab. <Spring>

**320. Heat Transfer. (3)
Principles and engineering applications of heat transfer by conduction, radiation, and free and forced convection. Prerequisites: 301, 317 or equivalents, at least one-half semester of ordinary differential equations. <Spring>
**341. Air Pollution Control. (3)**
(Also offered as Ch E 341.) Technical analysis of problems of air pollution control presented. Relationships between sources and effects of air pollution studied. Methods for minimizing hazards of air pollution considered from viewpoints of industrial manager, legislator, engineer, control official, and public. Information presented applied to study of local problems. Practical projects in pollution control conducted. Prerequisites: 301, Math 264, Physics 161, Chem 101L, or equivalents, and junior standing. <Fall>

350. Engineering Economy. (3)
A study of methods and techniques used in determining comparative financial desirability of engineering alternatives. Includes time value of money (interest), depreciation methods and modern techniques for analysis of management decisions. Prerequisite: junior standing. <Spring>

351L. Mechanical Engineering Laboratory II. (2)
Experiments and analysis of simple physical systems which illustrate basic physical principles. Comparison of measured and calculated results; error analysis; analog computers. Prerequisites: 302, 318L, 320, 370 or permission of instructor. 6 hrs. lab. <Offered upon demand>

352L. Mechanical Engineering Laboratory III. (2)
Experimental engineering projects involving complex systems. Planning, fabrication, performance, analysis, and reporting of an original experiment. Prerequisite: 351L. 6 hrs. lab. <Fall>

355. Engineering Statistics and Quality Control. (3)
Statistical methods applied to quality control problems; significance tests; correlation analysis; sequential sampling; analysis of variance; design of experiments. Prerequisite: senior standing. <Offered upon demand>

356. Industrial Engineering. (3)
A survey of Industrial Engineering principles, methods, and techniques used to assist management in making sound operational decisions. Prerequisite: senior standing, or permission of instructor. <Offered upon demand>

357. Introduction to Mechanical Vibrations. (3)
Free and forced vibrations of one and two degree of freedom systems for both steady state and transient forcing. Also vibrations of selected continuous systems and balancing. Prerequisites: 206L and at least half a semester of ordinary differential equations. <Spring>

358L. Design of Solid Systems. (3)
Mechanics of materials applied to the design of machine elements such as bolts, springs, shafts, and gears. Methods of design for fatigue and combined stress are studied. Students design a simple machine. Prerequisite: CE 302. 2 lectures, 3 hrs. lab. <Fall>

359L. Mechanical Engineering Design. (3)
Employ the methods and techniques of engineering design to design engineering systems, components, or products. Each student carries out a semester-long design project of his choice. Prerequisites: senior standing and permission of instructor. 1 lecture, 6 hrs. lab. <Offered upon demand>

363L. Analysis of Fluid Systems. (3)
Engineering analysis of fluid systems based on the principles of fluid mechanics, heat transfer, and thermodynamics. Prerequisites: 302, 317, 320, or permission of instructor. 2 lectures, 3 hrs. lab. <Fall>

The design of systems for the conditioning and control of ambient environments for people, processes, equipment, or foods. Prerequisites: 301, 317, 320. <Offered upon demand>

370. Engineering Materials Science. (3)
(Also offered as Ch E and CE 370.) The structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials: metals, ceramics and polymers. Prerequisite: CE 202; corequisite: 301. <Fall, Spring>

373. Manufacturing Processes. (3)
Introduction to mechanical and thermal processes used to form and join metallic and nonmetallic materials. Discussions of these processes are supplemented with demonstrations and field trips. Prerequisite: junior standing in engineering, or equivalent. <Offered upon demand>

*401. Advanced Mechanics of Materials. (3)
(Also offered as CE 401.) State of stress and strain at a point, stress-strain relations;
topics in beam theory such as unsymmetrical bending, curved beams, and elastic foundations; torsion of non-circular cross-sections; energy principles. Prerequisites: CE 302 and senior standing. <Offered upon demand>

*402. Tensor Analysis and Continuum Mechanics. (3)
(Also offered as CE 402.) Tensor analysis in Euclidean space, kinematics of continua, the stress tensor, linear constitutive equations for elastic solids, compressible viscous fluids, and viscoelastic media. Prerequisites: CE 302, Math 265. <Fall>

*414. Intermediate Dynamics. (3)
Review of Newtonian mechanics, dynamic analysis in non-newtonian reference frame, Lagrangian equation of motion, introduction to dynamic systems such as orbital mechanics, gyrodyamics, and linear vibratory systems including multi-degree of freedom systems and excitation-response analysis. Prerequisites: 206L, Math 265 or equivalent, and senior standing or permission of instructor. <Offered upon demand>

451-452. Undergraduate Problems. (1-3 hrs. per semester to a maximum of 6)
A project of an original nature carried out under faculty supervision. A student may earn 451 or 452 credit for an industrial project by prearranging approval of the project by a faculty adviser and the department chairman. Prerequisite: senior standing and permission of instructor. <Offered upon demand>

*455. Engineering Project Management. (3)
Estimating, proposing, planning, scheduling, quality and cost control, and reporting of an engineering project. Particularly oriented to projects carried out by an engineering group within a larger organization or company. Case studies of actual projects. Prerequisite: senior standing. <Offered upon demand>

**461-462. Seminar. (1-3 hrs. per semester to a maximum of 6)
Organized study by a group of students under faculty supervision. Prerequisite: senior standing and permission of instructor. <Offered upon demand>

*480. Analysis of Mechanical Control Systems. (3)
Dynamic analysis and design of thermodynamic, hydraulic, and mechanical control systems; concept of feedback; performance and stability of systems. Prerequisites: one semester of engineering dynamics, thermodynamics and fluid mechanics, at least one-half semester of ordinary differential equations. <Offered upon demand>

*482. Energy Conversion. (3)
Study of processes and systems for converting energy into useful work. Survey of energy supply and demands; energy and the economy; conversion principles; comparison of basic fuels—fossil, nuclear, hydro, solar, winds, and others; comparison and analysis of conversion processes including heat engines, electro-mechanical, thermo-electric, fuel cells, solar cells, thermionic and magnetohydrodynamic techniques; environmental pollution factors will be considered. Prerequisite: 301. <Offered upon demand>

*490. Methods Engineering. (3)
Introduction to problems of work methods and work measurements associated with increasing productivity and decreasing the cost of producing goods and services. Methods used in developing procedures for effective utilization of effort in industrial operations. Analytical study of manufacturing systems. Prerequisites: 355, and senior standing. <Offered upon demand>

*500. Numerical Techniques in Mechanical Engineering. (3)
Prerequisite: at least one semester of 400- or 500-level course in solid or fluid mechanics. <Offered upon demand>

*501. Heat Conduction. (3)
Prerequisites: 320, Math 312, or permission of instructor; corequisite: 503. <Spring>

*503. Advanced Fluid Mechanics I. (3)
Prerequisites: 206L, 300, 301, or their equivalents. <Spring>

*506. Advanced Thermodynamics I. (3)
Prerequisites: 300 and 301, or equivalents. <Fall>

*507. Similitude in Engineering. (3)
Prerequisite: 501 or 503 or 516. <Offered upon demand>

*509. Advanced Gas Dynamics. (3)
Prerequisites: 501, 503. <Offered upon demand>

*510. Boundary Layers. (3)
Prerequisite: 503. <Offered upon demand>

*511. Radiant Heat Transfer. (3)
Prerequisite: 320. <Offered upon demand>
*514. Variational Mechanics. (3)
Prerequisite: at least one semester of graduate study or permission of instructor.
<Offered upon demand>

*515L. Experimental Stress Analysis. (3)
2 lectures, 3 hrs. lab. <Offered upon demand>

*516. Elasticity I. (3)
Prerequisite: 300 or equivalent. <Spring>

*517. Elasticity II. (3)
Prerequisite: 516; corequisite: Math 313. <Offered upon demand>

*519. Theory of Shells. (3)
(Also offered as CE 519.) Prerequisite: 516. <Offered upon demand>

*520. Analysis of Thermal Stresses. (3)
Prerequisite: 516. <Offered upon demand>

*523. Random Vibrations. (3)
(Also offered as CE 523.) Prerequisite: 357 or permission of instructor. <Offered upon demand>

*541. Tensor Analysis in Mechanics. (3)
Corequisite: 503 or 516 or equivalent. <Offered upon demand>

*551-552. Problems. (1-3 hrs. each semester)

*559. Design Project. (3)††
Prerequisite: permission of instructor, <Offered upon demand>

*561-562. Special Topics. (1-3 hrs. each semester)

*591-592. Seminar. (1-3 hrs. each semester)

*599. Master’s Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*603. Theoretical Fluid Mechanics. (3)
Prerequisites: 501, 503. <Offered upon demand>

*604L. Experimental Methods in Mechanics. (3)
Prerequisite: 515L or permission of instructor. 2 lectures, 3 hrs. lab. <Offered upon demand>

*605. Convexion. (3)
Prerequisites: 501, 503. <Offered upon demand>

*606. Kinetic Theory and Statistical Mechanics. (3)
Prerequisites: 506, Math 345. <Offered upon demand>

*607. Hypersonic Flow of Ideal Gases. (3)
Prerequisites: 503, 509 or permission of instructor. <Offered upon demand>

*608. Hypersonic Flow of Real Gases. (3)
Prerequisites: 503, 506, 509 or permission of instructor. <Offered upon demand>

*624. Nonlinear Theory of Elasticity. (3)
Prerequisite: 541. <Offered upon demand>

*671. Mechanics of Inelastic Continuum. (3)
Prerequisite: 516 or 503 or equivalent. <Offered upon demand>

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ENGINEERING, NUCLEAR


*420. Fundamentals of Nuclear Engineering. (3) Everett, Posey
Radioactivity, nuclear reactions and cross-sections, conservation laws, elementary particles and particle distributions, neutron physics, and electromagnetic radiation. Recommended prerequisites: Physics 330, Math 316. <Fall>

†† May be repeated once for credit.
**423L. Radiation Measurements and Analysis.** (1-3) Long, Whan
The detection and analysis of charged particles, neutrons, and electromagnetic radiation.
Experiments to demonstrate the properties of radiation: radioactive decay, cross-sections,
detection, counting, statistics, energy distributions, scattering, absorption, activation and
safety monitoring. Prerequisites: 430 or Physcs 330. 1 lecture, 6 hrs. lab. <Spring>

**430. Introduction to Nuclear Engineering.** (3)
Principally for non-nuclear engineering majors. The nucleus and nuclear properties; fission
process and chain reaction; survey of design and operation of reactors and associated
equipment; effects, uses, and detection of radiation. <Fall, Spring>

**461. Power Reactor Technology.** (3)
An introduction to nuclear power technology with emphasis on reactor heat generation
and removal and the nuclear fuel cycle of both thermal- and fast-neutron power reactors.
Prerequisites: 430, ME 320 or equivalent. <Spring>

**465. Nuclear Power Systems.** (3)
Seminar on nuclear power systems with emphasis on independent study; safety analysis
reports for light water, gas-cooled and liquid metal fast breeder reactors; environmental
impact statements; student selected topics. Prerequisite: 430 or equivalent. <Summer>

**466. Nuclear Environmental Safety Analysis.** (3)
Radiation protection and safety; contributors to radiation environment; environmental
monitoring; radioactive waste handling and disposal; guidelines, standards, and regulations;
and the environmental impact statement. Prerequisite: 430 or equivalent. <Spring>

**470. Materials for Energy Production.** (3)
(Also offered as ChE 470.) Fundamentals of materials selection and development for
energy production in chemical, nuclear, geothermal, and solar systems. Recommended
prerequisite: ChE 370 or equivalent. <Offered upon demand>

**476. Reactor Fuel Processing.** (3)
Fuel cycles in nuclear reactors; production of reactor fuels; processing of spent fuels
by precipitation, solvent extraction, etc.; and separation of isotopes. Prerequisite: 430
or equivalent. <Offered upon demand>

**480. Introduction to Controlled Fusion.** (3) Everett
Basic theory of plasmas: orbit theory, magnetohydrodynamics and transport phenomena.
Science and technology of controlled fusion systems; conditions for thermonuclear re-
actions, formation and heating, containment, and characteristics of existing fusion systems.
<Spring>

**485. Controlled Thermonuclear Reactor Technology.** (3)
Introduction to controlled thermonuclear reactor (CTR) technology. (1) Systems: character-
istics of proposed CTR systems; (2) system design; materials, scaling laws, plant cycle,
economics, safety, shielding, blanket, magnets; (3) operation: startup, operating mode,
burnup, tritium cycle, control. Prerequisite: 420 or equivalent. <Fall>

491. Undergraduate Problems. (1-3) <Summer, Fall, Spring>

*510-511. Nuclear Reactor Theory I & II.** (3, 3) Knief, Cronenberg
Pre- or corequisites: 420, Math 312. <510-Fall, 511-Spring>

*513-514L. Nuclear Engineering Laboratory I & II.** (1-3, 1-3)
Prerequisites: 423L, 510, 511. 1 lecture, 6 hrs. lab. <513L-Fall, 514L offered upon demand>

*515. Seminar.** (1-3)
<Offered upon demand>

*520. Interaction of Radiation and Matter.** (3)
Prerequisites: 420, Math 312. <Offered upon demand>

*551-552. Problems.** (1-3 hrs. each semester)

*560. Reactor Kinetics and Control.** (3) Long
Prerequisites: 511 or 430 and permission of instructor; recommended: EECS 446
<Offered upon demand>

*570. Materials for Nuclear Applications.** (3)
Recommended prerequisite: 470 or equivalent. <Fall>

*580. Plasma Science and Technology.** (3) Everett
<Offered upon demand>

*599. Master's Thesis.** (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.
*610. Advanced Reactor Theory. (3)
Prerequisite: 511. <Offered upon demand>

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ENGINEERING TECHNOLOGY

The following courses are part of the College of Engineering’s program in Medical Engineering Technology.

150. Introduction to Medical Engineering Technology. (2)
Introduction to the use of specialized electronic equipment employed in clinical medicine; study of electrically sensitive patient and hospital electrical safety. Prerequisite: permission of instructor. <Fall>

151. Fundamentals of Electrical Circuits. (4)
Introduction to basic electrical circuit parameters and circuits; methods of dc and ac circuit analysis. Designed for students in Medical Engineering Technology and others who do not intend to study engineering circuit analysis extensively. Prerequisite: Math 121 and 180, or permission of instructor. <Spring>

152L. Electrical Circuits Laboratory. (2)
For students in Medical Engineering Technology. Corequisite: 151. <Spring>

251. Electronics.
Basic course in electronic circuits including power supplies, amplifiers, oscillators, servo circuits, digital circuits, and measurements. Designed for students in Medical Engineering Technology and others who do not intend to study theoretical engineering electronics. Prerequisites: 151, or permission of the instructor. <Fall>

252L. Electronics Laboratory. (2)
Laboratory course for students in Medical Engineering Technology. Corequisite: 251. <Fall>

253. Medical Instrumentation. (4)
Basic theory and operation of electrical and electronic equipment used in clinical medicine. For students in Medical Engineering Technology. Prerequisites: 251, or permission of the instructor. <Spring>

254L. Medical Instrumentation Laboratory. (2)
Laboratory course for students in Medical Engineering Technology. Corequisite: 253. <Spring>

The following courses are offered in cooperation with the Albuquerque Technical-Vocational Institute as part of the TV-I program in Civil Technology.

§170L. Materials Testing Laboratory. (3)
Basic testing methods for aggregates, soils, concrete, bituminous materials, wood, steel, aluminum, and other construction materials. Prerequisite: permission of instructor. 2 lectures, 4 hrs. lab. <Offered upon demand>

§181L. Beginning Plane Surveying. (3)
Theory and practice in the use of surveying equipment and computational techniques needed in elementary leveling, transversing, mapping, and construction layout. Prerequisites: high school trigonometry or equivalent and permission of instructor. 2 lectures, 4 hrs. lab. <Offered upon demand>

§182L. Intermediate Plane Surveying. (3)
Field and office practice in construction surveys with emphasis on highway and route surveys. Prerequisite: 181L. 2 lectures, 4 hrs. lab. <Offered upon demand>

The following courses are offered only at Los Alamos through the undergraduate center in support of the Instrumentation Engineering Technology Program.

132L. Introduction to Engineering Technology. (3)
Role of engineering technician, codes, standards, ethics, job prospects. Tours and field trips.

133L. Measurements Laboratory. (5)
Principles and instruments for measuring length, mass, force, time, temperature, pressure, and flow.

§ No credit allowed in College of Engineering.
134L. Drawing Interpretation. (3)
Drawing techniques. Reading drawings. Symbology of electrical, hydraulic, pneumatic, welding, mechanical, and planning drawings.

135L. Basic Electricity. (4)
Electrical circuits, theory, basic components, and sources of power. Use of electrical test equipment.

142. Mechanics. (3)
Principles and applications of engineering mechanics. Corequisite: Math 150.

145L. Machine Skills. (4)

146L. Instrumentation with Applied Electronics. (5)
Power supplies, semi-conductors, transducers. Trouble shooting. Fabrication skills, Instrumentation selection. Prerequisites: 133L, 135L.

232. Heat. (3)
Principles and applications of thermodynamics. Corequisite: Math 151.

233L. Instrumentation with Applied Data Collection. (5)
Transducer application and selection. Data Recording. Prerequisite: 146L.

241L. Instrumentation with Applied Control Systems. (5)
Transducers, control systems, servo systems, signal transmission. Prerequisite: 233L.

244L. Fabrication and Materials. (3)
Properties and fabrication of metallic and plastic materials. Prerequisite: 145L.

ENGLISH


ENGLISH MAJOR

An English major consists of 33 hours above the 199 level. Of these no more than 9 hours may be at the 200 level. (The limit will be 12, however, if 3 hours are selected from 294, 295, or 296.) At least 9 hours must be at the 400 level. Every major will take 250 and will take two courses from the following: 351, 352 or 353, 354. A student may take both Shakespeare courses (352 and 353), but if so he must also take either Chaucer (351) or Milton (354). Every major is strongly urged to take 490. The major, with the help of his adviser, should select a reasonable distribution of courses.

Students in the College of Arts and Sciences who plan to complete an English major and teach English in secondary schools should read carefully the advice on "Certification to Teach in High School" pp. 79-80 of this catalog.

DEPARTMENTAL HONORS

Students interested in registering for Honors in English should go to the Undergraduate Studies Office for details during their junior year.

CREATIVE WRITING MAJOR

The Creative Writing major in English requires a total of 33 hours: 27 hours in English and 6 hours in other creative areas (normally art, music, architecture, theatre arts, journalism, etc.). Of this total no more than 12 may be at the 200
level. In English every major must take 250, 6 hours in literature at the 300 level or above, and 15 hours in creative writing courses, including at least three at the 200 level. In the senior year a thesis for 3 hours of credit is also required. Students will be admitted to the Creative Writing major only after a review of a sampling of their work by a departmental committee.

MINOR STUDY
An English minor requires 18 hours in English courses numbered above 103. At least 6 of these hours must be taken in courses numbered above 301.

DISTRIBUTED MINOR
An English major may offer an American Studies minor as well as a minor in a single department. For requirements see "American Studies."

PREREQUISITES
A student must have credit for English 101 or its equivalent before registering for 102, 220, 221, or 222, and credit for English 102 before registering for a course numbered 250-300.

At least one course in literature numbered 250-300 is further required for admission to a literature course numbered 351 or above. An English major should meet this last prerequisite with English 250.

COURSES FOR COLLEGE GROUP REQUIREMENTS
English 270 and 280 are recommended for students who wish to satisfy college group requirements at the lower division level. English 300 is recommended for students who seek upper division credits for college group requirements. For Arts and Sciences group requirements the following courses are accepted under Communications: 102, 220, 221, 222, 292, 303, 320, 321, 322, 421, 422, 440, 441, and 445. All other courses are accepted under Humanities.

Undergraduate Courses

101. Writing with Readings in Exposition. (3) Expository writing and reading. <Summer, Fall, Spring>

102. Writing with Readings in Literature. (3) Analytic writing and reading. Prerequisite: 101 or its equivalent. <Summer, Fall, Spring>

103. Fundamentals of English as a Second Language. (3) Course in speaking, writing, and understanding English, designed for students to whom English is a second language. Engl 103 precedes, and is not a substitute for Engl 101. <Fall, Spring>

210. Introduction to the Film. (3) (See Film 210.)

220. Expository Writing. (3) An intermediate course with emphasis on rhetorical types, structure, and style. Prerequisite: 101 or its equivalent. <Fall, Spring>

221. Creative Writing: Prose Fiction. (3) Prerequisite: 101 or its equivalent. <Fall, Spring>

222. Creative Writing: Poetry. (3) Prerequisite: 101 or its equivalent. <Fall, Spring>

250. The Study of Literature. (3) Required of all English majors. General introduction to the study of literature, emphasizing problems of literary style, form, content, and genre. Papers will be submitted regularly. Prerequisite: 102 or its equivalent. <Fall, Spring>

270. Introduction to Literary Types: Novel, Poetry, Drama, or Other. (3) Each section of this course will focus on one literary type. Titles of individual sections will vary as content varies. Prerequisite: 102 or its equivalent. <Fall, Spring>
280. Readings in Literature. (3)
Primarily for non-majors. Reading will be organized around themes, ethnic studies, or regional studies. Titles of individual sections will vary as content varies. Prerequisite: 102 or its equivalent. <Fall, Spring>

285. American Life and Thought. (3)
(See Am St 285.)

292. Introduction to the Study of Language. (3-4)
(See Ling 292.)

294. Survey of Earlier English Literature. (3)
From Old English to 1700. Study of the principal literary and intellectual movements, and selected writers and literary works from Beowulf through Dryden. Especially recommended for English majors. <Fall>

295. Survey of Later English Literature. (3)
From 1700 to present. Study of principal literary and intellectual movements, and selected writers and literary works. Especially recommended for English majors. <Spring>

296. American Literature. (3)
A general survey to the present. Especially recommended for English majors. <Fall, Spring>

300. Studies in Literature. (3)
Literary works selected by theme or idea, genre or subgenre, or period. Titles of individual sections will vary as content varies. Prerequisite: 102 or its equivalent. <Fall, Spring>

301-302. Interdepartmental Studies in the Culture of the U.S. (3, 3)
(See Am St 301-302.)

*303. Phonetics. (3)
(See Sp Com 303.)

320. Technical Writing. (3)
Practice in the writing and editing of technical, engineering, and scientific reports and articles. Prerequisite: 220 or permission of instructor. <Offered upon demand>

321. Creative Writing: Short Fiction, Novel. (3)
Intermediate course with generally equal emphasis on writing and reading. Prerequisite: 221 or permission of instructor.

322. Creative Writing: Reading and Writing of Poetry. (3)
Intermediate course with generally equal emphasis on writing and reading. Prerequisite: 222 or permission of instructor.

*334. Spanish American Literature in Translation. (3)
(See Span 334.)

*335. French Literature in Translation. (3)
(See French 335.)

*336. German Literature in Translation. (3)
(See German 336.)

*337. Spanish Literature in Translation. (3)
(See Span 337.)

*338. Russian Literature in Translation. (3)
(See Russ 338.)

*341. Greek Mythology. (3)
(See Greek 341.)

*344. Topics in Latin Literature in Translation. (3) Mellon, Smith
(See Latin 344.)

*345. Topics in Greek Literature in Translation. (3) Mellon, Smith
(See Greek 345.)

347. Introduction to Rhetorical Criticism. (3)
(See Sp Com 347.)

351. Chaucer. (3)
<Fall, Spring>

352. Shakespeare: Histories and Comedies. (3)
<Fall, Spring>

‡‡ May be repeated once for credit.
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<td>421</td>
<td>Creative Writing: Workshop in Prose Fiction</td>
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<td>Prerequisites: 221, 321, or permission of instructor</td>
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<td>422</td>
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<td>436</td>
<td>The Teaching of English</td>
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<td>440</td>
<td>Introduction to Linguistics</td>
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<td>441</td>
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<td>461</td>
<td>American Romanticism</td>
<td>3</td>
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<td>Fall, Spring</td>
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</table>

†† May be repeated once for credit.
462. American Realism. (3)
Titles of individual sections will vary as content varies. <Fall, Spring>

463. Modern American Literature. (3)
Titles of individual sections will vary as content varies. <Fall, Spring>

*464. American Humor. (3)
American humorists from 1830 to present. <Spring>

470. Contemporary Literature. (3)
Contemporary literature not confined to any one country or language, the study to be organized by genre, theme, or idea, or any other principle that affords special insights. Titles of individual sections will vary as content varies. <Fall, Spring>

*475. Dante in Translation. (3)
(See Italian 475.)

*480. Philosophy and Literature. (3)
(See Eng-Ph 480.)

*481. The Folktale in English. (3)
Tradition of folk motifs and themes in development of the tale as a form of storytelling in English and American literature. <Fall>

485. Prose Fiction before 1800. (3)
Reading of major works of prose fiction written before 1800. Investigation of ways in which novel achieved generic form and the development of certain techniques. <Fall>

486. Prose Fiction of the Nineteenth Century. (3)
Reading of major works of prose fiction written since 1800. Emphasis will be upon the emergence of modern novel, refinement of techniques, central ideas. <Spring>

487. Studies in Genre: Comedy, Epic, Satire, Tragedy, etc. (3)
Study of best or of typical examples of any one genre. Structure and emphasis will vary. Titles of individual sections will vary as content varies. <Fall, Spring>

*488. Special Topics. [Interdisciplinary Studies] (3)

490. Senior Colloquium. (3)
Course for majors. Examination of most important ideas about literature encountered by student in previous studies. Emphasis on bringing together critical techniques and ideas, and applying them to literary problems. <Fall>

497. Individual Study. (1-3 hrs. per semester to maximum of 6)
Permission of the instructor is required before registering. The student should present a plan of study to the instructor.

*499. Rhetorical Theory. (3)
(See Sp Com 499.)

Graduate Courses

*500. Introduction to the Professional Study of English. (3)
Required in first year of all graduate students who do not offer an equivalent. <Fall>

*501. Interdepartmental Seminar in the Culture of the United States. (3)
(See Am St 501.)

*510. Criticism. (3)
<Fall>

*513. The Middle Ages. (3)
<Fall>

*521. Creative Writing—Prose Fiction. (3)
Prerequisites: 421 or permission of instructor.

*522. Creative Writing—Poetry. (3)
Prerequisites: 422 or permission of instructor.

*523. The Renaissance. (3)
<Fall, Spring>

*527. Studies in Rhetoric for Teachers. (3)
(Also offered as Sec Ed 527.) <Fall>

*528. Studies in Reading and Literature for Teachers. (3)
(Also offered as Sec Ed 528.) <Spring>

*533. The Seventeenth Century. (3)
<Fall>

†† May be repeated once for credit.
*537. Teaching Composition. (2) <Fall>
*538. Teaching Introductory Literature. (2) <Fall>
*543. The Eighteenth Century. (3)†‡ <Spring>
*551. Problems for the Master's Degree. (1-3 hrs. per semester) <Fall, Spring>
*553. The Nineteenth Century. (3)†‡ <Fall, Spring>
*555. Seminar in Linguistics and Language Pedagogy. (1-3) (See Ling 555.)
*560. American Literature. (3)†‡ <Fall, Spring>
*563. The Twentieth Century. (3)†‡ <Spring>
*573. Language. (3) <Fall>
*575. Problems and Methods of Literary Study. (3) <Spring>
*580. Special Topics: History of Ideas, Literary Movements, etc. (3)† <Fall>
*587. Genre: Comedy, Epic, Satire, Tragedy, etc. (3)†
*590. Colloquium. (4)† <Fall, Spring>
*599. Master's Thesis. (1-6 hrs. per semester)
   See the Graduate School Bulletin for total credit requirements.
*600. Studies in American Literature. (4)†
*610. Studies in Criticism. (4)†
*620. Studies in British Literature. (4)†
*630. Studies in Language. (4)
*640. Special Studies: Types, Backgrounds, Forces. (4)†
*651. Problems for the Doctor's Degree. (1-3 hrs. per semester) <Fall, Spring>
*652. Independent Study. (1-3 hrs. per semester for maximum of two consecutive semesters) <Fall, Spring>
*699. Dissertation. (1-9 hrs. per semester)
   See the Graduate School Bulletin for total credit requirements.

ENGLISH-PHILOSOPHY

The combined major in English and Philosophy is an interdepartmental major administered jointly by the two Departments. Students interested in this program should consult Professor David Johnson, who is the adviser for all students in the program.

The purpose of the interdepartmental major is to develop an understanding of the history of ideas, ideals, and values; their expression in literature and philosophy; and the relation of these fields. The major will serve the interests of general education, and will also be useful to many preprofessional students.

MAJOR STUDY

Students completing the English-Philosophy major are not required to have a minor. It is recommended that courses in literature and philosophy in related periods be taken concurrently where possible.

†‡ May be repeated once for credit.
The minimum requirement is 45 hours, including:
1) 18 hours in English courses, 12 of which are to be numbered 300 or above.
2) 18 hours in Philosophy courses, 12 of which are to be numbered 300 or above.
3) 6 hours additional of English or Philosophy numbered 300 or above.
4) English-Philosophy 480.

MINOR STUDY
Not offered.

*480. Philosophy and Literature. (3) English and Philosophy Staffs
(Also offered as Phil 480.) Selected philosophical movements and their relationship to
literary masterpieces. Prerequisites: 6 hours of literature and 3 hours of Philosophy from
the courses specified as requirements for the program.

FINE ARTS
(See also Architecture, Art, Music, Theatre Arts)

151. Artistic Traditions of the Southwest. (3)
Pre-Columbian, American Indian, Spanish colonial, territorial and modern traditions in
architecture, art, dance, music and theatre. <Fall>

490. Interdepartmental Proseminar. (3):‡
Open to juniors and seniors with the requisite grade-point average. See p. 158 for specific
requirements. <Fall>

FRENCH
See Modern and Classical Languages.

GENERAL STUDIES

PROFESSOR John L. Howarth (Physics), Director; Jean Hedberg, Counsellor-Lecturer (part-time).

General Studies courses are offered in the General Honors and Undergraduate Seminar programs, which are described on pp. 61-64.

Credit in these courses can normally be counted towards general graduation requirements in undergraduate degree-granting colleges and, in some instances, towards Group Requirements of the College of Arts and Sciences. For information on such applicability the student should apply to the office of the dean of the appropriate college.

THE GENERAL HONORS PROGRAM

With the exception of courses 111-112, which are open to all freshmen, and 211-212, which are open to all sophomores, these courses are normally restricted to students enrolled in the General Honors Program.

Explanation of footnotes not indicated will be found on p. 210.

111-112. Freshman General Studies Seminar. (3, 3)
Broad, general reading and class discussion for freshmen with senior General Honors
students acting as instructors and discussion leaders under faculty direction. <Fall, Spring>

211-212. Sophomore General Studies Seminar. (3, 3)
Broad, general reading and class discussion for sophomores with senior General Honors
students acting as instructors and discussion leaders under faculty direction. <Fall, Spring>

299. Individual Study. (1-3)‡‡
‡‡ May be repeated for credit with permission of program director.
301-302. Honors Seminar. (3, 3)†
Selected seminar topics of an educationally broadening and generally interdisciplinary nature by staff of various departments. Instructors and topics will vary from section to section and from semester to semester. <Fall, Spring>

399. Individual Study. (1-3)††

403-404. Senior Honors Colloquium. (3, 3)††
Educationally broadening seminars of various kinds specially designed to meet the needs of senior students in the program. Specific course offerings are determined in discussion with seniors during previous semester. <Fall, Spring>

THE UNDERGRADUATE SEMINAR PROGRAM
Topics and instructors vary from section to section and from semester to semester. Open to all full-time undergraduate students. No prerequisites. Enrollment limited to 15 students per class. Grading on A, Cr/NC system. See p. 53.

331-332. Seminars in the General Area of the Humanities. (1, 1)‡
Various sections, various topics each semester.

333-334. Seminars in the General Area of the Sciences. (1, 1)‡
Various sections, various topics each semester.

335-336. Seminars in the General Area of the Social Sciences. (1, 1)‡
Various sections, various topics each semester.

337-338. Interdisciplinary Seminars. (1, 1)‡
Various sections, various topics each semester.

GEOGRAPHY
PROFESSORS R. E. Murphy, Ph.D. (Chairman); I. Bennett, Ph.D.; R. D. Campbell, Ph.D.; R. E. Sneed, Ph.D.; ASSOCIATE PROFESSORS E. M. Barrett, Ph.D.; S. A. Morain, Ph.D.; ASSISTANT PROFESSORS D. H. Gordon, M.A., and W. N. Redfield, M.A.

Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY
A total of 36 hours in Geography, plus Geology 101. In addition to Geog 101, 102, and 380L, the major must include courses from the following groups as indicated:

Physical Geography—6 hours to consist of 351 and 481.
Human Geography—9 hours selected from: 263, 365, 381, 475.
Regional Geography—3 hours selected from courses numbered 301 to 336.

The rest of the courses for the major may be selected from any of the departmental offerings. One of these courses may be chosen, upon approval by the Chairman of the department, from a related field of study. For those students who wish to emphasize particular aspects of Geography, the following Geography courses and related minors are recommended:

Climatology:
Recommended courses in Geography:
261, 303, 352, 353, 361, 373, 405, 462, 471, 483, 491.
Recommended distributed minor to include:
Math 162, 163, 345, 346; Physcs 103, 160-161, 163L.

†† May be repeated for credit with permission of program director.
Environmental Systems:
Recommended courses in Geography:
261, 361, 373, 405, 471, 472.
Recommended distributed minor:
Anth 361; Arch 101; B&AS 306; Econ 200, 201, one other 3 hour course; Math 162, 163; Phil 356-7; Soc 101.

Geomorphology:
Recommended courses in Geography:
373, 405, 483.
Recommended minor in Geology to include:
102, 105L, 106L, 455L, 462L, 482L.

Mathematical Geography:
Recommended courses in Geography:
261, 263, 361, 373, 405, 462.
Recommended distributed minor to include:
Math 102, 121, 122, 331-332.

Political Geography:
Recommended courses in Geography:
263, 333, 381, 475, 476.
Recommended distributed minor:
Econ 200, 201, 424; Hist 101-102, 303, 336; Pol Sc 240, 351, 442.

Urban Geography:
Recommended courses in Geography:
365, 405, 471, 472.
Recommended distributed minor:
Anth 361; Arch 161, 181, 465; Econ 200, 201, 466; Hist 338; Pub Ad 421, 423; Soc 101, 351.

MINOR STUDY
Geog 101, 102, and 15 additional hours including one of the following:
263, 351, 381.

GROUP REQUIREMENTS
Geog 479 and 481 are accepted as non-laboratory sciences in fulfillment of the Science (Group V) requirement of the College of Arts and Sciences; all other Geography courses except 380L are accepted toward fulfillment of the Social Science (Group IV) requirement in that College.

I. INTRODUCTORY COURSES
101. General Geography. (3)
World geography; physical elements. An introduction to the use of maps and globes and to a systematic analysis of world climates, vegetation, soils, and landforms, their distribution, interrelation, and significance to man. <Summer, Fall, Spring>

102. General Geography. (3)
World geography; human elements. An introduction to human geography comprising a systematic analysis of world population, demographic factors, ethnic groups, predominant economies, and political units, their distribution, interrelation, and their interaction with the physical earth. <Summer, Fall, Spring>

105L. Physical Geography Laboratory. (1) Staff
Laboratory exercises in map construction and map reading, weather and climatic analysis, classification of vegetative and soil associations, and the identification of landforms. Corequisite: 101, 2 hrs. lab. <Fall, Spring>
261. Spatial Organization. (3) Redfield
Examination of time-space frameworks for looking at the world; strategies used to solve problems which distributions of people and their activities create within ecosystems; causal relationships between spatial structure and spatial process. <Spring>

263. Economic Resources. (3) Gordon
A systematic survey of world economic geography with emphasis on the resources of arable land, energy sources, and basic minerals and on the primary crop and manufacturing region. <Fall>

II. REGIONAL COURSES
Each of the following regional courses involves a description, analysis, and synthesis in spatial association of the physical and human attributes of particular parts of the earth. These attributes include climates, vegetation types, soils, landforms, population, demographic factors, ethnic groups, economic circumstances, and political arrangements. The synthesis of these physical and cultural phenomena is used as the basis for characterizing individual regions and subregions.

*301. South America. (3) Barrett
Regional geography of South America. <Fall>

*302. Middle America. (3) Barrett
Regional geography of Mexico, Central America, and the West Indies. <Spring>

*303. North America. (3) Bennett
Regional geography of the United States and Canada. <Spring>

*304. Southwestern United States. (3) Bennett
Regional geography of the southwestern United States. <Fall 1976 and alternate years>

*305. Southeast Asia. (3) Gordon
Regional geography of southeastern Asia including the area from Burma and North Viet Nam southeastward through Malaysia, Indonesia and the Philippines. <Offered upon demand>

*306. East Asia. (3) Gordon
Regional geography of China, Korea, and Japan. <Spring>

*307. Western Europe. (3) Murphy
Regional geography of Europe from the Atlantic eastward through Finland, Germany, Austria, and Italy. <Fall 1975 and alternate years>

*308. The Soviet Union and Eastern Europe. (3) Murphy
Regional geography of the U.S.S.R. and of eastern Europe from Poland southward through Czechoslovakia, Hungary and the Balkans. <Fall 1976 and alternate years>

*309. The Middle East. [The Middle East and the Indian Subcontinent.] (3) Snead
Regional geography of southwestern Asia from Turkey through Afghanistan and southward through the Suez and Arabia. <Spring 1977 and alternate years>

*310. The Indian Subcontinent. (3) Snead
Regional geography of south central Asia including India, Pakistan, Bangladesh, Nepal, Bhutan, and Ceylon. <Spring 1976 and alternate years>

III. UPPER-LEVEL SYSTEMATIC COURSES, PROBLEMS, AND SEMINARS

*351. Systematic Climatology. (3) Bennett
An analysis of factors affecting climatic variations and types, particularly solar and terrestrial radiation, temperature conditions, atmospheric pressure and wind patterns, and moisture and precipitation characteristics. Prerequisite: 101 or Physcs 103 or permission of the instructor. <Fall>

*352. Regional Climatology. (3) Bennett
The classification and world distribution of temperature regimes, air mass types, precipitation areas, and climatic regions. Prerequisite: 351 or 101 and permission of instructor. <Spring 1976 and alternate years>

*353. Microclimatology. (3) Bennett
The study of heat exchange, temperature, moisture, and wind in air close to the ground in local areas. Analysis of the roles of vegetation, landforms, soils, water bodies, and urban structures in producing small-scale variations in limited locales. <Spring 1977 and alternate years>
*356. Biogeography. (3) Morain
A review of major concepts and theories in historical biogeography including a discussion of the principles of population ecology and recent developments in numerical biogeography. Course work incorporates a broad outline of the regional patterns of plant and animal development. Prerequisite: 101 or Biol. 121L or permission of instructor. <Fall 1976 and alternate years>

*358. Soil Geography. (3) Morain
An introduction to the physical and chemical properties of soils and the role of soils in shaping civilization. Lectures and field excursions will focus on processes of soil genesis, morphology and description, aspects of soil fertility, and man’s impact on the soil resource. Prerequisite: 101. <Spring 1977 and alternate years>

*361. Quantitative Methods in Geography. (3) Redfield
Use of probability theory and descriptive statistics in geographic applications; models, and theories. Prerequisite: College algebra. <Fall>

*365. Urban Geography. (3) Redfield
Urbanization as a spatial process. Evolution of the city through time. Types of cities, internal and external spatial relationships of cities and city systems. <Fall>

*367. Transportation Geography. (3) Redfield
The impacts of transportation improvements, elementary transport economics, graph theory and network analysis, modelling spatial interaction, model split, allocation models, and optimal network design. <Spring 1976 and alternate years>

*373. Map Reading and Air Photo Interpretation. (3) Snead
Techniques of analysis of maps and aerial photographs for geographic study and research. Prerequisite: 101. <Fall 1975 and alternate years>

380L. Cartography. (3) Gordon
Map projection and use of maps to show areal distribution and graphic representation of statistical data. Prerequisite: permission of instructor. 2 lectures, 3 hrs. lab. <Fall>

*381. Political Geography. (3) Murphy
Study of political areas of the world from a spatial point of view, including problems of size, population, boundaries, location, productivity, ethnic grouping, and political power. <Spring>

*391. Arid Lands. (3) Bennett
Human adaptation as a function of limited resources. Individuals and societies in the world’s low and middle latitude dry lands. Problems and potentials of viable settlement in arid lands. <Spring 1976 and alternate years>

*395. Man and Nature in America. (3) Barrett
An examination of attitudes toward the natural environment: deserts, forests, mountains, wilderness—by various culture groups in North America, and some of the consequences of these attitudes in terms of resource use and settlement—the creation of landscapes such as farmland, city, park. <Offered upon demand>

*401. Geographic Writings and Analysis. (3) Gordon
Examination of the work of some principal geographers with emphasis on developments, trends and methodology. Limited to majors and minors in geography. <Offered upon demand>

*405. Field Methods. (3) Gordon
Training in field mapping and other field techniques used in geography, with particular emphasis on studies of land utilization, physiography, urban geography, and microclimatology. The Albuquerque vicinity is used as a case study area, and classes meet frequently in the field. <Spring>

**429. Workshop in the Principles of Physical Geography. (4) Murphy
Fundamental aspects of physical geography; its concepts, methods, and tools, and the technique of their application and utilization. Lecture, demonstration, and individual participation. <Offered upon demand>

**430. Workshop in the Principles of Human Geography. (4) Murphy
Fundamental aspects of human geography; its concepts, methods, and tools, and the technique of their application and utilization. Lecture, demonstration, and individual participation. <Offered upon demand>
Advanced Quantitative Methods in Geography. (3) Redfield
Non-stochastic mathematical techniques and spatial statistics for the analysis of locational structure. Prerequisite: 361 or permission of instructor. <Spring>

Location Theory. (3) Redfield
Spatial economic theory, including discussion of partial and general equilibrium approaches, location of the producer, land use theory, central place theory, spatial price equilibrium, linear programming, and input-output models. <Spring 1977 and alternate years>

Man-Environment Systems: Evaluation. (3) Campbell
Using a systems model to analyze man-environment interactions; investigation of small scale systems; techniques and methods of systems analysis applied to man-environment systems. <Offered upon demand>

Man-Environment Systems: Design. (3) Campbell
Man-environment system design and redesign; computer simulation of design alternatives and changes in human behavioral outputs. <Offered upon demand>

Systematic Psychological Geography. (3) Campbell
Geography of human behavior; defining and measuring behavioral outcomes of the man/environment interaction; principles of interaction; concepts of behavior regions. <Fall 1975 and alternate years>

Regional Psychological Geography. (3) Campbell
Geography of personality and national character; defining personality, national character, culture; the role of environment; personality and national character regions. <Spring 1976 and alternate years>

Seminar in International Studies. (3) Slavin
(Also offered as Econ, M&CL, Pol Sc, Soc 478.) Designed to provide seniors from any discipline an opportunity to apply an international perspective to their undergraduate training. Each student will present a term project drawing upon his particular background and relating it to international matters.

Environmental Conservation. (3) Dittmer
(See Biol 479.) Open to Geography majors and minors. <Summer, Spring>

Geomorphology. (3) Snead
(Also offered as Geol 481.) Origin, development, and classification of land forms, with detailed consideration of gradation processes. Open to Geography majors and minors who have completed Geol. 101. <Fall. Taught as Geol. 481 each alternate year>

Remote Sensing. (3) Morain
Techniques of Remote Sensing of environment using infrared, radar, microwave, and multispectral sensors. Prerequisite: 373 or Geology 455L. <Spring 1976 and alternate years>

Physical Geography of North America. (3) Snead
Detailed study of the development of the surface landforms and associated physical phenomena of North America with special emphasis on soils, vegetation, and Pleistocene climatic influences. Prerequisite: 481 or permission of instructor. <Spring 1977 and alternate years>

Problems. (1-3 hrs. each semester)
Supervised individual study and field work. <Summer, Fall, Spring>

Seminar in the History and Philosophy of Geography. (3) Campbell
<Fall>

Seminar in Physical Geography. (3) Bennett, Snead
<Fall>

Seminar in Human Geography. (3) Barrett, Campbell, Gordon, Murphy
<Fall, Spring>

Seminar in Regional Geography (3)‡
<Offered upon demand>

Problems. (2-3 hrs. each semester)

Seminar in Man-Environment Systems. (3) Campbell
<Spring 1976 and alternate years>

Seminar in Psychological Geography. (3) Campbell
<Spring 1977 and alternate years>

Master’s Thesis. (1-6 hrs. per semester)
For the degree of Bachelor of Arts: Geol 101, 105L, 301L, 302L, 307L, 319L, 411L or 441L, 401, 490, and 6 additional hours in geology courses numbered above 300; Chem 101L, 102L, Math 162, 163, and Physcs 160, 161.

A student may obtain a distributed minor with the above program of study upon completion of 8 hours of courses, 6 of which must be numbered above 200, in any one of the following departments: Anthropology, Biology, Chemistry, Geography, Mathematics, Physics, or any department in the College of Engineering.


Students wishing to specialize in related fields such as paleontology may make limited substitutions in their program with the prior approval of the department chairman.

Students completing the above program will have a distributed minor.

Prospective majors are encouraged to begin their lower division requirements in mathematics, chemistry, and physics as early as possible.

DEPARTMENTAL HONORS

Students seeking Honors in Geology should consult with the department chairman no later than two full semesters prior to graduation. Eligibility is not limited to students in the College of Arts and Sciences.

MINOR STUDY

Geol. 101, 105L, 301L, 302L or 307L, and 8 additional hours, no more than 4 of which may be taken at the 100-299 level. It should be noted that Chem 101L is pre- or corequisite for Geol. 301L, Chem 102L is pre- or corequisite for Geol. 302L, and Math 162 or instructor's permission is required for Geol. 307L. No more than 2 hours of Geol. 401 (Seminar) may be credited toward the minor.

MINOR STUDY IN PALEOECOLOGY

See p. 400.

101. Physical Geology. (3)
Materials composing the earth, and work of agencies, both external and internal, modifying its surface. <Summer, Fall, Spring>

102. Historical Geology. (3)
History of the earth; rise and succession of the various forms of life. Prerequisite: 101. <Summer, Fall, Spring>
103. Earth Resources and Man. (3) Brookins, Elston
Geologic occurrences of fuels and minerals and their influence on domestic and world affairs. Prerequisite: 101. <Spring>

104. Life on Earth. (3) Kues
Origin and evolution of life and some aspects of paleoecology. Prerequisite: 101. <Fall, Spring>

105L. Physical Geology Laboratory. (1)
Minerals, rocks, and topographic maps; occasional field trips. Corequisite: 101. 2 hrs. lab. <Summer, Fall, Spring>

106L. Historical Geology Laboratory. (1)
Fossils and paleogeographic maps; emphasis on the historical geology of New Mexico. Corequisite: 102. 2 hrs. lab. <Summer, Fall, Spring>

107L. Earth Resources and Man Laboratory. (1)
Ore specimens, exploration and utilization techniques; occasional field trips. Corequisite: 103. 2 hrs. lab. <Spring>

108L. Life on Earth Laboratory. (1)
Fossils and sedimentary rocks; field trips. Prerequisite: 105L; corequisite: 104. 2 hrs. lab. <Fall, Spring>

209. The Earth Environment. (3) Anderson, Kudo
(Also offered as Paleoe 209.) Studies of the atmosphere, the ocean, and the terrestrial environment as a total system, including environments of the past. Interrelationships of physical, biological, and human processes and resources. <Summer, Fall, Spring>

225. Oceanography. (3) Jiracek, Kudo
The ocean as a physical feature and a dynamic process. <Spring>

**301L. Mineralogy. (4) Ewing
Elementary crystallography; fundamentals of chemical and physical mineralogy; elements of mineral identification. Prerequisite: 105L; pre- or corequisite: Chem 101L. 2 lectures, 6 hrs. lab. <Fall>

**302L. Petrology. (4) Kudo
Classification, hand-specimen identification, occurrence, and origin of rocks. Prerequisite: 301L; pre- or corequisite: Chem 102L. 3 lectures, 3 hrs. lab. <Spring>

**307L. Structural Geology. (4) Callender, Woodward
Nature and origin of rock structures and deformations; map and stereographic problems. Prerequisites: 105L, Math 162 or permission of instructor. 3 lectures, 3 hrs. lab. <Fall>

**315L. Physical Geochemistry. (4) Landis
Thermodynamics and application to geologic systems; phase equilibria, phase rule, ideal and non-ideal solutions. Prerequisites: 302L, Chem 102L, Math 163. 3 lectures, 3 hrs. lab. <Fall, Spring>

**319L. Field Geology and Reports. (4)
Principles and techniques of field mapping; content and arrangement of reports; layout and preparation of illustrations. Prerequisites: 302L, 307L. 1 lecture and 1 full day in field each week. <Fall>

*401. Seminar. (1)†‡
Current topics in geology. Prerequisites: 302L, 307L. <Fall, Spring>

*410. Fundamentals of Geochemistry. (3) Brookins, Landis
Geochemistry of igneous, metamorphic, and sedimentary rocks. Geochemical methodology. Prerequisite: 302L. 3 lectures. <Fall, Spring>

*411L. Invertebrate Paleontology. (4) Kues
General principles and familiarization with diagnostic features of fossils. Introduction to environmental implications. Prerequisite: 8 hrs. of Geol or Biol. 2 lectures, 6 hrs. lab. <Spring>

*412L. Index Fossils. (3) Kues
Recognition and utilization of appropriate fossils in geochronology and paleogeography. Prerequisite: 319L or permission of instructor. 8 hrs. lab. <Spring>

*420L. Advanced Field Geology. (4) Callender
Geological mapping; special field problems. Prerequisite: 319L. 1 full day in field each week plus 1 hr. lecture during week. <Spring>

*421L. Optical Mineralogy. (4) Fitzsimmons
Optical properties and microscopic determination of nonopaque minerals. Prerequisite: 301L or equivalent. 2 lectures, 6 hrs. lab. <Fall>
*422L. Petrography. (2) Fitzsimmons
Study of rocks by means of the petrographic microscope, stressing mineral content, textural relations, and classification of rocks. Prerequisite: 421L; pre- or corequisite: 302L. 6 hrs. lab. <Spring>

*426L. Exploration Geophysics. (4) Jiracek
Principles and applications of gravity, magnetic, seismic, electrical, and electromagnetic methods in subsurface exploration. Field investigations and interpretations. Prerequisites: 101, Math 163, Physcs 161. 3 lectures, 3 hrs. lab. <Fall>

*427. Solid Earth Geophysics. (3) Jiracek
Structure, constitution, and deformation of earth as determined by gravity, magnetics, seismology, heat flow, and earth currents. Related aspects of plate tectonics. Prerequisites: 307L; Math 163, Physcs 161. <Spring>

*429L. Paleontological Techniques. (3) Kues
Laboratory methods for the preparation of fossils for study and illustration. Prerequisite: 411L or equivalent. 6 hrs. lab. and field trips. <Fall>

*431L. Palynology-Micropaleontology. (4) Anderson
Studies of the morphology, methods of identification, ecology and applications of pollen, spores, nannofossils, foraminifera and other microfossils. Prerequisite: 105L, some biology strongly recommended. 6 hrs. lab. <Fall>

*441L. Stratigraphy and Sedimentology. (4)
Origin, dispersion, deposition, diagenesis, classification, and general distribution of sedimentary materials; principles of physical stratigraphy and biostratigraphy. Prerequisite: 302L. 3 lectures, 3 hrs. lab. <Fall>

*442. Petroleum Geology. (3) Wengerd
Injuctive approach to the principles of oil origin, migration, and accumulation. Characteristics of oil and gas reservoirs; techniques of petroleum exploration. Prerequisite: 441L or permission of instructor. <Spring>

*450. Geology of New Mexico. (3) Callender, Kudo, Woodward
Description of geologic features including structures, landforms, and mineral resources of New Mexico. For earth science teachers at high schools and junior high schools. Prerequisite: 101. <Summer>

*455L. Air Photogrammetry and Photogeology. (3) Wengerd
Photogrammetric computations; stereoscopy; preparation of planimetric, topographic, and photogeologic maps. Prerequisites: 105L, Math 162, or permission of instructor. 1 lecture, 6 hrs. lab. <Fall>

*462. Hydrogeology. (3) Trauger
Occurrence of ground water with emphasis on water quality, terminology, and hydrologic properties of rocks. Prerequisites: 105L, senior standing, and permission of instructor. 3 lectures. <Fall>

*465. Lunar and Planetary Geology. (3) Elston
Geology of the moon and planets as deduced from visual and geophysical observations, space probe data, laboratory experiments, meteorites, tektites, and terrestrial analogs of lunar and planetary features. Prerequisite: 101 or 102, or permission of instructor. Graduate geology majors must take 466L concurrently in order to obtain graduate credit for 465.

*466L. Lunar and Planetary Geology Lab. (1) Elston
Geologic interpretation of lunar and planetary photographs from terrestrial and space-probe sources, study of USGS lunar geologic maps, petrographic examination of meteorites, tektites, and terrestrial rocks subjected to shock metamorphism. Must be taken concurrently with 465. Prerequisites: 307L, 422L. 3 hrs. lab.

*471L. Mineral Deposits. (4) Elston, Landis
Origin, classification, occurrence, and exploration of mineral deposits. Prerequisites: 302L, 307L. 3 lectures, 3 hrs. lab. <Fall>

*472. Quantitative Hydrogeology. (2) Hale
Handling of quantitative hydrologic data needed for analysis of ground-water systems under induced stress. Prerequisite: 462. 2 lectures. <Spring>

*481. Geomorphology. (3) Wengerd
(Also offered as Geog 481.) Origin, development, and classification of land forms, with detailed consideration of gradation processes. Prerequisites: 105L and permission of instructor. <Fall 1975 and alternate years>
*482L. Geomorphology of the United States. (3) Fitzsimmons
Detailed study of the physiographic provinces and sections of the United States; emphasis on Western United States. Prerequisite: 481 or permission of instructor. <Fall>

*487L. Advanced Mineralogy. [Morphological Crystallography] (4) Ewing
Crystallographic principles; structure, chemistry, physical properties, and paragenesis of rock-forming minerals; determinative mineralogy by hand specimen, optical, and x-ray methods. Prerequisites: 301L, Chem 102L. 2 lectures, 6 hrs. lab. <Spring 1976 and alternate years>

*490. Geologic Presentation. (1) Ewing
Student reviews of geologic literature and critique. Prerequisite: senior standing. <Fall, Spring>

491-492. Problems. (2, 2)

493. Independent Study. (3) Staff
Independent study for departmental honors. Prerequisite: candidacy for Honors in Geology. <Offered upon demand>

495. Senior Thesis. (3)†
Prerequisite: candidacy for Honors in Geology. <Offered upon demand>

*501. Sedimentary Geochemistry. (3) Brookins
Pre- or corequisite: 302L. 3 lectures. <Fall 1976 and alternate years>

*502L. High-temperature Geochemistry. (3) Kudo
Pre- or corequisites: 302L or 422L, Chem 311-312 or Geol 315L. 2 lectures, 3 hrs. lab. <Spring 1976 and alternate years>

*504. Geochronology. (3) Brookins
Prerequisite: 302L; 315L recommended. <Fall 1975 and alternate years>

*505L. Stable Isotope Geochemistry. [Geochronology II] (3) Landis
Prerequisite: consent of instructor. <Spring 1976 and alternate years>

*506L. Structure Analysis by X-ray Crystallography. [X-ray Crystallography] (4) Ewing
(Also offered as Chem 523L) Prerequisites: Math 264 and permission of instructor. 2 lectures, 6 hrs. lab. <Spring 1977 and alternate years>

*510. Advanced Mineral Deposits. (3) Elston
Prerequisite: 471L. <Spring 1977 and alternate years>

*512L. Petrography of Opaque Ores. (3) Keil
Prerequisites: 421L, 471L. 1 lecture, 6 hrs. lab. <Spring 1976 and alternate years>

*513L. Meteoritics and Cosmochemistry. (3) Keil
Prerequisite: 422L or permission of instructor. 2 lectures, 3 hrs. lab. <Spring 1977 and alternate years>

*517L. Instrumental Methods in Geochemistry. (2-4)†† Keil, Landis
Prerequisite: permission of instructor. 1 or 2 lectures, 3 or 6 hrs. lab. <Spring>

*518L. Microprobe Analysis. (3) Keil
Prerequisite: permission of instructor. 2 lectures, 3 hrs. lab. <Fall>

*519L. Selected Topics in Geochemistry. (2-4)† Staff
Prerequisite: permission of instructor. <Spring>

*520. Selected Topics in Geobiology. (3)†† Kues
Prerequisite: permission of instructor. <Spring>

*521L. Metamorphism. (4) Callender
Prerequisite: 315L, 422L. 2 lectures, 3 hrs. lab. <Spring 1976 and alternate years>

*525L. Comparative Tectonics. (3) Callender, Woodward
Prerequisite: 307L. 2 lectures, 3 hrs. lab. <Fall>

*527L. Advanced Structural Geology. (3) Callender, Woodward
Prerequisites: 307L and either 426L or 427. 2 lectures, 3 hrs. lab. <Spring 1977 and alternate years>

*528. Regional Tectonics. (3) Callender, Woodward
Spring 1976 and alternate years>

*531L. Igneous Petrology. (4) Kudo
Prerequisites: 421L and 422L or 302L. 3 lectures, 3 hrs. lab. <Fall>

*537L. Stratigraphic Analysis. (3) Wengard
Prerequisites: 307L, 441L. 2 lectures, 3 hrs. lab. <Fall 1975 and alternate years>
*539. Environmental Reconstruction. (3) Anderson  
(Also offered as Paleoe 539.) Prerequisite: permission of instructor. <Spring>

*542L. Subsurface Geology. (3) Wengerd  
Pre- or corequisite: 442 or 462L. 1 lecture, 6 hrs. lab. <Offered upon demand>

*544L. Sedimentary Petrology. (4)  
Prerequisite: 422L. 2 lectures, 6 hrs. lab. <Spring 1977 and alternate years>

*547-548. Seminar. (2, 2)  

*551-552. Problems. (2-3 hrs. each semester)  

*599. Master’s Thesis. (1-6 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

*699. Dissertation. (1-9 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

GERMAN  
See Modern and Classical Languages.

GREEK  
See Modern and Classical Languages.

GUIDANCE  
See Education, Guidance and Special Education.

HEALTH, PHYSICAL EDUCATION, AND RECREATION  
See Education, Health, Physical Education, and Recreation

HISTORY  

Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY  
The history program for majors, as outlined below, is designed to provide some of the cultural background necessary for intelligent and responsible living, and also to prepare students for such specific activities as careers in law, the civil and diplomatic services, and the teaching profession.

Requirements: Four lower-division courses which must include 101 and 102, and one of the following pairs: 161 and 162, 251 and 252, or 281 and 282. Eight 300- or 400-level courses, which must include 309 and a minimum of two courses each from three of the following areas: European, United States, Hispanic-American, Far Eastern history.

MINOR STUDY  
The planned program outlined below is designed to supplement a student’s work in his major field. The lower-division requirement includes a minimum of two semester courses to be selected from the following: Hist 101, 102, 161, 162, 251, 252, 281, 282. The upper-division requirement includes a minimum of five semester courses, at least three of which must be concentrated in Euro-
pean history, American history, Hispanic-American history, or Far Eastern history.

The prerequisites for certain courses may be waived with permission of instructor.

Hist 410, 411, 491 can be used as electives for undergraduate majors, but not as field requirements.

PERIOD MINOR

For requirements, see Comparative Literature.

DISTRIBUTED MINOR FOR HISTORY MAJORS

A major may offer a Distributive Minor in American Studies, Asian Studies, Comparative Literature, or Russian Studies, as well as a minor in a single department. Approval of the Chairperson of the History Department is required for all Distributive Minors.

DEPARTMENTAL HONORS

The Department of History has an Honors program which a student may enter with the recommendation of his departmental adviser after completing 80 hours. To complete the program, a student must take 9 hours in Honors courses. A student may offer this program in lieu of one of the required fields in history.


A topical approach to the various facets of human history and society from the origins of civilization in Sumer to the modern world; the lectures will cover all the periods and areas of history and involve the participation of the entire department; a perfect introduction to history and the history faculty.


101—Ancient times to 1648; 102—1648 to present. Each section of course will focus on a particular approach in history. <Summer, Fall, Spring>

161-162. History of the United States. (3, 3) Brewer, Dabney, Nash, Pugach, Rabinowitz, Smith, Szasz

Survey of the economic, political, intellectual, and social development of the United States, including the place of the US in world affairs, (161) from 1607 to 1877, (162) from 1877 to the present. <Summer, Fall, Spring>

251. Traditional Eastern Civilizations. (3) Ikłę, Porter

The origin and development of the traditional societies and cultures of India, Southeast Asia, China, and Japan. <Fall>

252. Modern Eastern Civilizations. (3) Ikłę, Porter

The emergence of modern Asia from the impact of western colonialism and imperialism to nationalism, modernization, and revolution. <Spring>

260. History of New Mexico. (3)

Survey from Cabeza de Vaca to 1912. <Fall, Spring>

281. History of Colonial Latin America. (3) From 1492-1821. <Fall>

282. History of Latin America. (3) Herbold, Lieuwen

Emergence of national states from 1821 to the present. <Spring>

283. La Raza: A History of Mexican-Americans. (3) Duran

An understanding of the Chicano in our society; it is an examination of his history and his culture.

284. Afro-American History. (3) Becknell

(Also offered as Ed Fdn 284.) Survey of Afro-American history beginning with Africa and continuing to contemporary Black America.

§ May be taught at Los Alamos or other off-campus centers.
*300. The Great Transition: 20th Century America. (3) Nash
A one semester topical survey of major changes in American life during the 20th century. Not open to history majors. Available to history minors and any student interested in the major forces that shaped contemporary America such as the technological, economic, social, ethnic, urban, cultural, and political revolution. <Spring>

301-302. Interdepartmental Studies in the Culture of the United States. (3, 3)
(See Am St 301-302.) May be taken for departmental credit only with the consent of the chairman. <Fall, Spring>

*303. History of World Communism. (3) Robbins
From Marx to the present. <Spring>

304. Revolution in History. (3) Porter, Robbins, Steen
Examination of revolution and the revolutionary process in the modern world. Emphasizes the experience of France, Russia, and China.

*307. European Social History, 1760-1848. (3) Pope
Transition from traditional, pre-industrial society to "bourgeois" society. Major areas to be covered are the ancien regime, the French and Industrial Revolutions, working class culture and religion, and the problems of how and if the bourgeoisie was in power by 1848.

*308. European Social History, 1848-1940. (3) Pope
Analysis of the course and results of the revolutions of 1848, the development of working class movements, urbanization, and the rise of mass politics.

309. Historiography. (3) Kern, Seitz, Spidle
Development of historical thought and writing. <Summer, Fall, Spring>

*310. International Labor History. (3) Kern
The History of labor in Europe, the United States and Latin America from 1835 to the present and looks at a variety of trade unions, such as the Grand National, the unions of the First and Second Internationals, syndicalism, and modern variants. <Spring>

*311. The Ancient Near East. (3) Berthold
Survey of the pre-Classical civilizations of the Near East from the birth of civilization to the Achaemenid Persian empire. <Fall>

*313. Greece. (3) Berthold
Survey of the development of Greek civilization from the Bronze Age to the Hellenistic period; emphasis on political and social developments. <Fall>

*314. Rome. (3) Berthold
Survey of the development of Roman civilization from the founding of the city to the collapse of the Western empire; emphasis on political and social developments. <Spring>

*315. History of Women from Ancient Times to the Enlightenment. (3) Pope
Study of sex roles in primitive societies, classic views of women, the Judeo-Christian treatment of women, medieval social roles, and the changes that came with the Renaissance and Reformation. Attention will be paid to the role of women in the family and to their economic function as well as to the less common activities of saint, witch, and revolutionary. <Fall>

*316. Women in the Modern World. (3) Pope
Study of western women from pre-industrial to contemporary society which will focus on Victorianism, familial roles, changes in work patterns, feminist movements, and female participation in fascist and revolutionary politics. <Spring>

*317. History of Science to 1543. (3) Skabelund
The history of science, mainly internal, from Ancient Babylonia and Egypt through the European Renaissance. <Fall>

*318. History of Science, 1543-1800. (3) Skabelund
The history of science, mainly internal, during the Scientific Revolution of the 16th and 17th centuries and the 18th Century Enlightenment. <Spring>

*319. History of Science, 1800 to the Present. (3) Skabelund
History of science, mainly internal, during the "classical" period of the 19th century and the "second scientific revolution" of the 20th. <Fall>

320. Studies in History. (1-3) Staff
Will vary from instructor to instructor, but will be an in depth analysis of specific historical problems. For course content consult schedule of classes. <Fall, Spring>
*321. Early Middle Ages, 300 to 1050. (3) Sullivan
The emergence of medieval European civilization from the reign of Constantine to the beginnings of the papal monarchy. Prerequisite: 101. <Fall>

*322. The Central Middle Ages, 1050-1300. (3) Sullivan
The maturing of medieval civilization: Gregorian reform, the Crusades, the rise of the university, and the Gothic Cathedral. <Spring>

*323. Renaissance Era, 1300 to 1520. (3) Sullivan
The decline of medieval civilization and the transition to a new phase of European history. <Fall>

*325. Reformation Era, 1500-1600. (3) Sullivan
Religious revolution and concurrent developments in European politics, society, and culture.

*326. History of the Occult and Irrational. (3) Skabelund
Mystical traditions in Western history: the other side of rationalism, the "fossil" sciences, the preternatural—neglected episodes in Western civilizations. <Spring>

*331. Europe in the Seventeenth Century. (3) Steen
Survey of political, cultural, social and economic trends in Europe during Thirty Years War and reign of Louis XIV. Special emphasis on developments in England, France and Hapsburg dominions. <Fall>

*332. Europe in the Eighteenth Century, 1700-1788. (3) Steen
Survey of the political, cultural, social and economic situation in Europe at height of Old Regime. Emphasis will be on intellectual and social developments that culminated in French Revolution. <Fall>

*333. The French Revolution and Napoleon, 1789-1815. (3) Steen
Survey of the course of the revolution and its impact on France and on European social, political, and military life. <Spring>

*335. Modern Europe, 1815 to 1914. (3) Kern
Restorations and revolutions; national unification and industrialism; the "generation of materialism" and the origins of the first World War. Prerequisite: 102. <Fall>

*336. Europe since 1914. (3) Kern, Roebuck
The World Wars and the search for peace; social and economic tensions; Europe in the era of the Cold War and the welfare state. Prerequisite: 102. <Spring>

*337. History of the Jewish People. (3)
Survey in ethnic history stressing political, religious, and social developments from the expulsion from Spain (1492) to the present. Course concentrates on European Jewry but will include considerations of American Jewish community, modern anti-semitism, and rise of the state of Israel. <Spring>

*338. The City in History. (3) Roebuck
(Also offered as Arch 338 and Soc 338.) Overview of development of urban forms throughout history, with emphasis on modern times, which examines the causes of urban growth and change and ways in which cities have affected course of development of western society. <Fall>

*339. Military History of Europe to 1790. (3) <Fall>

*340. Military History of Europe since 1790. (3) <Spring>

*341. Medieval France to 1559. (3) Steen
Study of the evolution of French social, political and religious institutions from Roman time to outbreak of the Wars of Religion. <Fall>

*342. France in Early Modern Times, 1560-1815. (3) Steen
Study of creation of France as modern state with emphasis on social and political developments that led to French Revolution. <Spring>

*343. History of England to 1688. (3) Roebuck
Survey of medieval foundations, Tudor era, and seventeenth century social and political revolutions. <Fall>

*344. History of Modern England since 1688. (3) Roebuck
Emphasis on social, political, and intellectual developments. <Spring>

*345. The British Empire and Commonwealth. (3) Roebuck
Survey of British colonial policy and nation-building since 1815. Emphasis on Ireland, Canada, Australia, India, and South Africa. <Fall>
*346. The History of Italy 1815-Present. (3) Seitz
Covers response to Napoleon's Fall, rise of a nationalist movement, successful unification of Italy (Risorgimento), problems facing the new state, the background of entrance into World War I, and the attempt to establish a democratic Italian nation in post war era. Emphasis placed on cultural and intellectual themes of these periods. <Spring>

*347. Old Russia from the 9th to the 17th Century. (3) Robbins
Survey of the Kievan, Mongol, and Muscovite periods. Emphasis on political and social developments. <Fall>

*348. Romanov Russia to 1855. (3) Robbins
From the Time of Troubles to the death of Nicholas I. Stresses the development of political institutions and the origins of the revolutionary movement. <Spring>

*349. Russia in the Era of Reform and Revolution: 1855 to Present. (3) Robbins
From the Great Reforms of the 1860's to the fall of Khrushchev. Emphasis on political and social changes. <Fall>

*350. Traditional China. (3) Porter
From the beginnings to the Manchu conquest, 1644. <Fall>

*351. Modern China. (3) Porter
From 1644 to the present. <Spring>

*352. History of Japan. (3) Iklé
Social, political, and economic institutions from historical beginnings to modern times. <Spring>

*353. History of Southeast Asia, 1800 to the Present. (3)
The Colonial and National period in Southeast Asia, including Burma, Thailand, Malaya, Cambodia, Laos, Vietnam, Indonesia and the Philippines. <Fall>

*354. The Far East in the Contemporary World. (3) Iklé
Emphasis upon diplomatic relations between Asia and the West. <Fall>

*355. History of the Near East. (3) Iklé
From ancient Mesopotamia to the present. <Fall>

*356. History of Africa since 1800. (3) Spidle
Survey of the African continent during colonial and national periods. <Spring>

*357. Traditional India. (3)
Survey of Indian history and civilization from the historical beginnings to the Mughal period. <Fall>

*358. Modern India. (3)
Survey of modern India from the rise of the Mughals to the present. <Spring>

*359. History of New Mexico. (3) Cutter, Ellis
Study from Cabeza de Vaca to the present. <Fall, Spring>

*360. American Urban History to 1870. (3) Rabinowitz
Study of Urban America from colonial times to 1870, emphasizing the growth of pre-industrial and early industrial cities and their impact upon the development of the United States. <Fall>

*361. American Urban History since 1870. (3) Rabinowitz
Continuation of 361, emphasizing the emergence, development, and role of the modern city. <Spring>

*362. The Old South. (3) Brewer
Emphasis on the South in post Revolutionary America, the transition to the South of the pre Civil War era, slavery and Ante Bellum southern society, and the mind of the Old South. <Spring>

*363. Political History of the United States. (3) Smith
From 1860 to the present. <Spring>

*364. From Slavery to Freedom in Urban America. (3) Rabinowitz
<Spring>

*365. The New Republic, 1783-1820. (3) Brewer
Study of the impact of the American Revolution on the post war society, the creation of the new nation, crises of the 1790's, origin of modern political parties, Jeffersonian America, the War of 1812, and the movement westward.

*366. American Indian History. (3) Ellis
(Also offered as Anth 369.) Survey of American Indian history from white contact to the present. <Fall>
*370-371. American Diplomacy. (3, 3) Pugach
Diplomatic history of the United States from Independence to 1898; from the Spanish
American war to the present. <Spring>

*373. History of the American Frontier. (3) Ellis
Anglo-American expansion from the 17th century to the 1890's. <Spring>

*374. The Trans-Mississippi West. (3) Ellis <Spring>

*375. Military History of the United States. (3) Smith
Introductory survey of military affairs in the United States from the Revolution to the
present. <Spring>

*376-377. Economic History of the United States. (3, 3) Nash
Topical study of American economic life—agriculture, industry, labor, and commerce—
stressing the relations of government and business; 376—from 1400 to 1860; 377—from
1860 to the present. <Spring>

*378-379. Constitutional History of the United States. (3, 3) Dabney
378—From English origins to 1876; 379—From 1876 to the present. <Spring>

*380. History of the Southwest. (3) Cutter
Spanish exploration and occupation of the Southwest; colonial government and missions.
(Spring)

*381. History of the American Southwest. (3) Servin
Historical survey of the American Southwest covering the period from the first entrance of
the Anglo-Americans during the Mexican era to the present. <Spring>

*384. Inter-American Relations. (3) Herbold, Lieuwen
Relations among the American republics from 1810, with emphasis upon the Pan-American
movement and the recent period. 282 strongly recommended as a prerequisite. <Spring>

*385. The American West in the Twentieth Century. (3) Nash
This course surveys the growth of the trans-Mississippi West in the twentieth century,
giving attention to social development, economic growth, cultural development, the role
of minority groups, and the impact of science and technology. <Spring>

*387. Blacks in Latin America. (3)
Survey of the history and assimilated culture of the black man in Latin America since
colonial times. <Spring, Fall>

*393. Spanish South America to 1820. (3)
Emphasis on Peru and on economic, social, and cultural aspects. <Spring>

*395. Spain and Portugal to 1700. (3) Kern
Spanish and Portuguese history to 1700. <Spring>

*396. Spain and Portugal Since 1700. (3) Kern
Spanish and Portuguese history since 1700. <Spring>

*397. Mexico to 1821. (3) Cutter
Prerequisite: 281. <Spring>

*398. Mexico since 1821. (3) Lieuwen
Prerequisite: 282. <Spring>

*401. Quantification in History. (2) Brewer
Introduction to statistical and quantitative procedures of particular use to historian and
social scientist. Emphasis on practical application, not theory. No prior knowledge of
statistics or higher mathematics needed. Course will begin with elementary procedures
and go up to, but not through, use of computers. <Spring>

*405. Social History of Science and Technology. (3) Skabelund
The "external" histories of science and technology, including agriculture and medicine;
their interaction with society at large. Environmental and ecological factors in Western
history—including geographical features, food, disease, commerce, industry, communica-
tions, and war. <Spring>

*410. The Historian and the Museum. (3) Jenkins
Theory and practice in the administration and utilization of the historical museum, with
attention to acquisitions, funding, exhibitions, and promulgation of information. This
course does not give credit toward minimum requirements for Ph.D. <Spring>

*411. Archival Administration for Historians. (3) Jenkins
An introduction into the nature of archival administration; problems of archival work;
and relations between archivists and historians. <Spring>
Sociol and Economic History of Europe to 1600. (3) <Fall>

Social and Economic History from 1600. (3) <Spring>

History of European Thought and Temper, 1760-1860. (3) Seitz
The Enlightenment synthesis; Romanticism, positivism, socialism, liberalism; Voltaire, De Sade, Rousseau, Burke, Herder, Kant, Comte, Mill, Darwin, Marx.

History of European Thought and Temper, 1860-Present. (3) Seitz
The anti-positivist reaction; the decadent period and the crisis in values, scientific revolution; existentialism; Dostoevski, Nietzsche, Heinsenberg, Freud, Bergson, Kierkegaard, Sarte, Buber.

European Diplomatic History. (3) Spidle
Since 1815. Prerequisite: 102. <Fall>

Germany, 1871 to 1971. (3) Spidle
Bismarck to Brandt, a survey of German history from unification to contemporary times with special emphasis on Weimar and Hitlerian Germany. Prerequisite: 102. <Fall>

Modern Eastern Asia. [The Hapsburg Empire, 1790-1918] (3) McClelland, Robbins

The Spanish Empire. (3)
A History of Spanish overseas empire from the time of Columbus to 1898 including exploration, exploitation, and international rivalry.

The American Colonies, 1607 to 1763. (3) Dabney
The settlement of British America and a study of American institutions in their infancy. Prerequisite: 161. <Fall>

The American Revolution, 1763-1789. (3) Dabney

The Era of Sectional Conflict, 1820 to 1860. (3) Smith
The impact of nationalism and sectionalism upon American life from the Missouri Compromise to the election of Lincoln. Prerequisite: 161. <Fall>

The Civil War. (3) Smith
Political, social, economic, military, and diplomatic history of the period 1860-1865. Prerequisite: 161. <Fall>

Reconstruction and the New Nationalism, 1863-1898. (3) Smith
Prerequisite: 162. <Spring>

Recent History of the United States. (3, 3) Nash
468—From 1898 to the time of the great depression; 469—From the time of the great depression to the present. Prerequisite: 162. <468-Fall; 469-Spring>

Philosophy of History. (3)
(Also offered as Phil 470.) Nature, structure, and presuppositions of history and historical methods. <Spring>

American Culture and Society, 1607-1860. [Intellectual and Social History of the United States, 1607 to 1860] (3) Szasz <Fall>

American Culture and Society Since 1860. [Intellectual and Social History of the United States since 1860] (3) Szasz <Spring>

The Modernization of South America. (2-3) Lieuwen
Economic development, social change, and political crises since 1850. <Fall>

The Mexican Revolution. (2-3) Lieuwen
Emphasis upon theory and interpretation. 3 hrs. cr. with term paper. <Spring>

20th Century Social Revolutions in Latin America. (2-3) Lieuwen
3 hrs. cr. with term paper.

The Cuban Revolution, 1959 to Present. (3) Background to revolution since 1898; emphasis on period since 1959. <Spring>

Intellectual History of Latin America. (3) Herbold <Spring>

Southern South America. (3)
Argentina, Chile, and Uruguay since 1810. Prerequisite: 282. <Spring>

The Caribbean. (3)
The Caribbean cultural area from the colonial period. <Spring>

The Andean Republics. (3) Herbold
Peru, Bolivia, and Ecuador since 1810. Prerequisite: 282 and reading of the Spanish language. <Fall>

Brazil to 1822. (3)
From 1500. Prerequisite: 281. <Fall>
**490.** Brazil since 1822. (3)  
Prerequisite: 282.  
<Spring>

**491.** Internship. (3-9) Staff  
This course provides a supervised work experience in the practical application of historical skills. Training for Interns is provided in various fields such as museum work, archival management, and historical editing. It does not give credit toward minimum requirements for the Ph.D.

**493.** Reading and Research in Honors. (3)  
Prerequisite: permission of major adviser.

**494.** Senior Thesis. (3)  
Prerequisite: 493.

**495.** Undergraduate Honors Colloquium. (3)  
Prerequisite: permission of instructor.

**496.** Undergraduate Readings in History. (1-3)  
Permission of instructor required before registering.  
<Fall, Spring>

Departmental requirements provide that the following seminars may be repeated only once:

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>500.</strong></td>
<td>Seminar in Historical Research Methods. (2) Cutter, Nash, Porter, Szasz</td>
<td>2</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td><strong>501.</strong></td>
<td>Interdepartmental Seminar in the Culture of the United States. (3) (See Am St 501.)</td>
<td>3</td>
<td></td>
<td></td>
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</tbody>
</table>
| **504.** | Seminar in Ibero-American Studies. (3)‡ Herbold, Herron, T. Holzapfel, Lieuwen, Nason, Tomlins  
(Also offered as Ib-Am, Port, and Span 504.) | 3       |               | Fall, Spring |
| **520.** | Seminar and Studies in Ancient History. (3) Berthold | 3       |               | Spring |
| **521.** | Seminar and Studies in Medieval History. (3) Sullivan | 3       |               | Fall |
| **526.** | Seminar in European Economic History. (3)  
(Also offered as Econ 526.) | 3       |               |   |
| **532.** | Seminar and Studies in Early Modern European History. (3) Steen | 3       |               | Fall |
| **537.** | Seminar in European Imperialism. (3) Spidle | 3       |               |   |
| **540.** | Seminar and Studies in European Intellectual History. (3) Seitz | 3       |               | Fall |
| **542.** | Seminar and Studies in Modern European History. (3) | 3       |               | Spring |
| **545.** | Seminar and Studies in British History. (3) Roebuck | 3       |               | Spring |
| **547.** | Seminar and Studies in Modern Russian History. (3) Robbins | 3       |               | Spring |
| **548.** | Seminar and Studies in Iberian History. (3) Kern | 3       |               |   |
| **549.** | History Education. (3) Zepper  
(Also offered as Sec Ed 549.) | 3       |               | Summer |
| **550.** | Seminar in History Education. (3)  
(Also offered as Sec Ed 550) Prerequisite: 549.  
<Summer> | 3       |               |   |
| **551-552.** | Problems. (1-3 hrs. each semester) |          |               |   |
| **554.** | Seminar and Studies in Far Eastern History. (3) Iklé, Porter | 3       |               | Spring |
| **562.** | Seminar and Studies in Early American History. (3) Dabney  
Pre- or corequisite: 462.  
<Spring> | 3       |               |   |
| **563.** | Seminar and Studies in U.S. Urban History. (3) Rabinowitz | 3       |               |   |
| **564.** | Seminar and Studies in American Intellectual and Social History. (3) Szasz  
<Fall> | 3       |               |   |
| **566.** | Seminar and Studies in Civil War Period. (3) Smith  
<Spring> | 3       |               |   |

†‡‡May be repeated for credit once by History majors to fulfill field requirements.
JOURNALISM

*568. Seminar and Studies in Recent American History. (3) Nash  
(Spring)

*570. Seminar and Studies in United States Diplomatic History. (3) Pugach  
(Spring)

*573. Seminar in American Western History. (3) Ellis  
(Spring)

*574. Seminar in American Indian History. (3) Ellis  
(Spring)

*579. Seminar in Southwest History. (3) Cutter  
(Fall, Spring)

*581. Seminar in Colonial Latin American History. (3)  
(Spring)

*582. Seminar in Recent Latin American History. (3) Lieuwen  
(Fall, Spring)

*584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen, Merks, Needle, Schwerin  
(Also offered as Anth, Econ, Pol Sc, and Soc 584.) (Spring)

*589. Latin American History: National Period. [Seminar and Studies in Brazilian History]  
(3) Slenes  
(Fall)

*599. Master’s Thesis. (1-6 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

*699. Dissertation. (1-9 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

HOME ECONOMICS

See Education, Home Economics.

IBERO-AMERICAN STUDIES

PROFESSOR M. R. Nason, Ph.D., Director.

Explanation of footnotes not indicated will be found on p. 210.

An interdepartmental program in the languages, literatures and history of Spanish America and Brazil leading to the degree of Doctor of Philosophy. For details, consult the Graduate School Bulletin.

*504. Seminar in Ibero-American Studies. (3)‡ Bakewell, T. Holzapfel, Lieuwen, Nason, Tolman, Tomlins  
(Also offered as Hist, Port, and Span 504.) (Fall, Spring)

*584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3)‡ Lieuwen, Merks, Needle, Schwerin  
(See Anth, Econ, Hist, Pol Sc, and Soc 584.) (Spring)

*651-652. Problems. (1-3 hrs. each semester)

See the Graduate School Bulletin for total credit requirements.

INDUSTRIAL EDUCATION

See Education, Secondary.

ITALIAN

See Modern and Classical Languages.

JOURNALISM

MAJOR STUDY

Advertising-Management Sequence: 33 hours including 251, 252, 277, 311, 312, 322, 401, and Sp Com 411.

News-Editorial Sequence: 30 hours including 251, 252, 301, 311, 312, 322, 475, and 494.

Television-Radio Sequence: 33 hours including 251, 252, 301, 311, 322, 340, 341, 470, 475, and 494, and Sp Com 251.

MINOR STUDY

18 hours including Journ 251 and 252.

100. Introduction to Mass Communication. (3)
   The meaning of mass media in society, with emphasis on their processes and effects.

251. News Writing and Reporting. (3) Staff
   Emphasis on news elements, writing techniques and story structure. 2 lectures, 2 hrs. lab.
   Typing skill requested. <Fall, Spring>

252. News Writing and Reporting. (3) Staff
   Emphasis on reporting methods and advanced writing for the media. Prerequisites: 251.
   2 lectures, 2 hrs. lab. <Fall, Spring>

253. Newspaper Practice. (1) Staff
   Open to staff members of The Lobo. May be taken three times. <Fall, Spring>

254. Broadcast Practice. (1) Coates
   Open to staff members of KUNM-FM. May be taken three times. <Fall, Spring>

261. News Photography. (3) Lawrence
   Training in the use of the camera, and in the taking, developing, and printing of pictures
   for media use, together with some study of desk preparation of photographs for the photoengraving
   process. Prerequisite: permission of instructor. 2 lectures, 2 hrs. lab. <Fall, Spring>

277. Graphic Design. (3)
   (Also offered as Art St 277.) Graphic design in communication. Prerequisite: Art St 123.
   <Fall>

301. History of Journalism in the United States. (3) Jermain
   American journalism from the pre-colonial beginnings through the developments to
   modern times. Prerequisite: permission of instructor. <Fall>

302. Persuasive Writing. (Editorial and Special Writing.) (3) Hillerman
   Writing of the editorial essay, the column, and other interpretive matters. Prerequisites:
   252 and permission of instructor. <Spring>

311. Copy-Editing and Makeup. (3) Staff
   Practice in the assembling and editing of news copy, in headline writing, and in page
   makeup. Prerequisites: 251, 252 and permission of instructor. 2 lectures, 2 hrs. lab.
   <Fall, Spring>

312. Copy-Editing and Makeup (3) Jermain
   Continuation of 311, with emphasis on wire copy, typography and newspaper design and
   analysis. Prerequisites: 311 and permission of instructor. 2 lectures, 2 hrs. lab. <Fall, Spring>

322. Law of the Press. (3) Jermain
   Rights of the press; libel and defenses; contempt, invasion of privacy; copyright, advertising
   controls; broadcasting and the Federal Communications Commission. The legal
   controls. Prerequisite: permission of instructor. <Spring>

332. Writing the Magazine Article. (3) Arquette
   Writing non-fiction for publication. Prerequisite: permission of instructor. <Fall, Spring>

   Introduction to broadcast news with practice in data collection, writing and editing.
   Prerequisite: 252. <Fall, Spring>

341. [440] News Programming II. (3) Coates
   Oral and visual news presentation, multi-channel communication problems, melding text
   with recordings and film in production of radio and television broadcasts. Prerequisite:
   340, or permission of instructor. <Fall, Spring>

375. Intermediate Reporting. (3) Crow
   Emphasis on reporting more complex affairs and on the feature story. Prerequisite:
   252. <Fall, Spring>
388. Cinematic Photography. (3)
    (See Art St 388.)

399. Practicum in Journalism. (3); Crow
    Supervised internship with a medium of mass communications. Prerequisite: 252 and
    permission of instructor. May be repeated for a total of no more than 6 credit hours,
    with permission of instructor. <Summer, Fall, Spring>

401. Advertising. (3) Toppino
    Theory, strategy and techniques of advertising and advertising campaigns. Prerequisite:
    permission of instructor. 2 lectures, 2 hrs. lab. <Fall>

*402. Advertising Campaigns. (3) Toppino
    Theory, strategy, and techniques applied to advertising campaigns. Prerequisite: 401,
    or permission of instructor. <Spring>

*465. Management of High School Publications. (3)
    A survey of the problems in production of high school newspapers and yearbooks, as well as
    some incidental publications, including approaches to design, advertising content, the news
    and editorials, circulation and printing, and over-all business administration and staff man-
    agement. Not open to Journalism majors. <Offered upon demand>

469. Media Management. (3) Crow
    The functions of management in the communications field, with emphasis on depart-
    mental problems, laws, personnel, and changing technology. Prerequisites: 312 and 322.
    <Offered upon demand>

470. Advanced News Programming. (3) Coates
    Practical and theoretical considerations in broadcast news and documentaries. One 1-hour
    lecture, one 2-hour lab section. Prerequisite: 341 and permission of instructor. <Fall>

475. Advanced Reporting. (3) Hillerman
    Interpretive coverage of matters of public concern. Prerequisite: permission of Instructor.
    <Fall, Spring>

494. Mass Media as a Social Force. (3) Hillerman
    The power and the problems of the communications media with emphasis on evolving
    ethical standards. <Fall, Spring>

495. The Mass Media as a Social Force in Latin America. (3)
    Taught only at the Quito Center, on demand. <Spring>

*496. Individual Study. (1-3 per semester, to a maximum of 6)

499. Undergraduate Seminar. (3)
    Public affairs reporting and writing: the uses of interviews, news conferences, back-
    grounders, official leaks; their relationship to politics and policy-making in government.
    Problems of news judgment and writing style. Prerequisites: senior standing and per-
    mission of instructor. <Offered upon demand>

LATIN

See Modern and Classical Languages.

LATIN AMERICAN STUDIES

PROFESSOR M. C. Needler, Ph.D., Director; ASSISTANT PROFESSOR K. Remmer, Assistant
    Director; ASSOCIATED FACULTY P. K. Bock, K. H. Schwerin, R. A. Barrett, L. S. Cordell
    (Anthropology); M. E. Smith (Art History); R. A. Lenberg (Business); S. Cohen, P. Gregory, D.
    Taliby (Economics); E. M. Barratt (Geography); P. Bakewell, D. C. Cutter, E. Lieuwen, R. W.
    Kern, J. L. Ray (History); W. H. Roberts, M. R. Nason, G. L. Brower, T. Holzapfel (Spanish-
    American Literature); J. Tomlins (Brazilian Literature); G. Bills (Spanish Linguistics); M. C.
    Needler, K. Remmer (Political Science); P. David, G. W. Merkx (Sociology).

This is an interdepartmental program administered by the Division of Inter-
    American Affairs. The program itself does not constitute professional training or
    prepare students for specific careers; however, it provides a solid foundation in
    language skills and area competence that can be valuable in business, public
    service, or further professional training.

MAJOR STUDY

36 hours, including 1) Spanish 301-302, Port 275-276, Lat Am Studies 250,
    Hist 281-282, Pol Sci 355. 2) Six hours chosen from Spanish 292, 357, and 358;
Economics 421; Geog 301 and 302; Hist 384, 481, and 483; Soc 425; Anth 314 and 382; Pol Sci 356. 3) An additional six hours of any courses of Latin American content.

A listing and description of Latin American content courses currently being offered can be obtained from the Division office.

MINOR STUDY

24 hours, including Span 301-302, Hist 281 and 282, Pol Sc 355 or 356, Econ 421, and six hours of Latin American electives. An equivalent number of hours of additional approved electives may be substituted for any of the required courses which the student is counting toward his major.

DISTRIBUTED MINOR FOR LATIN AMERICAN STUDIES MAJORS

In addition to a minor in a single department, Latin American Studies majors may offer a distributed minor of 30 hours of Latin American studies content courses numbered over 300 not counted toward the major.

250. Latin America Through Film. (3)
(Also offered as Soc and Pol Sci 250.) Inter-disciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion.

498. Individual Reading and Research. (1-3)
Prerequisite: permission of department chairman. For undergraduates only.

*551-552. Problems. (1-3 hrs. each semester)

*584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Liewwen, Mertx, Needler
(See Anth, Econ, Hist, Pol Sc, and Soc 584.)

*599. Master's Thesis. (1-6 hrs. per semester)

LAW


FIRST YEAR COURSES

#500. Historical Introduction to the Legal System. (2)

#501. Constitutional Law I. (3)

#502. Contracts. (4)

# Required.
344 LAW

504. Criminal Law. (3)
505. Law of International Relations. (2)
#508. Property I. (3)
#510. Torts. (4)
#513. Introduction to Advocacy I. (3)
#533. Family Law. (3)
575. Programmed Studies I. (2)
587. Introduction to Law. (3)
#611. Introduction to Legislation. (1)
#613. Introduction to Advocacy II. (2)
676. Programmed Studies II. (2)

NOTE: Some upperclass electives are available to freshmen law students during Semester II.

SECOND AND THIRD YEAR COURSES

Commercial Law

520. Business Associations I. (3)
521. Business Associations II. (3)
523. Commercial Transactions II. (2)
528. Creditors' Rights. (3)
550. Unfair Trade Practices. (2)
553. Products Liability. (3)
558. Contracts III. (3)
564. Law and the Consumer. (2)
581. Insurance. (3)
622. Commercial Transactions IA. (1)
623. Commercial Transactions IB. (2)
624. Commercial Transactions IC. (3)
629. Bankruptcy. (1)

Procedure

512. Civil Procedure I. (3)
516. Civil Procedure II. (3)
517. Trial Practice. [Trial Practice Workshop] (4)
529. Criminal Procedure. (3)
531. Injunctions. (2)
532. Evidence. (3)
552. Federal Jurisdiction. (3)
561. Arbitration. (3)
563. National Moot Court Competition. (2)
566. Survey of Civil Procedure. (3)
617. Trial Practice-Commercial Litigation. (3) Greenfield
631. Remedies. (2)
632. Evidence-Trial Practice. (5)

Property and Natural Resources

524. Community Property. (2)
544. Oil and Gas. (3)
547. Water Law. (2)
554. Wills and Future Interests. (3)
557. Wills and Trusts. (1-3)
565. Natural Resources. (1-3)
578. Land Transfers and Finance. (3)
580. Environmental Law. (2)
608. Property II. (3)

# Required.
619. Mining Law. (2)
625. Wills. (2)
627. Future Interests. (2)
635. Land Use Planning. (2)
698. Advanced Real Estate Transactions. (3)
699. Wills Drafting. (2) T. Popejoy

Public Law

515. Employee's Rights. (2)
518. Administrative Law. (3)
525. Conflict of Laws. (3)
526. Constitutional Law II. (3)
535. Food and Drug Law. (2)
537. Labor Law. (2-3)
542. Legal Process. (3)
548. Legislation. (2)
628. Regulated Industries. (2)

Taxation

530. Federal Estate and Gift Taxation. (2)
534. Federal Income Taxation. (3)
536. State and Local Taxation. (1)
551. Taxation of Corporations and Shareholders. (3)
620. Taxation of Partnerships, Estates and Trusts. (2)
621. Taxation of Natural Resources Transactions. (2)

Law and Social Problems (See Seminars also)

555. Jurisprudence. (2)
566. Law and the Behavioral Sciences. (3)
570. Law of the Poor. (2)
579. Juvenile Courts and Juvenile Delinquency. (2)
664. Poverty Law. (2-3)

Professional Skills and Functions

538. Law Journal and Review (Second Year). (1)
568-569. Law Journal and Review (Third Year). (1-2, 1)
572. The Legal Profession. (2)
600. Role of the Lawyer in Society. (2)

Seminars

527. Business Planning. (3)
545. Estate Planning. (2)
546. Antitrust Law. (2)
549. Comparative Law. (2)
556. State and Local Government. (2)
560. Women and the Law. (2)
567. Legal Problems in Community Economic Development. (2)
571. Law and Psychiatry. (2)
574. Mining and Public Lands. (2)
576. Current Legal Problems. (2)
577. Legal Counseling. (2)
582. The Corporation and Society. (2)
583. International Legal Problems. (2)
584. Indian Law. (2)
590. Commercial Law. (2)
592. Legal Education. (1)
593. Private Law Reform. (2)
594. Individual Research. (1-6)
595. Tax Policy. (2)
615. Corrections. (2)
640. Applied Problems in Current Litigation. (2)
645. Sex Roles in the Law. (1)
650. Pornography and the Law. (2)
655. First Amendment Rights: Use of Public Forums and Mass Media. (2)
660. Juvenile Courts. (2)
666. Advanced Problems in Federal Litigation. (2)
690. Law and Medicine. (2)
691. Patent Law. (2)
692. Introduction to the American Jury System. (2)
694. Public Utilities. (2) Graham
695. Recent Legal Developments Affecting Minorities. (2)
697. Criminal Law. (2) Romero

Clinical Law Program

700. Criminal Practice Clinic. (3)
701. Spanish for Lawyers. (2)
702. Clinical Phase I. (1)
708. Practical Problems I. (1)
709. Practical Problems II. (1-4)
710. Pre-Trial Practice. (1)
711. Accounting for Lawyers. (1)
712. Human Behavior. (1)
713. Trial Practice. (3)
714. Law Office Management. (1)
715. Interviewing and Counseling. (2)
716. Appellate Practice. (1)
717. Jurimetrics. (1)
718. Negotiation. (1)
719. Prisoner Services. (3)
720. Law Office and Public Defender. (3)
721. Law Office Intern. (3)
722. Legal Aid. (3)
723. District Attorney. (3)
724. District Judge Intern. (2)
725. Field Experience. (3)
726. U.S. Public Defender. (3)
727. JAG. (3)
728. Women's Legal Services. (3)
729. U.S. Attorney. (3)
730. City Attorney. (3)
731. Centrolegal. (3)
732. U.S.D.A. Solicitor. (3)
733. N.M.C.L.U. (3)
734. Welfare Litigation. (3)
735. Basic Skills. (1)
736. Legal Rights of the Mentally Handicapped. (3)
737. E.E.O.C. (3)
LINGUISTICS

ASSOCIATE PROFESSOR J. Oller, Ph.D. (Chairman); PROFESSORS B. Spolsky, Ph.D.; V. John-Steiner, Ph.D.; F. Christ, Ph.D. (Communicative Disorders); M. Zintz, Ph.D. (Elementary Education); ASSOCIATE PROFESSORS G. Bills, Ph.D.; R. Pickett, Ph.D. (English); R. White, Ph.D. (Secondary Education); ASSISTANT PROFESSORS D. Brodkey, Ed.D. (Elementary Education); C. Conrad, Ph.D. (Psychology); L. Gorbet, Ph.D. (Anthropology); A. Hudson, Ph.D.; L. Macias, Ph.D. (Secondary Education); R. Young, Ph.D. (Elementary Education); VISITING PROFESSOR W. Morgan, D.Litt.; VISITING RESEARCH PROFESSOR R. W. Young, LL.D.

MAJOR IN THE COLLEGE OF ARTS AND SCIENCES

The major for the B.A. in Linguistics requires a minimum of 36 hours (21 in required courses, 15 in approved electives) and four semesters of a foreign language or the equivalent. Required courses are: an Introduction to Linguistics (Ling 292 or 440), Ling 303, 370, 317L, 417L, 318L, 418L. Students must complete an additional 15 hours in approved courses which they may select from the following recommended courses (others may be approved by the Department): Anthro 313L, 405; Com Dis 325, 326L; C&I 480, 481, 482; Sec Ed 430, 436, 440, 441, 442, 445; Engl 436, 441; Mod Lang 480; French 405, 440; German 405, 445; Navajo 401; Span 440, 441, 453; Cp Sci 451; Phil 256, 257, 352, 356, 357, 445; Psych 367, 467; Sp Com 215, 350, 411, 415, or courses in Linguistics.

MINOR IN THE COLLEGE OF ARTS AND SCIENCES

The minor requires at least 21 hours of Linguistics courses: 292 or 440, 303, 317L, 318L, 370, and six additional hours selected from the requirements or approved electives for the major.

MAJOR OR MINOR IN THE COLLEGE OF EDUCATION

For programs leading to Certification in TESOL, and Teaching Reading in the Secondary School, see Department of Secondary Education in the College of Education section of this catalog. For Composite Minor in Bilingual Education, also see Department of Elementary Education in College of Education section. It is also possible to major in Curriculum and Instruction with emphasis in Bilingual Education.

100. Introduction to the Study of Language. [The Study of Language] (3) John-Steiner, Hudson, Oller, Spolsky
   Overview of language use in social settings. Gives a brief introduction to some concepts from linguistics and sociolinguistics. Presumes no prior knowledge of either field.

292. Introduction to Linguistics. [Introduction to the Study of Language] (3 or 4)
   Students wishing to major or minor in linguistics must complete work in weekly discussion groups in addition to the 3 hrs. of lecture. This course presupposes no background in linguistics and is intended to fulfill breadth requirements in any college. <Summer, Fall, Spring>

303. Phonetics. (3) Christ
   (Also offered as Sp Com 303 and Com Ds 303.) English phonetics as applied to the problems of articulation, rhythm, dialects, and to the teaching of speech, English, and speech correction. <Fall, Spring>
*313L. Linguistic Field Methods. (3)  
(See Anth 313L)

*317L. Phonological Analysis. (3) Steele  
(Also offered as Anth 317L.) Phonetic principles and phonological theory, descriptive analysis of phonological systems, transcriptional practice and problems from selected languages. Prerequisite: 292. 2 lectures, 2 hrs. lab. <Fall>

*318L. Grammatical Analysis. (3) Bills, Gorbet, Hudson, Young  
(Also offered as Anth 318L.) Principles of grammatical analysis and the theory of grammar, descriptive analysis of grammatical structures, problems from selected languages. 2 lectures, 2 hrs. lab. <Fall, Spring>

*359. Language and Culture. (3) Hudson, Oller, Spolsky  
(Also offered as Anth 359.) An examination of the interrelations of language and speech with other selected aspects of culture. Prerequisite: 317L or equivalent. <Spring>

*362. Language Testing and Multilingual Education. (3) Oller, Spolsky  
Survey of language testing procedures especially with application in multilingual and bilingual educational programs. <Fall>

*367. Introduction to Psycholinguistics. (3)  
(Also offered as Psych 367.) Survey of broad range of topics in psycholinguistics, with special emphasis on language acquisition; speech perception; memories for linguistic material, language and reasoning. Prerequisite: Ling 292 or 440. <Fall>

*370. History of Linguistics. (3) Spolsky, Oller; Hudson  
(Also offered as Anth 370.) A survey of methods and assumptions involved in the scientific study of language from antiquity to present day. An overview of philosophical, prescriptive, mathematical (logical), and linguistics approaches to the study of language. Prerequisite: 292. <Fall>

*386. Survey of Multilingual Education. (3) Hudson, Spolsky  
Survey of multilingual education throughout the world. Principles and practices. Prerequisite: 292. <Spring>

417L. Advanced Phonological Analysis. (3) Gorbet  
(Also offered as Anth 417L.) Survey of problems in generative phonology. Formal and substantive universals of phonological systems. Prerequisite: 317L. <Spring>

*418L. Advanced Grammatical Analysis. (3) Gorbet, Young  
(Also offered as Anth 418L.) Major theoretical positions in development of transformational-generative syntactic theory; presentation of standard theory and other alternatives, followed by generative semantics and interpretivism. Prerequisite: 318L. <Spring>

*440. Introduction to Linguistics. (3)  
(Also offered as Engl 440.) <Fall, Spring>

*441. English Grammars. (3)  
(See English 441.) Prerequisite: 440 or equivalent. <Spring>

*446. Introduction to Comparative Linguistics. (3)  
(Also offered as Anth 446.) Theory and methodology of comparative and historical linguistics. Consideration of theoretical approaches in the reconstruction of phonology, syntax and semantics. Prerequisites: 313L, 317L, 318L or permission of instructor. <Spring>

451. Mathematical Theory of Formal Languages. (3)  
(See Cp Sci 451.)

*459. Language and Society. (3) Hudson, Spolsky  
(Also offered as Anth 459.) An introduction to sociolinguistics, with special reference to language reflections of socio-cultural organization, multilingualism, and language planning. Prerequisite: course in linguistics. <Spring>

*467. Advanced Psycholinguistics. (3) Conrad  
(Also offered as Psych 467.) Current theory and research in the psychology of language. Prerequisite: 367 or permission of instructor. <Spring>

495-496. Undergraduate Problems. (1-6)  
<Offered upon demand>

*497. Topics. (1-3)  
<Offered upon demand>
**554. Seminar in Linguistic Theory. (3) Staff**  
(Also offered as Anth 554.) Prerequisites: 317L, 318L or equivalent. <Offered upon demand>

**555. Seminar in Linguistics and Language Pedagogy. (1-3) Staff**  
(Also offered as Ed Fdn 555.) Prerequisite: permission of instructor. <Offered upon demand>

**559. [569] Seminar in Sociolinguistics. (3) Hudson, Spolsky**  
(Also offered as Anth 469.) Prerequisite: 459. <Fall>

**562. [552] Seminar in Language Testing. (3) Oller, Spolsky**  
(Also offered as Ed Fdn 562.) <Spring>

**563. [553] Seminar in Language Acquisition. (3) John-Steiner**  
(Also offered as Ed Fdn 563.) <Spring>

**559. Seminar in Semantics. (3) Conrad**  
(Also offered as Psych 569.)

**595-596. Graduate Problems. (1-6)**  
<Fall, Spring>

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**MATHEMATICS AND STATISTICS**


Explanation of footnotes not indicated will be found on p. 210.

Students who are planning to take mathematics courses at the University are hereby advised to take at least two years of algebra and one year of geometry in high school. In addition, students who plan to take calculus are advised to take more advanced courses, in particular trigonometry, prior to entering the University.

FLOW CHART FOR BEGINNING COURSES

Student’s preparation determines starting course in any sequence.

**Remedial sequence**

010 → 020 → 120 → 121 → 123 → 150

**Business sequence**

121 → 180

**Calculus for social and biological sciences**

121 → 123 → 180 → 181 → 150

**Mathematics major sequence**

150 → 162 → 163 → 264 → 361 → 362 → 265 → 321 → 322
Engineering sequence

150 \rightarrow 162
123 & 162 \rightarrow 163 \rightarrow \begin{cases} 316 \rightarrow \rightarrow 312 \\ 264 \rightarrow \rightarrow 265 \\ 314 \rightarrow \rightarrow 313 \end{cases}

Elementary education sequence

111 \rightarrow 112 \rightarrow \begin{cases} 213 \\ 339 \\ 214 \end{cases}

PLACEMENT

Students who plan to take their first mathematics course at UNM are required to take the Mathematics Department placement tests. The only exception is Math 101 (A Survey of the Art) which does not require a placement test. On the basis of these placement scores advisers will determine the best mathematics course for the student. Placement tests are given during preregistration and registration periods. A beginning student who wishes to take Mathematics 163 or a higher course must have permission from Prof. A. Stone.

MATHEMATICS FOR ELEMENTARY TEACHERS

Suggested are 111 and 112; or for students with two or more years of high school mathematics, 213 and 214.

MATHEMATICS FOR SECONDARY TEACHERS

264, 265, and 21 hours in courses 300 and above (selection may be made from II and III below.) Students interested in certification for teaching should refer to page 116 and must see an adviser in Secondary Education.

MAJOR STUDY

264, 265 and 21 hours in courses numbered above 300, approved by the Mathematics Department. A typical mathematics major is urged to take 321, 322, 361, 362 as soon as possible; also at least one 400 level course should be taken. Undergraduates who intend to continue on toward a graduate degree in mathematics are advised to take courses in at least one of these languages: French, German, Russian.

Students majoring in mathematics are required to have their courses of study approved by the Department by the beginning of their junior year.

A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course.

DEPARTMENTAL HONORS

Undergraduates or prospective undergraduates who intend to continue their studies through the Ph.D. degree or who are interested in challenging problems (possibly including intercollegiate competition) should see Prof. A. Stone as early as possible for details of the Mathematics Honors Program.

COMBINED PROGRAM IN MATHEMATICS AND ENGINEERING

Students interested in the fields of computer design, guided missiles, electronics, or aeronautics are advised to take one of the following engineering minors:
Minor in Electrical Engineering and Computing Science: EECS 203, 206L, 213, 321, 361, plus 2 courses selected from EECS 362 and 322, 421, 436.

Minor in Mechanical Engineering: CE 202L, 302, ME 206L, 301, 317, plus 2 courses selected from ME 302, 314L, 318L, 320, and 357L.

MINOR STUDY

264, 265 and 6 hours in courses numbered above 300. A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course. Credit option may not be used for minor study. A distributed minor is not allowed.

I. INTRODUCTORY COURSES

010. Arithmetic for College Students. (0)
Number system, common and decimal fractions with their applications, measurements associated with geometric figures, variables and equations. Special fee of $35.00 is charged. Offered by Community College only. <Summer, Fall, Spring>

020. Basic Algebra. (0)
Functions, equations, inequalities, graphing, and related topics in elementary algebra. Special fee of $35.00 is charged. Offered by Community College only.

030. Elementary Algebra. (0)
(Offered at Northern New Mexico Branch only) Ten weeks of remedial high school algebra plus six weeks of college algebra.

101. Mathematics, A Survey of the Art. (3)
This course is intended to introduce the student to some of the great ideas of Modern Mathematics and their impact on our civilization. There are no formal prerequisites but the course will be challenging and at the same time rewarding. <Offered upon demand>

102. An Introduction to Probability and Statistics. (3)
(Also offered as Soc 280, Psych 201). An introduction to some of the basic ideas in probability and statistics; analysis of numerical data and descriptive statistics, probability and basic probability models for statistics, sampling and statistical inference, techniques of statistical inference illustrated by examples from a variety of fields; demonstrations of the use of the computer in statistics. Prerequisite: a knowledge of algebra. <Fall, Spring>

120. Intermediate Algebra. (3)
Basic algebraic operations; proportion, variation, linear and quadratic functions and equations, graphing, logarithms. Prerequisite: high school algebra and geometry or satisfactory score on placement test. Not open to students with credit for courses numbered 121 and above. <Summer, Fall, Spring>

121. College Algebra. (3)
Fundamental concepts of algebra, equations and inequalities, graphs and functions, exponential and logarithmic functions, systems of equations and inequalities, polynomials, sequences, and complex numbers. Prerequisite: adequate score on placement test or a grade of C or better in 120. Not open to students with credit for courses numbered 130 and above. <Summer, Fall, Spring>

122. Introduction to Finite Mathematics. (3)
Mathematical models and their interpretations; game and decision theory; linear and dynamic programming; elementary probability and Markov chains. Prerequisite: one of 121, 150, 162, or 180. <Offered upon demand>

123. Trigonometry. (1)
Definition of the trigonometric functions, radian and degree measure, graphs, basic trigonometric identities and inverse trigonometric functions. Prerequisite: satisfactory score on placement test or 120 or 121. <Summer, Fall, Spring>

Algebra and trigonometry as preparation for Math 162. Includes study of functions with emphasis on graphs, equations, inequalities, exponential and logarithmic functions, trigonometric and inverse trigonometric functions. Prerequisite: adequate score on placement test or C or better in Math 120. <Summer, Fall, Spring>

‡ Credit not allowed for both 123 and 150.

§§ Effective Sem. II, 1971-72 credit will not be allowed for both 121 and 150.
§155. Problem Solving with the Computer. (3)  
(Also offered as Cpw Sci 155). Elementary introduction to computing science. Object of course is an understanding of the relationship between mathematics, computing, and problem solving. <Fall>

§162. Calculus I. (4)  
Derivative as a rate of change, intuitive, numerical and theoretical concepts applications to graphing, trigonometric and exponential functions, integral as a sum, relation between integral and derivative, applications, numerical integration. Some sections make use of the computing laboratory. Prerequisite: adequate score on placement test or C or better in 150. Math 123 may be taken concurrently with 162. <Summer, Fall, Spring>

§163. Calculus II. (4)  
Techniques of differentiation and integration, applications, logarithmic and trigonometric functions, some space geometry and partial derivatives, numerical integration. Some sections make use of the computing laboratory. Prerequisite: C or better in Math 162 or permission of department chairman. <Summer, Fall, Spring>

§180. Calculus for the Social and Biological Sciences I. (3)  
Brief review of algebra, functions, graphs; limits; derivative as a rate of change, applications to maxima, minima and to motion; integral as an antiderivative and as a sum, applications. Prerequisite: adequate score on placement test, or grade of C or better in Math 121 or 150. <Fall, Spring>

§181. Calculus for the Social and Biological Sciences II. (3)  
Integrals; methods of integration; numerical integration; relation between integral and derivative; logarithmic and exponential functions, applications to growth and decay; brief review of trigonometry, trigonometric functions; techniques of integration; L’Hôpital’s rule; Taylor’s series and remainder. Prerequisites: C or better in 180 and some knowledge of trigonometry or 123 (123 can be taken simultaneously with 181).

190-191. Freshman Seminars. [Freshman Honors Seminars] (1,1)  
Background and supplementary material with emphasis on problem solving for students concurrently enrolled in Math 162, 163. Prerequisite: Permission of instructor. <191 Fall, 190 Spring>

264. Calculus III. (4)  
Vector representation of curves and surfaces, partial derivatives, multiple integrals, Taylor polynomials and error, power series, improper integrals, introduction to approximate solution of differential equations. Prerequisite: C or better in 163 or permission of department chairman. <Summer, Fall, Spring>

265. Vector Analysis. (4)  
Vector algebra, lines, planes; vector valued functions, curves, tangent lines, arc length, line integrals; directional derivative and gradient; divergence, curl, Gauss’ and Stokes’ theorems, geometric interpretations. Prerequisite: grade of C or better in 264 or permission of department chairman. <Summer, Fall, Spring>

291-292. Sophomore Seminars. [Sophomore Honors Seminars] (1-3 hrs. each semester)  
Background and supplementary material with emphasis on problem solving for interested sophomores. Prerequisite: permission of instructor. <291-Fall, 292-Spring>

II. COURSES FOR TEACHERS AND EDUCATION STUDENTS  
The following courses are intended primarily for undergraduate and graduate students in the College of Education and for others seeking teaching certification. Other persons may be admitted to these courses by permission of the Department Chairman.

§111. Mathematics for Elementary School Teachers I. (3)  
The intuitive and logical background of arithmetic; properties of sets; algorithms of arithmetic in base ten and other bases; properties of the integers. <Summer, Fall, Spring>

§ Effective Sem. II, 1973-74 credit will not be allowed for both 180 and 162 or both 181 and 163.

§ Math 111 and 112 are suggested for fulfilling requirements in Elementary Education. See El Ed curriculum, p. 112.
§112. Mathematics for Elementary School Teachers II. (3)
The properties of the rational number system; extension to the irrationals; decimal representation of and operations with real numbers; intuitive geometry and measurement; solution of equations and of inequalities. Prerequisite: 111 or equivalent. <Fall, Spring>

§213. Elementary Algebra from a Modern Viewpoint. (3)
Algebraic system; axiomatic approach to the real number system; functions. <Offered upon demand>

§214. Elementary Geometry from a Modern Viewpoint. (3)
Ideas of intuitive geometry; concepts of informal geometry with attention to precise terminology. <Offered upon demand>

§300. Vector Geometry. (3)
A vector treatment of lines, planes, curves, and surfaces. <Offered upon demand>

§303. Sequences and Series. (3)
Convergence and error analysis for sequences and series. Prerequisite: 264 or equivalent <Offered upon demand>

§304. Foundation of Secondary Mathematics. (3)
Inductive and deductive reasoning; mathematical systems and structure. Prerequisite: 264 or equivalent. <Offered upon demand>

§305. History of Mathematics. (3)
A survey of the history of elementary mathematics. Prerequisite: 264 or equivalent. <Offered upon demand>

§306. College Geometry. (3)
Famous theorems of geometry. Fundamentals of Euclidean geometry. Properties of triangles, quadrangles and circles. Highlights of non-Euclidean geometry. <Offered upon demand>

§307. Intuitive Topology. (3)
Simple closed curves, orientable and non-orientable surfaces, Möbius strip, Klein bottle, homeomorphism. <Offered upon demand>

§308. Theory and Practice of Problem Solving. [Topics in Higher Algebra] (3)
This course will display mathematical invention and discovery as an experience in which everyone can participate through reasoning by analogy, by induction and through intelligent guessing. <Offered upon demand>

§310. Applications of Mathematics. (1-4)
Applications of elementary mathematics to the physical, biological, and social sciences. Prerequisite: one year elementary calculus. <Offered upon demand>

§338. Mathematics for Secondary Teachers. (3)
Topics from secondary mathematics presented from an advanced standpoint and designed to meet the needs of pre- and in-service teachers. Open only to students working toward teacher certification. <Spring>

§339. Topics in Mathematics for Elementary Teachers. (3)†
Problems solving techniques with problems derived from areas such as physics, business, physical education, art, history, architecture, agriculture; using algebra, finite mathematics, number theory, and geometry. <Offered upon demand>

§398. Tutoring Freshman Mathematics. (1-3)
Techniques and experiences in tutoring students in freshman mathematics courses, course limited to undergraduates and graduates with no professional teaching experience; students required to attend a briefing seminar each week and to tutor one or more hours per week. Grading is on a Credit-No Credit basis but course may be counted toward a major or minor. Prerequisite: one year of calculus and at least 6 hours of 300 level mathematics courses. <Fall, Spring>

III. UPPER LEVEL UNDERGRADUATE COURSES

**312. Advanced Engineering Mathematics I. (3)
Infinite sequences and series of functions; uniform convergence; Taylor and Fourier expansions with applications to ordinary and partial differential equations; special functions. Prerequisite: 264 and 316. <Summer, Fall, Spring>

§ Math 111 and 112 are suggested for fulfilling requirements in Elementary Education. See EI Ed curriculum, p. 112.

† These courses are available for graduate credit for the degree of Master of Arts in Secondary Education, Master of Arts in Teaching Mathematics, and Master of Arts in Teaching Science.
**313. Advanced Engineering Mathematics II. (3)
Theory of functions of a complex variable with applications to physical and engineering problems. Prerequisite: 264. 265 is recommended. <Fall>

**314. Linear Algebra with Applications. (3)
Effective solution of systems of linear equations. Eigenvalues and eigenfunctions of symmetric linear operators. Applications to problems in the physical sciences. Prerequisite: one year elementary calculus. <Summer, Fall, Spring>

**315. Generalized Functions and Operational Methods. (3)
Theory of integral transforms and generalized functions, with applications to differential and integral equations arising in engineering and mathematical physics. Prerequisite: permission of instructor. <Offered upon demand>

**316. Applied Ordinary Differential Equations. (3)
An introduction to the algorithmic theory of ordinary differential equations. Topics to be covered: elementary theory of ordinary differential equations, numerical methods, phase-plane analysis, introduction to Laplace transformation. Non-mathematics graduate students will be required to complete a term project to receive graduate credit. Prerequisite: 163 and knowledge of FORTRAN. 264 and Engr 102L are recommended. <Summer, Fall, Spring>

**319-320. Theory of Numbers. (3, 3)
Divisibility, congruences, primitive roots, quadratic residues, diophantine equations, continued fractions, partitions, number theoretic functions. <319-Fall, 320-offered upon demand>

**321. Linear Algebra. (4)
Linear transformations, matrices. Canonical forms. Spectral theorems in inner product spaces. (Content expanded from 322 as offered before 1970-71). Prerequisite: 264 or permission of instructor. <Fall, Spring>

**322. Abstract Algebra. (3)
Groups and rings, homomorphisms, permutation groups, quotient structures, ideal theory. Prerequisite: 321 or permission of instructor. (Same content as 321 offered before 1970). <Summer, Fall>

**331-332. Survey of Geometry. (3, 3)
Topics from affine, projective, Euclidean, and hyperbolic geometries. <Offered upon demand>

**340. Discrete Probability Theory. (3)
Combinatorial Analysis, conditional probability and stochastic independence, the binomial and Poission Distributions, the Normal Distribution and the DeMoivre-Laplace limit theorem, probability generating functions. Corequisite: 163 or permission of instructor. <Spring>

**345. Statistical Methodology. (3)
A brief introduction to probability. Principles of estimation; mean-square error, bias, efficiency, confidence intervals. Principles of hypothesis testing; significance, power. Applications of standard estimation and testing procedures to problems from a variety of fields will be given. Prerequisite: one year of elementary calculus. <Summer, Fall, Spring>

**346. Applied Experimental Design and Analysis. (3)
Principles of designing experiments. Analysis of variance. Some commonly used designs: Factorial experiments; Randomized, Randomized Block, Latin Square, Nested and Split Plot Designs. Fixed, Random and Mixed Models. Throughout course applications and use of existing computer codes will be stressed. Prerequisite: an introductory course in statistics (e.g. Math 102 or Ed Fdn 501). <Fall, Spring>

*347. Data Analysis. (3)
A survey of several statistical techniques commonly used by researchers. Emphasis is put on the use of statistical computer packages such as BMD, SPSS, and Statpack. Prerequisite: Math 102 or equivalent.

**361-362. Advanced Calculus. (3, 4)
A rigorous development of the differential and integral calculus of functions of one and several real variables. Prerequisite: 264 is required for 361 and 265 is recommended for 362. <361-Fall, 362-Spring>

# Only one of 314 and 321 may be taken for credit, effective Summer 1974.
**375. Introduction to Numerical Computing. (3)**  
(Also offered as Cp Sci 375.) An introductory course covering such topics as interpolation, integration, solution of linear and non-linear equations, and solution of ordinary differential equations. A single effective method will be studied for each topic and computer codes furnished. Emphasis will be on solving problems. Prerequisites: calculus and some ability at Fortran programming. <Fall, Spring>  

**391-392. Advanced Undergraduate Honors Seminar. (1-3 hrs. each semester to maximum of 8)**  
Advanced problem solving. Especially recommended for students wishing to participate in the Putnam Intercollegiate Mathematical Competition. Prerequisite: Permission of instructor. <Fall, Spring>  

**407. Mathematical Methods in Economics. (3)**  
(Also offered as Econ 407.) A survey course designed to develop those mathematical results and methods which find frequent use in economic analysis. (This course will not be counted in the hours necessary for a mathematics major or minor.) Prerequisite: one year of calculus or consent of instructor. <Fall>  

**415. Foundations of Mathematics. (3)**  
(Also offered as Phil 415.) This course will consider the following questions and topics. What is a number? Do numbers exist? What is a set? Do sets exist? What is an axiom system? Does mathematical rigor exist? Formalists versus realists. Brouwer versus Hilbert. Godel's theorem, Banach-Tarski paradox. Prerequisite: serious interest in philosophical and historical aspects of modern mathematics. <Offered upon demand>  

**416. Axiomatic Set Theory. (3)**  
Starting with elementary logical considerations this course develops set theory as a foundation for all mathematics. The presentation is rigorous but assumes no specific topics in previous mathematics. Recommended for the student interested in abstract mathematics who wishes to learn to do rigorous proofs. Prerequisite: One year of college mathematics. <Offered upon demand>  

**417. Combinatorial Analysis. (3)**  
Permutations, combinations, recurrence relations, generating functions, and enumeration techniques. Prerequisite: permission of instructor. <Offered upon demand>  

**418. Graph Theory. (3)**  
Trees, connectivity, coverings, planarity, colorability, digraphs. Prerequisite: permission of instructor. <Offered upon demand>  

**419. Elementary Algebraic Number Theory. (3)**  
Similar to Math 319 but ideal theory is assumed and used in the development; quadratic algebraic integers, reciprocity, factorization, and possibly Minkowski's theory, continued fractions and diophantine equations. Prerequisite: 322. <Offered upon demand>  

**421. Theory of Fields. (3)**  
Galois theory of algebraic field extensions. Transcendental extensions. Prerequisites: 321, 322. <Offered upon demand>  

**430. Tensor Analysis. (3)**  
Tensors, exterior differential calculus, Stoke's theorem and applications to physics and engineering. Prerequisite: 265 or 362 or permission of instructor. <Offered upon demand>  

**431. Introduction to Topology. (3)**  
Metric spaces, topological spaces, continuity, concepts used in analysis. Prerequisite: 361. <Fall>  

**434. Introduction to Differential Geometry. (3)**  
Differential geometry of curves and surfaces in Euclidean 3-space. Prerequisites: 361, 362. <Offered upon demand>  

**439. Topics in Mathematics. (1-3 hrs. per semester)†**  

**441. Probability and its Applications. (3)**  
Mathematical models for random experiments, random variables, expectation. The common probability distributions and some of their applications. Joint distributions, conditional probability and independence. Laws of large numbers, the central limit theorem and a brief introduction to stochastic processes. Prerequisite: two years of calculus or 345. <Fall>  

**442. Applied Stochastic Processes. (3)**  
Markov chains and Markov processes. Stationary processes and harmonic analysis. Applications of importance in the physical and biological sciences and engineering. Prerequisite: 441 or equivalent. <Spring>
*445. Linear Models and Their Applications. (3)

*446. Sampling Theory and Practice. (3)
Methods of Sample selection: random and systematic samples, stratified and multi-stage sampling. Allocation principles and use of supplementary information. Sampling and non-sampling error. Design and execution of survey data. Computer utilization and a sampling project. Prerequisites: 345 or permission of instructor. <Offered upon demand>

*447. Methods of Multivariate Analysis. (3)
(Also offered as Psych 402.) Properties of the multivariate normal and related distributions. Tests of hypothesis based on these distributions. Multivariate analysis of variance, discriminate analysis, principle components and factor analysis with applications. Prerequisites: 314, 345 or permission of instructor. <Offered upon demand>

*448. Non-Parametric Methods. (3)
Statistical problems and their non-parametric solutions. Rank order tests, sign tests, chi-square tests, and Kolmogorov-Smirnov tests. Tolerance intervals and non-parametric estimation. Relative efficiency of non-parametric inference. Prerequisite: 345 or permission of instructor. <Offered upon demand>

*449. Topics in Probability and Statistics. (3)

*455. Mathematical Logic. (3)
(Also offered as Cp Sci 455) Formalization of mathematical reasoning. The notion of completeness and consistency will be developed within the context of the first order predicate calculus. The higher order calculus, or the theory of types, will be examined. Two alternative definitions of mathematical truth will be discussed. There are no prerequisites in particular, but the student should have a reasonably strong background in mathematics with a good intuitive feeling for what constitutes mathematical proofs. Prerequisite: permission of instructor. <Fall>

*456. Non-standard and Higher Order Logic. (3)
(Also offered as Cp Sci 456) Intuitionistic logic and modal theory, modal logics, minimal logics, classical theory of types, the Godel incompleteness theorem, Henkin's theory of types. Prerequisite: 455. <Spring>

*461. Functions of a Complex Variable. (3)
Analytic functions, Cauchy theorem and consequences, conformal mapping. Prerequisite: 361 or consent of instructor. <Offered upon demand>

*462. Introduction to Ordinary Differential Equations. (3)
Physical origins of differential equations, elementary methods of solution, existence theorems, series and asymptotic solutions, perturbation and numerical methods, phase-plane analysis, and elements of Sturm-Liouville theory. Prerequisite: permission of instructor. <Fall>

*463. Introduction to Partial Differential Equations. (3)
Classification of second-order partial differential equations; properly posed problems; separation of variables, eigenfunctions, and Green's functions; brief survey of numerical methods and variational principles. Prerequisite: permission of instructor. <Spring>

*464. Applied Matrix Theory. (3)

*466. Methods of Theoretical Physics. (3)‡
Alpert, Beckel, Dean, Finley, Thomas
(Also offered as Physcs 466.) A selection of mathematical methods applied to physics. <Spring>

*472. Fourier Series and Integrals. (3)
Convergence and summability theory of trigonometric series; Bessel's and Parseval's relations; Fourier integrals and their inversion; expansions in series of orthogonal functions; selected applications. Prerequisite: 361 or permission of instructor. <Offered upon demand>

*473-474. Integral Equations and Boundary Value Problems. (3, 3)
Theory of integral equations, eigenfunction expansions, boundary-value problems, conversion into integral equations, variational methods, approximation methods. Prerequisite: knowledge of calculus and linear algebra. <Offered upon demand>
**475. [475-476] Numerical Analysis I. [Elements of Numerical Analysis] (3)  
(Also offered as Cp Sci 475.) Numerical solution of linear and non-linear systems of equations; the algebraic eigenvalue problems; round-off error. Prerequisites: 314 or equivalent and some knowledge of Fortran programming. Students with credit for 375 should consult with instructor. <Fall>**

**476. [475-476] Numerical Analysis II. [Elements of Numerical Analysis] (3)  
(Also offered as Cp Sci 476.) Approximation of functions, integration and numerical solution of ordinary differential equations. Prerequisites: 316 or 361 or equivalent, and some knowledge of Fortran programming. Students with credit for 375 should consult with instructor. <Spring>**

**481. Linear Spaces. (3)  
Linear spaces, normed linear spaces, Hilbert spaces, applications to differential and integral equations. Prerequisite: 361. <Offered upon demand>**

**495. Survey of Advanced Mathematics. (1)  
Expository and historical lectures on modern mathematics by different members of the department. Each student will be required to prepare notes on at least one lecture to be distributed to the class. Prerequisites: 361-362, 321-322, <Fall> Prerequisites: 361-362,**

**498. Problems. (1-3 hrs. per semester to a maximum of 6)  
Admission by approval of Department Chairman.**

**499. Individual Study. (1-3 hrs. per semester to a maximum of 6)  
Guided study, under the supervision of a faculty member, of selected topics not covered in regular courses. Admission by approval of the Department Chairman.**

**IV. GRADUATE COURSES**

Satisfactory completion of 321, 322 and 361-362, or evidence of equivalent preparation, is required for admission to any of the following courses.

**500. Foundations of Set Theory. (3)  
(Also offered as Cp Sci 500.)**

**519. Selected Topics in Number Theory. (3)†**

**521-522. Modern Algebra. (3, 3)**

**527-528. Theory of Rings. (3, 3)**

**529. Selected Topics in Algebra. (3)†**

**531-532. Topology. (3, 3)**

**533-534. Algebraic Topology. (3, 3)**

**536. Differential Geometry. (3)**

**539. Selected Topics of Geometry and Topology. (3)†**

**541-542. Probability Theory. (3, 3)  
<541-Fall, 542-Spring>**

**543-544. [443 and 444] Statistical Inference. [Statistical Distributions] (3, 3)  
Prerequisites: 441, 464. <543-Spring, 544-Fall>**

**545-546. Stochastic Processes. (3, 3)  
Prerequisites: 541-542. <Offered upon demand>**

**547. Statistical Design of Experiments. (3)  
Prerequisite: 543 or 445 or permission of instructor. <Offered upon demand>**

**548. Techniques of Statistical Consulting. (3)†  
Prerequisite: 6 hours 400 level statistics or permission of instructor.**

**549. Selected Topics in Probability and Statistics. (3)†**

**551-552. Problems. (1-3 hrs. each semester)†**

**557. Computational Mathematics. (3)†  
(Also offered as Cp Sci 557.) <Offered upon demand>**

**558. Mechanical Theorem Proving. (3)  
(Also offered as Cp Sci 558.) Prerequisite: Mathematical Logic. <Spring>**

**561-562. Functions of a Complex Variable. (3, 3)  
<561-Fall, 562-Spring>**

**563-564. Functions of a Real Variable, Measure, Integration. (3, 3)  
<563-Fall, 564-Spring>**
*565. Harmonic Analysis. (3)  
Prerequisites: 562, 564, 581 or consent of instructor. <Offered upon demand>

*569. Selected Topics in Analysis. (3)†

*571-572. Ordinary Differential Equations. (3, 3)  
Prerequisite: 462. <Offered upon demand>

*573-574. Partial Differential Equations. (3, 3)  
Prerequisites: 473-474. <Offered upon demand>

*575. Calculus of Variations. (3)  
Prerequisites: 473-474. <Offered upon demand>

*576. Approximation Theory. (3)  
Corequisite: 563. Recommended: 581. <Offered upon demand>

*577-578. Integral Equations. (3, 3)  
Corequisites: 563, 581. <Offered upon demand>

*579. Selected Topics in Applied Mathematics. (3)†

*581-582. Functional Analysis. (3, 3)  
Prerequisites: 563-564. Recommended: 473-474. <Offered upon demand>

*583. Linear Topological Spaces. (3)  
Prerequisite: 481. <Offered upon demand>

*584. Banach Algebras. (3)  
Prerequisites: 431, 481. Recommended: 531. <Offered upon demand>

*589. Selected Topics in Functional Analysis. (3)†

*619. Seminar in Number Theory. (1-3)†

*629. Seminar in Algebra. (1-3)†

*631-632. Algebraic Geometry. (3, 3)  
<Offered upon demand>

*639. Seminar in Geometry and Topology. (1-3)†

*643. [543] Advanced Statistical Inference I. (3)  
Prerequisites: 544, 564; corequisite: 541. <Fall>

*644. [544] Advanced Statistical Inference II. (3)  
Prerequisite: 643. <Spring>

*649. Seminar in Probability and Statistics. (1-3)†

*650. Reading and Research. (1-6)†

*669. Seminar in Analysis. (1-3)†

*672. Advanced Numerical Analysis—Eigenvalues. (3)  
Prerequisites: 475-476 and a sound knowledge of the fundamentals of linear algebra.  
<Offered upon demand>

*673. Advanced Numerical Analysis—Ordinary Differential Equations. (3)  
Prerequisites: 475-476 and 462 or equivalent, with permission of instructor. <Offered upon demand>

*674. Advanced Numerical Analysis—Partial Differential Equations. (3)  
Prerequisites: 475-476, 463 and an acquaintance with the elementary principles of functional analysis in Banach spaces, or equivalent, with the consent of instructor.

*675-676. Differential Operators. (3, 3)  
Prerequisite: 481, 473-474 or 573-574. Recommended: 581-582. <Offered upon demand>

*677. Pattern Recognition. (3)  
(Also offered as Cp Sci 677) <Offered upon demand>

*679. Seminar in Applied Mathematics. (1-3)†

*689. Seminar in Functional Analysis. (1-3)†

*699. Dissertation. (1-9 hrs. per semester)

See the Graduate School Bulletin for total credit requirements.
MEDICAL SCIENCES

Anatomy

PROFESSORS A. J. Ledman, Ph.D. (Chairman); L. M. Napolitano, Ph.D. (Dean); G. E. Omer, Jr., M.D. (Orthopaedics); ASSOCIATE PROFESSORS R. O. Kelley, Ph.D.; R. E. Waterman, Ph.D.; ASSISTANT PROFESSORS E. S. Creps, Ph.D.; W. G. Dail, Jr., Ph.D.; W. E. Daugherty, M.D. (Pathology); A. P. Evan, Ph.D.; SENIOR RESEARCH ASSOCIATE Linda C. Saldan, Ph.D.

Biochemistry


Family and Community Medicine


Medicine

Pediatrics
PROFESSORS R. B. Kugel, M.D.; E. A. Mortimer, Jr., M.D.; G. M. Owen, M.D.; ASSOCIATE
PROFESSORS R. W. Ceen, M.D.; A. H. Cushing, M.D. (Acting Chairman); R. D. Snyder, M.D.;
ASSISTANT PROFESSORS J. M. Aase, M.D.; R. A. Atkinson, M.D.; T. A. Borden, M.D.; J. P.
Cardillo, Ph.D.; B. M. Cummins, M.D.; C. G. Geil, M.D.; D. P. Flammer, M.D.; F. S. Herzon,
G. T. Peake, M.D.; R. L. Snyder, Jr.; R. E. Swensson, M.D.; INSTRUCTORS G. L. Bammelaere,
M.D.; M. Duncan, M.D.; R. Duncan, M.D.; B. J. Harr, M.S.W.; V. Henderson, Ph.D.; E. D.
Kaufman, M.D.; J. L. Lockwood, M.A.; S. B. Witemeyer, M.D.; CLINICAL PROFESSOR J. B.
Gillespie, M.D.; ASSOCIATE CLINICAL PROFESSORS P. M. Eicher, M.D.; R. G. Fearnow,
M.D.; ASSISTANT CLINICAL PROFESSORS H. H. Alley, M.D.; R. C. Baumann, M.D.; F. W.
W. H. Milburn, M.D.; T. N. Norris, M.D.; D. C. Pinkerton, M.D.; J. Soland, M.D.; J. Seltz,
M.D.; D. L. Starbuck, M.D.; S. N. Stark, M.D.; VOLEUNTEERS J. Brown, III, M.D.; M. Barlow,
ASSISTANT PROFESSOR EMERITUS G. Eisenberg, M.D.

Pharmacology
PROFESSORS L. Hurwitz, Ph.D. (Chairman); H. Vorherr, M.D.; ASSOCIATE PROFESSORS D. V.
Priola, Ph.D.; E. C. Palmer, Ph.D.; ASSISTANT PROFESSORS B. P. Ayner, Ph.D.; W. C. Buss,
Ph.D.; W. F. Woodside, Ph.D.; ADJUNCT ASSISTANT PROFESSOR C. T. Spalding, M.D., Ph.D.

Physiology
PROFESSOR S. Solomon, Ph.D. (Chairman); ASSOCIATE PROFESSORS D. V. Priola, Ph.D.; A.
Ratner, Ph.D.; G. K. Weiss, Ph.D.; ASSISTANT PROFESSORS D. M. Feeney, Ph.D.; W. R.
Galey, Jr., Ph.D.; K. G. Kastella, Ph.D.; J. K. Leach, M.D.; M. Pollay, M.D.; Steven Wood, Ph.D.

Psychiatry
PROFESSORS W. W. Winslow, M.D. (Chairman); R. Kellner, M.D., Ph.D.; L. M. Libo, Ph.D.;
ADJUNCT PROFESSOR E. I. Wells, M.D.; ASSOCIATE PROFESSORS J. F. Carlin, M.D.; J. R.
R. L. Snyder, Jr., M.D.; VISITING ASSOCIATE PROFESSOR K. Koenig, Ph.D.; ASSISTANT
PROFESSORS R. G. Blachly, M.S.; D. Burke, Ph.D.; J. P. Cardillo, Ph.D.; B. M. Cummins,
M.D.; R. Duncan, Ph.D.; D. Flammer, Ph.D.; A. Frank, M.D.; S. I. Glover, M.D.; M. A. Hickey,
M.D.; R. Kellogg, M.D.; S. Lund, D.O.; R. McCarthey, Ph.D.; J. Martirre, Ph.D.; T. Payton,
I. Rosen, Ph.D.; C. Schwartz, M.D.; M. S. Schuster, M.D.; J. W. Sterling, Ph.D.; E. Suazo,
M.Ed.; M. Urdaneta, M.S.W.; D. A. West, M.D.; L. Wynne, Ph.D.; ADJUNCT ASSISTANT
PROFESSORS R. Buie, M.D.; C. Yates, M.D.; INSTRUCTORS D. Arellano, M.S.W.; R. Campos;
A. Chakerian, M.D.; Y. Henderson, Ph.D.; P. Jones, B.A.; C. Koerner, M.S.S.S.; B. Lange,
R.N.; R. Levin, Ph.D.; J. Lockwood, Ph.D.; M. McCrossen, M.A.; W. Mitchell, Ph.D.; B. Monroe,
M.A.; M. Morris, M.S.W.; D. Ward, M.S.W.; W. Wegner, ADJUNCT INSTRUCTORS A. Curran,
M.S.S.S.; N. Ramea, M.A.; VOLUNTEER FACULTY T. M. Abel, Ph.D.; J. B. Alexander, Ph.D.;
C. Archibald, M.S.W.; R. Bergman, M.D.; D. A. Bruzzone, M.D.; R. Caplan, Ed.D.; S. Caplan,
M.A.; J. Ellis, M.D.; G. Feldman, M.S.W.; B. K. Graham, M.A.; S. Guzman, M.S.W.; C. Harris,
Koenig, Ph.D.; M. Landau, Ph.D.; R. Lechyny, D.S.W.; E. Levy, M.S.W.; S. Libo, Ph.D.; J.
McCormack, M.D.; M. Muldawer, M.D.; J. Murati, Ph.D.; M. Neal, M.D.; M. Nordhaus,
M.S.W.; H. Payne, Ph.D.; B. Prince, M.D.; S. Roll, Ph.D.; M. R. Rose, M.S.W.; S. Rosenblum,
Ph.D.; D. Rosenstein, M.D.; J. Schenkel, Ph.D.; W. Sears, M.D.; W. Shelton, M.D.; C. Smith,

Radiology
PROFESSORS B. G. Brogdon, M.D. (Chairman); M. M. Kligerman, M.D.; R. D. Moseley, Jr., M.D.;
ASSOCIATE PROFESSORS J. L. Howarth, Ph.D.; J. D. Shoop, M.D.; ASSISTANT PROFESSORS
J. E. Antoine, M.D.; J. E. Barnes, Ph.D.; R. E. Keese, Pharm.D.; J. McDonald, M.D.; S. B.
Paster, M.D.; Hens Schwarz, M.D.; C. J. Sternhagen, M.D.; ADJUNCT PROFESSORS H. A. O'Brien,
Jr., Ph.D.; ASSISTANT INSTRUCTORS C. R. Appleford, Jr., BUS; J. E. Seubert, B.S.R.T.; LECTURER
G. H. Travo, VOLUNTEER FACULTY P. M. Fox, M.D.; R. M. Henderson, M.A.; O. Legant, M.D.; M. Lesser,
M.D.; D. L. Simmons, M.D.; C. M. Thompson, M.D.
Surgery

See Graduate School Bulletin for description of courses numbered 500 and above.

CLINICAL SCIENCE

425. Introduction to Clinical Nutrition. (3) Sanders
(Also offered as H Ec 425.) The determination of nutritional status of normal persons by the health team, using research methodology. Prerequisites: Physiology, Nutrition 325, 326L or equivalent, Biochemistry or concurrently 600 Med Biology I. <Summer>

504-505. Clinical Science I. (5,5)
520. Clinical Science Makeup Course. (10)
Prerequisite: one year of medical school study. <Summer only>

530-531. Clinical Science II. (5,5)
Prerequisites: 504-505.

540. Medicine Clerkship. (7)

541. Obstetrics-Gynecology Clerkship. (7)

542. Pediatric Clerkship. (7)

543. Psychiatry Clerkship. (7)

544. General Surgery. [Surgery and Surgical Subspecialties.] (7)

550. Surgical Subspecialties. (7)

570. Neurology-Neurosurgery Clerkship. (6)

571. Clinical Science IV. (12)

572. Selectives. (12)

573. Electives. (1 cr. hr. for each week of full-time medically related activity)

MEDICAL BIOLOGY

500-501. Medical Biology I. (13,13)
502L-503L. Medical Biology I Laboratory. (6,6)

526-527. Medical Biology II. (11,11)
Prerequisite: Medical Biology I (500-501 and 502L-503L). Course spans both semesters; also offered in Medical Science Program as 594-595 and 596L-597L.

528L-529L. Medical Biology II Laboratory. (6,6)
Prerequisites: same as for 526 and 527.

MEDICAL SCIENCE

201. Seminar—Medicolegal Investigation of Death. (2)
This seminar offered through the Division of Forensic and Environmental Sciences is designed to introduce the student to modern concepts of investigation and preliminary examination of the circumstances and causes of death of sudden, unexpected and unnatural causes. The course is designed primarily for experienced law enforcement investigators and representatives of the Office of the Medical Investigator and assumes a working knowledge of the handling of evidence and report preparation. 42 hours of
didactic presentation, discussion, and practical exercises. A written and practical examination must be satisfactorily completed for credit.

**301. Introductory Physiology for Engineers. (3)**
Course designed to provide rudimentary familiarization with physiological systems for non-biological scientists. Purpose is to provide a base of understanding of regulatory mechanisms as they exist in biological systems. To be given in Los Alamos. Prerequisites: college physics; mathematics through advanced algebra; inorganic chemistry; or by permission of instructor.

**302. Fundamentals of Cellular Physiology. (3)**
Moffat
Cell physiology for non-biological scientific personnel, with emphasis on immunological response of the body to disease. Prerequisites: college physics; advanced algebra; inorganic chemistry; or permission of instructor. Offered at Los Alamos Residence Center only. (Not offered 1975-76)

**303. Physiology for Scientists and Engineers. (3)**
Physiological mechanisms underlying abnormally functioning biological systems.

* 400. Special Problems in Medical Physics. (1-3) Barnes
A special problem in the area of medical physics of mutual interest to the student and the instructor will be selected. Prerequisite: permission of instructor only. <Fall, Spring>

* 420. Biochemistry of the Nervous System. (3) LeBaron, Wild
An intermediate level treatment of biochemical topics especially pertinent to the nervous system. These will include: Metabolism and function of transmitter substances; the basic biochemical processes occurring in nervous tissue; alterations in these processes which are associated with functional activity and with pathological states; and the biochemical bases of the effects of drugs on the function of the nervous system. Prerequisite: one semester biochemistry.

* 432-433. Microbiology. (3,3)
A two-semester sequence, covering the morphology, metabolism, physiology, taxonomy, and ecology of microorganisms; principles of immunology and host-parasite relationships. Specifically designed for beginning graduate students in microbiology but open to others. Prerequisites: general biology and organic chemistry.

* 434. Clinical Laboratory Microbiology. (2) Ulrich
Prerequisite: permission of instructor. <Offered each semester and may be repeated under different areas of concentration>

* 436. Medical Virology. (3) Cords, McLaren
Lectures on biology of animal cell cultures; nature of viruses and rickettsia; etiology, epidemiology, pathogenesis, and laboratory diagnosis of viral and rickettsial infections. Prerequisite: Biol 454L.

* 437L. Medical Virology Laboratory. (2) Cords, McLaren
Laboratory experience in animal cell culture techniques, animal inoculation, and serological reactions for the isolation and identification of viruses of medical importance. Prerequisites: Med Sc 436 and permission of instructor.

* 439L. Medical Mycology. (3) Ulrich
Classification, structure, function, immunology, host-parasite relationships, isolation and identification of pathogenic actinomycetes, yeast, and fungi. Prerequisite: Biol 454L.

* 481. Biological Chemistry. (3) Biochemistry Staff
(Also offered as Chem 481.) In depth survey of basic biochemical reactions within the cell with quantitative evaluation of the energy changes involved. Topics considered include structure and function of macromolecules, pH control, catabolic metabolism, free energy changes, enzyme kinetics, control mechanisms, and bioenergetics. Physical chemical problem solving will be emphasized. This course is designed primarily for graduate students in biochemistry and related fields. Prerequisites: Chem 302, and 311 or 315. <Fall>

* 482. Biological Chemistry. (3) Biochemistry Staff
(Also offered as Chem 482.) Continuation of 481 with major emphasis on anabolic metabolism and control mechanisms. Prerequisite: 481. <Spring>

* 510. Human Microscopic Anatomy. (3) Moffat
Prerequisites: 6 hrs. of biology or its equivalent or permission of instructor. <Offered at Los Alamos Laboratory only>

* 570. Surgical Pathology Seminar—Elementary. (1)
Prerequisites: 594 and permission of instructor.
*571. Diagnostic Cytology Seminar. (1) Jordan
   Prerequisites: 594 and permission of instructor. Students must take course two times
   (but register only once) to get 1 hr. credit.

*572. Clinico-Morphologic Correlation Conference. (2) Key
   Prerequisites: 594 and permission of instructor.

*573-574. Clinical Pathology Seminar. (2, 2) Howard
   Prerequisites: 594 and permission of instructor.

*575. Pathology. (8) Anderson
   Offered only during summer session at the Given Institute, Aspen, Colorado. Prerequisite:
   see prospectus.

*581. Advanced Topics in Biological Chemistry. (1-3)†
   (Also offered as Chem 581.) Prerequisite: 482. <Offered upon demand>

*583. Clinical Chemistry. (1-2) Standefer
   Prerequisite: Organic Chem and Biochemistry.

*584L. Clinical Chemistry Laboratory. (8) Standefer
   Prerequisite: permission of instructor.

*588-589. Advanced Biometry for Research. (3) Eberle
   Prerequisites: Math 162-163 or 180-181 or permission of instructor.

*590-591. Medical Biology I. (1-8 hrs. each semester)

*592L-593L. Medical Biology I Laboratory. (1-6 hrs. each semester)

*594-595. Medical Biology II. (1-12 hrs. each semester)
   Prerequisites: 590-591, 592L-593L.

*596L-597L. Medical Biology II Laboratory. (1-6 hrs. each semester)
   Prerequisites: same as for 594-595.

*599. Masters Thesis. (1-6 hrs. per semester)
   See the Graduate School Bulletin for total credit requirements.

*601-602. Advanced Physiology. (1-7 hrs. each semester)
   Prerequisites: 590-591 or consent of Physiology Department. <Offered Academic
   1974-75 and alternate years>

*610L. Experimental Cytology. (3-6) Graduate Staff
   Prerequisites: 590-501 or equivalents.

*611L. Fine Structure and Electron Microscopy. (6-12) Graduate Staff
   Prerequisites: 590-591 and 610L or equivalent and approval of Anatomy Department
   Chairman.

*612L. Histochemistry and Cytochemistry. (4-6) Graduate Staff
   Prerequisites: 590-591 and 610L or equivalent.

*613. History of Anatomy. (1-2) Ladman

*614. Research Techniques in Morphology. (2-4)
   Prerequisites: 590-591 or equivalent. <Fall>

*615. Current Topics in Morphology. (1-2)
   Prerequisites: 590-591 or equivalent. <Fall, Spring>

*616. Selected Topics in Developmental Biology. (3) Kelley, Waterman
   Prerequisites: Biol 412L or 429L or consent of instructor. <Offered by arrangement>

*618. Seminar in Anatomy. (1)

*620. Advanced Biochemistry. (4)‡ Staff
   Prerequisites: Chem 311-312 and either Chem 481-482 or Med Sc 590-591. Not available
   1975-76.

*621. Biochemistry of Proteins. (3)‡ Loftfield, Smith, Woodfin
   Prerequisites: Chem 311-312 and either Chem 481-482 or Med Sc 590-591.

*622. Biochemistry of Phospholipids. (3) LeBaron
   Prerequisites: Chem 324 or 481-482 or Med Sc 590-591.

*623. Biochemistry of Steroids. (3) Scallen
   (Also offered as Chem 623.) Prerequisites: Chem 301-302; Chem 324 or 481 or Med Sc
   590-591.

*631L. Introduction to Research Techniques in Microbiology. (2-5)‡ Radloff
   Prerequisite: approval of Microbiology Department Chairman.
*632. Advanced Topics in Microbiology. [Advanced Microbiology] (1-3) Staff
Prerequisites: biochemistry, general microbiology or equivalent. <Offered in alternate years>

*633L. Advanced Microbial Physiology and Metabolism. (4) Scaletti
<Offered in alternate years>

*634. Biochemical Genetics. (2-4) Baker
Prerequisites: Med Sc 590 or biochemistry; Introductory Genetics and Microbiology.
<Offered in alternate years>

*635. Immunobiology. (2-4) Goldberg, Tokuda, Van Epps
Prerequisites: biochemistry, general microbiology and permission of instructor. May be repeated for credit under different topics.

*636. Advanced Virology. (3) Cords, McLaren
Prerequisites: biochemistry, immunology, virology or equivalent. (Offered in alternate years.)

*638. Microbiology Seminar. (1)

*650. Translocations in Biological Systems. (3) Galey
Prerequisites: 590-591 or Biol 429L, 430L or permission of instructor; pre- or corequisite: Chem 311-312. <Fall 1975 and alternate years>

*651. Integrative Functions of the Endocrine System. (3) Ratner
Prerequisites: 590-591 or equivalent and permission of instructor. <Spring 1976 and alternate years>

*652. Advanced Cardiovascular Physiology. (3) Priola, Weiss
Prerequisites: 500-501, 502L-503L or equivalent. <Fall 1975 and alternate years>

*653. Renal Water and Electrolyte Metabolism. (4) Solomon and Staff of Physiology
Prerequisites: 590-591, or Biol 429L, 430L and permission of instructor. <Fall 1975 and alternate years>

*654. Hormonal Control of Sex and Reproduction. (3) Ratner
<Spring 1977 and alternate years>

*655. Control Mechanisms in Biological Systems. (3) Kastella
Prerequisites: calculus and permission of instructor. <Offered by arrangement>

*656. Advanced Neurophysiology. (3) Kastella, Weiss
<Fall 1976 and alternate years>

*657. Special Topics in Physiology. (3)
Prerequisite: permission of instructor.

*658. Physiological Techniques. (4)
Prerequisite: permission of instructors.

*659. Seminar in Physiology. (1)

*660. Advanced Respiratory Physiology. (3) Wood
Prerequisites: 500-501, 502L-503L or equivalent. <Offered by arrangement>

*670. Principles of Drug Action at the Cellular Level. (2) Pharmacology Staff
Prerequisites: 590 and 591 or equivalent or special permission of instructor. <Spring>

*680. Surgical Pathology Seminar—Advanced. (1) Black
Prerequisites: 570 and permission of instructor.

*681. Oncology Seminar. (1) Black
Prerequisites: 570 and permission of instructor.

*682. Pathology Research Seminar. (1) Troup
Prerequisite: permission of instructor.

*683. Immunology Seminar. (1) Anderson, Tokuda
Prerequisite: permission of instructor.

*690. Research in Medical Sciences. (2-6 hrs. per semester to a maximum of 12 hrs.)

*691. Scientific Writing for Graduate Students. (1) Ladman

*695. Research. (2-6 hrs. per semester to a maximum of 12 hrs.)

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.
PHYSICAL THERAPY

301. Therapeutic Exercise I. (3) Barnett
   Basic exercise techniques and program planning correlated with evaluative and therapeutic
   procedures. Prerequisite: admission to Program. <Fall>

302. Therapeutic Exercise II. (3)
   Use of apparatus and assistive devices. Activities of daily living. Exercises for specific
   conditions correlated with Medical Science. Prerequisites: 301, 341. <Spring>

305. Therapeutic Procedures I. (2) Barnett
   Physiological effects, indications, contraindications, rationale for use of therapeutic
   modalities; massage, hydro-therapy, and sterile techniques. Prerequisite: admission to
   Program. <Fall>

306. Therapeutic Procedures II. (2)
   Physiological effects, indications, contraindications, rationale for use of therapeutic
   modalities: electrotherapy, ultrasound, actinotherapy, traction. Prerequisites: 305, 341.
   <Spring>

310. Professional Development I. (2)
   Professional ethics and standards of care correlated with Clinical Education. Prerequisite:
   371. <Spring>

321. Human Anatomy/Neuroanatomy for Physical Therapists. (6) O'Brien
   Gross anatomy of the musculoskeletal, nervous, circulatory and respiratory systems.
   Prerequisite: admission to Program. <Fall>

341. Survey of Medical Sciences for Physical Therapists I. (2)
   Processes in disease and repair of tissue. Symptomatology and clinical course, implications
   for physical therapy management of arthritis, metabolic disorders, and cardio-respiratory
   diseases. <Fall>

342. Survey of Medical Sciences for Physical Therapists II. (2)
   Orthopaedic problems, peripheral nerve lesions, amputations, burns and trauma cor­
   related with therapeutic exercise and evaluation. Prerequisites: 321, 351. <Spring>

351. Evaluative Procedures I. (3) Barnett
   Range of motion, strength, and body alignment. Interpretation of results and implica.
   tions for physical therapy management. Prerequisite: admission to Program. <Fall>

352. Evaluative Procedures II. (2)
   Electrodiagnostic testing; testing of function of peripheral vascular system, pulmonary
   function. Interpretation and implications for physical therapy management. Prerequisites:
   341, 351. <Spring>

362. Human Physiology for Physical Therapists. (4)
   Physiological responses of systems of the body to therapeutic procedures. Neurophysiolog­
   ical basis for therapeutic exercises. Prerequisites: 301, 305. <Spring>

370. Kinesiology and Functional Anatomy. (2)
   Normal and abnormal muscle function, control of voluntary movement correlated with
   neuroanatomy. Prerequisite: 321. <Spring>

371. Clinical Education I and Seminar. (2)
   Observation and supervised practice of therapeutic procedures. Prerequisite: admission to
   Program. <Fall>

372. Clinical Education II. (1)
   Clinical practice with increasing responsibility for treatment planning and management,
   correlated with classroom activities. Prerequisite: 371. <Spring>

401. Therapeutic Exercise III. (5) Barnett
   Neurophysiological approaches to neuromuscular dysfunction; facilitation and inhibition
   techniques. Prerequisites: 302, 362. <Fall>

402. Therapeutic Exercise IV. (3)
   Rehabilitation; special problems, long term or terminal patients; team concepts, role
   release. Prerequisite: 302. <Spring>

421. Psychology of Disability. (2)
   Psychosocial factors in disability; cultural factors involved in planning and delivery of
   care. Prerequisite: 372. <Fall>

431. Health Care Systems and Delivery. (1)
   Organization of health care facilities and functions of physical therapy in hospital and
   out-of-hospital settings. Prerequisite: 372. <Fall>
432. Professional Development II. (2)
Research designs and methods; survey of professional literature. Prerequisites: 401, 451. <Spring>

441. Survey of Medical Sciences for Physical Therapists III. (2)
Etiology, symptomatology, and clinical course of common central nervous system disorders. Prerequisite: 342. <Fall>

442. Survey of Medical Sciences for Physical Therapists IV. (2)
Medical specialties, e.g., dermatology, thoracic and cardiovascular surgery, with significance for physical therapy practice. Prerequisite: 441. <Spring>

451. Evaluative Procedures III. (2)
Evaluation of sensorimotor development, functional testing and gait analysis. Prerequisite: 352. <Fall>

471. Clinical Education III and Seminar. (3)
Clinical practice in local facilities with increasing responsibilities for care. Prerequisite: 372. <Fall>

472. Clinical Education IV. (2)
Clinical education with increased responsibility for total patient care in clinical settings. Prerequisite: 471. <Spring>

480. Administration and Supervision. (2)
Planning and administration of physical therapy services; supervision of supportive personnel; consultation. Prerequisite: 471. <Spring>

MEDICAL LABORATORY SCIENCES

§010. Theory and Practice of Laboratory Technology (Preclinical). (0)
Basic theory and practice of clinical laboratory procedures in hematology, microbiology, clinical chemistry, clinical microscopy, blood banking, and serology required of a Certified Laboratory Assistant (CLA). Instruction consists of 400 hours of didactic and 600 hours of student laboratory practice (January). Prerequisite: acceptance into Medical Laboratory Assistant Program.

§020. Practice in Laboratory Procedures (Clinical). (0)
A supervised hospital laboratory experience to perfect skills learned in 010. Clinical experience will consist of 1000 hours of rotation through the sections of an approved, affiliated teaching hospital laboratory. Prerequisite: successful completion of 010.

§100. Medical Laboratory Science (Introduction). (1)
Introduction to scope and ethics of profession. Basic techniques, instrumentation, laboratory safety, and terminology. 1 hr. lecture. Prerequisite: acceptance into Medical Laboratory Technician Program.

§101. Clinical Urinalysis I. (2)
Basic theory and practice of urinalysis for Med Lab Tech program; 3 hr. lecture, 9 hrs. lab for 4 weeks. Prerequisite: 100. <Fall>

§101P. Practical Training in Clinical Urinalysis I. (1)
Supervised performance of urinalysis procedures in an affiliated hospital laboratory for Med Lab Tech program; 12 hours per week for 4 weeks. Prerequisite: 101. <Fall>

§102. Clinical Serology I. (2)
Basic theory and practice of serology for Med Lab Tech program; 3 hrs. lecture, 9 hrs. lab for 4 weeks. Prerequisite: 100. <Fall>

§102P. Practical Training in Clinical Serology I. (1)
Supervised performance of serological procedures in an affiliated hospital laboratory; 12 hrs. per week for 4 weeks. Prerequisite: 102. <Fall>

§201. Clinical Chemistry I. (5)
Basic theory and practice of clinical chemistry and instrumentation for Med Lab Tech program; 40 hrs. per week for 5 weeks. Prerequisite: 101. <Spring>

§202. Clinical Hematology and Hemostasis I. (4)
Basic theory and practice of blood cell enumeration and morphology and coagulation studies for Med Lab Tech program; 40 hrs. per week for 4 weeks. Prerequisite: 101. <Spring>

§ Credit limited to students enrolled in Medical Laboratory Sciences Programs.
§203. Clinical Microbiology I. (5)
Basic theory and practice of bacteriology and parasitology for Med Lab Tech program; 40 hrs. per week for 5 weeks. Prerequisite: 101. <Spring>

§204. Clinical Immunohematology I. (2)
Basic theory and practice in blood banking for Med Lab Tech program; 40 hrs. per week for 2 weeks. Prerequisite: 101. <Spring>

§251P. Practical Training in Clinical Chemistry I. (4)
Supervised performance of clinical chemistry procedures in an affiliated hospital laboratory for Med Lab Tech program; 40 hrs. per week for 6 weeks. Prerequisite: 201. (July-November)

§252P. Practical Training in Clinical Hematology and Hemostasis I. (3)
Supervised performance of blood cell counts, cell morphology and coagulation procedures in an affiliated hospital laboratory for Med Lab Tech program; 40 hrs. per week for 5 weeks. Prerequisite: 202. (July-November)

§253P. Practical Training in Clinical Microbiology I. (3)
Supervised performance of methods and techniques of identification of pathogenic bacteria and parasites in an affiliated hospital laboratory for Med Lab Tech program; 40 hrs. per week for 5 weeks. Prerequisite: 203. (July-November)

§254P. Practical Training in Clinical Immunohematology I. (2)
Supervised performance of blood banking procedures in an affiliated hospital laboratory for Med Lab Tech program; 40 hrs. per week for 2 weeks. Prerequisite: 204. (July-November)

§401. Clinical Chemistry II. (5)
A study of the chemical reactions that occur in normal and diseased processes of the body and the principles and methods used in testing such reactions; 40 hrs. per week for 6 weeks. Prerequisite: Acceptance into the 12 month approved program in Med Tech. (July-December)

§402. Clinical Hematology and Hemostasis II. (4)
A thorough study of the blood and blood forming tissues including normal and abnormal morphology and a study of the coagulation mechanism; 40 hrs. per week for 5 weeks. Prerequisite: Acceptance into the 12 month approved program in Med Tech. (July-December)

§403. Clinical Microbiology II. (6)
The microbiological aspects of infectious disease is studied with emphasis on techniques, methods and differential media used to isolate and identify pathogenic bacteria, fungi, viruses and parasites; 40 hrs. per week for 9 weeks. Prerequisite: Acceptance into the 12 month approved program in Med Tech. (July-December)

§404. Clinical Immunohematology II. (2)
The theory and principles of blood banking including the techniques of cell typing, antibody identification and component therapy; 40 hrs. per week for 2 weeks. Prerequisite: Acceptance into the 12 month approved program in Med Tech. (July-December)

§405. Clinical Urinalysis II. (2)
A study of the kidney and the physical, chemical and microscopic examination of urine; 40 hrs. per week for 2 weeks. Prerequisite: Acceptance into the approved 12 month program in Med Tech. (July-November)

§406. Clinical Immunology and Serology II. (1)
A study of the fundamental principles of immunology and serological methods used in testing for immunological reactions; 40 hrs. per week for 1 week. Prerequisite: Acceptance into the 12 month approved program in Med Tech. (July-December)

§451P. Practical Training in Clinical Chemistry II. (3)
Supervised instruction in the performance of analytical procedures for the various chemical constituents of blood and other body fluids in an affiliated hospital laboratory for students enrolled in the Med Tech program; 40 hrs. per week for 7 weeks. Prerequisite: 401. (January-June)

§452P. Practical Training in Hematology and Hemostasis II. (3)
Supervised instruction in the performance of hematological procedures and coagulation studies in an affiliated hospital laboratory for students enrolled in the Med Tech program; 40 hrs. per week for 5 weeks. Prerequisite: 402. (January-June)

§ Credit limited to students enrolled in Medical Laboratory Sciences Programs.
§453P. Practical Training in Microbiology II and Serology II. (3)
Supervised instruction in the performance of microbiological and serological procedures in an affiliated hospital for students enrolled in the Med Tech program; 40 hrs. per week for 7 weeks. Prerequisite: 403, 406. (January-June)

§454P. Practical Training in Immunohematology II. (2)
Supervised instruction in the performance of blood banking procedures in an affiliated hospital for students enrolled in the Med Tech program; 40 hrs. per week for 4 weeks. Prerequisite: 404.

§455P. Practical Training in Urinalysis II. (1)
Supervised instruction in the performance of urinalysis and special urine test procedures in an affiliated hospital for students enrolled in the Med Tech program; 40 hrs. per week for 2 weeks. Prerequisite: 405. (January-June)

COMMUNITY SERVICES

General prerequisite—enrollment in UNM School of Medicine New Careers Program, or permission of instructor.

010. Introduction to Community Services. (0)
Non-credit course designed to provide basic information regarding the role of the para-professional in community services and to prepare students for further college work. Emphasis will be placed on techniques of note-taking, test-taking, and information gathering, utilizing content relating to human services.

050, 051, 052. Clinical Experiences in Community Services. [Field Placement.] (6 hrs. per course)
Weekly seminar and 320 hours per semester of clinical experience in a Community Service agency, such as (a) Juvenile Detention Home, (b) County Public Health Department, (c) Therapeutic School of the Comprehensive Community Mental Health and Mental Retardation Center, etc. Students are supervised by institutional personnel and given assignments that will add to their growth as Community Service Workers. Enrollment limited to participants in UNM School of Medicine Community Service Worker Program.

150, 151, 152. Clinical Experiences in Community Services. (6 hrs. per course)
320 hours per semester in a Community Service Agency. Weekly seminar meetings with University personnel are required. Prerequisites: 050, 051, and 052.

101. Survey of Institutions. (2)
Orientation and exposure to institutions in general and specifically to agencies identified with helping services. Emphasis will be on different kinds of institutions, what types of residents they serve, what kinds of professionals are employed there, what the goals of the institution are, and what the political, social, and economic factors are that influence the operation of the institution.

102. Principles of Interviewing. (2)
Provides basic knowledge of the interviewing process with emphasis on developing interviewing skills. Developing an awareness of the ways in which the student's background, attitude, and behavior influence the interview. With the assistance of videotape, students will be expected to role-play and record interviews which will provide material for class critique and discussion.

103. The Case Study. (3)
Develops a student's data-gathering ability through the process of: (a) asking a question that needs to be answered re: a client's behavior; (b) choosing the appropriate observational, historical, personal method of data collection necessary to answer the question; (c) organizing, synthesizing, and interpreting the information; and (d) reporting the finding via a formal written report and/or an oral report to a treatment/teaching team.

104. Principles of Human Behavior. (3)
A survey of issues aimed at understanding behavior in terms of the person as a biological and behaving organism. Specifically, students will focus on learning, language development, perception and group membership. Greater self-understanding will be developed by intensive work in motivation, personality theory and abnormal behavior.

105. Group Dynamics. (4)
Through an understanding of the observer-participation model the student will explore various relationships as they develop in dyads, small group and large group settings. Relate practical experience from field placement to group models of interaction.

§ Credit limited to students enrolled in Medical Laboratory Sciences Programs.
106. Community Development and Social Organization. (3)
Understanding factors which cause communities of various sizes and types to exist. Then through participation and/or initiation of a self-help group, learn methods of effecting change in the area of drug abuse, employment, alcoholism, etc.

107. Functions and Systems of the Body. (3)
Exposure to the functioning of the human systems in order to develop an understanding of the interactive effects of the various systems. Emphasis will be placed on picking up cues of bodily malfunction when interviewing and observing clients.

108. Dimensions of Growth and Development. (3)
This course examines the sequential growth and development of the human from conception through adolescence. Emphasis will be placed on observations of infants, children, pre-adolescents in a variety of settings such as nurseries, kindergartens, public schools, special education centers, recreation areas as well as homes.

109. New Techniques of Assessment and Intervention. (3)
The whole approach to intervening in people's lives is changing rapidly as the concept of community involvement becomes integral to human services. A focus on (a) environmental manipulation (e.g., housing, getting a job, getting clients out of jail, social network therapy); (b) counseling with the individual and/or family members; (c) encounter and confrontation techniques with client and relevant family members are only a few of the techniques that will be explored in this course.

110. The Culture of Youth. (3)
The changing mores and value systems of the youth of our country make it imperative that workers involved with the 13-18 year old group understand causative factors in regard to drug abuse, juvenile delinquency, social revolution, an increasing involvement and commitment to ecological and social issues. A variety of peer group support systems will be explored through observation and participation in social clubs, therapy groups, activity groups, and informal neighborhood cliques.

111. Institutions and the Exceptional Child. (3)
Theory of abnormal development as it manifests itself in the infant through adolescent. Behavioral characteristics and causes of emotional and social deviancy in children. Specific intervention techniques demonstrated with the (1) autistic, (2) severely disturbed, or (3) combined neurologically impaired child with relationship problems. An examination of how institutions and institutionalization hinder and help the child's growth and development.

120. Dynamics of Community Health. (3)
Focuses upon the dimensions of the health-illness continuum. Topics presented are a basic knowledge and understanding of (a) health, (b) epidemiology, (c) chronic and communicable diseases, (d) nutrition, (e) home safety and sanitation, (f) techniques for health education of family and community groups.

149. Workshop in Human Service Problems. (1-3 per semester to a maximum of 9)
Provides an opportunity for individual and/or small groups to explore in depth a problem that they have identified such as (1) conflicts in establishing a self-help center for alcoholics; (2) developing a parent education group; or (3) teaching a course to professionals in the Community Service field on "Life and Culture in the Barrio."

200. The Psychosocial Study of Behavior. (3)
This course is designed to introduce students to the basic concepts of the organization of social groups and the transmission of culture as they relate to the dynamics of interpersonal and intergroup behavior. The course will complement CSW 104 by focusing on the psychosocial factors that affect human behavior.

202. Social Issues in Human Services. (3)
An examination of the broad issues confronting American institutions, such as the health and mental health delivery systems, education, and welfare and discussion of how these issues affect the delivery of services. Prerequisite: 200.

RADIOLOGIC AND NUCLEAR MEDICINE TECHNOLOGIES

RADIOLOGIC TECHNOLOGY

010. Journal Club. (0) Seubert, Trovato
Survey of literature related to research in the field of radiologic technology and radiology. <Fall, Spring>

020. Film Critique. (0) Seubert, Trovato
Practical study in recognition of differences between diagnostic and poor quality radiographs and the reasoning governing such differences. <Fall, Spring>
<table>
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<th>Course Code</th>
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<td>Basic Radiological Physics</td>
<td>4</td>
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<tr>
<td>103</td>
<td>Professional Orientation and Ethics.</td>
<td>2</td>
<td>Seubert, Trovato</td>
<td>Summer</td>
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<td>105</td>
<td>Medical Terminology</td>
<td>1</td>
<td>Seubert</td>
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<td>107</td>
<td>Radiologic Technology</td>
<td>4</td>
<td>Seubert</td>
<td>Fall</td>
</tr>
<tr>
<td>108L</td>
<td>Radiologic Technology Laboratory I</td>
<td>4</td>
<td></td>
<td>Summer, Fall, Spring</td>
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<tr>
<td>111</td>
<td>Radiologic Darkroom Chemistry</td>
<td>1</td>
<td>Seubert</td>
<td>Spring</td>
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<tr>
<td>121</td>
<td>Radiological Nursing Procedures</td>
<td>2</td>
<td>Petty</td>
<td>Spring</td>
</tr>
<tr>
<td>131</td>
<td>Radiologic Darkroom Chemistry</td>
<td>1</td>
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<tr>
<td>151</td>
<td>Human Anatomy and Physiology</td>
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<td>161</td>
<td>Radiographic Positioning</td>
<td>3</td>
<td></td>
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<tr>
<td>162L</td>
<td>Radiographic Positioning Laboratory I</td>
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<td>163</td>
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<td>3</td>
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<td>164L</td>
<td>Intermediate Radiographic Positioning Laboratory</td>
<td>4</td>
<td></td>
<td>Spring</td>
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<td>201</td>
<td>Intermediate Radiological Physics</td>
<td>2</td>
<td>Staff</td>
<td>Summer-Fall continuum</td>
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<tr>
<td>205</td>
<td>Radiation Protection</td>
<td>1</td>
<td>Shoop</td>
<td>Summer</td>
</tr>
<tr>
<td>207L</td>
<td>Radiologic Technology Laboratory II</td>
<td>8</td>
<td></td>
<td>Summer-Fall continuum</td>
</tr>
<tr>
<td>209</td>
<td>Basic Radiological Mathematics</td>
<td>2</td>
<td>Appledorn</td>
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<tr>
<td>211</td>
<td>Introduction to Nuclear Medicine</td>
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<td>212L</td>
<td>Nuclear Medicine Laboratory</td>
<td>3</td>
<td>Rochford</td>
<td>Fall</td>
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<tr>
<td>221</td>
<td>Preventive Maintenance and Radiographic Instrumentation</td>
<td>1</td>
<td>Staff</td>
<td>Spring</td>
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</table>
231. Intra-Oral Radiography. (1) Seubert
Theory of dental radiography, intra-oral anatomy, positioning techniques, and the
geometry of image formation applicable to radiographic intra-oral examinations. Pre­
requisites: 161, 162L. <Spring>

261L. Radiographic Positioning Laboratory II. (8)
Continuation of 162L. Prerequisites: 161, 162L. <Summer, Fall, Spring>

271. Radiation Therapy. (2) Staff
Low, medium, and high voltage therapy units, monitoring devices, protective measures,
and the handling of radioactive materials. Prerequisites: 101, 151. <Spring>

272L. Radiation Therapy Laboratory. (3) Sachs
Clinical radiation therapy laboratory procedures in a department of radiation therapy.
Prerequisites: 101, 151. <Spring>

281. Special Radiographic Procedures. (3)
Highly specialized procedures involving the administration of contrast media for the
detection and diagnosis of pathologic and/or traumatic initiated conditions. Prerequis­
tes: 161, 162L. <Fall>

NUCLEAR MEDICINE TECHNOLOGY

291. Survey of Medical and Surgical Diseases. (3) Shoop
(Also offered as Pharm 334.) Nature and cause of diseases and the changes that occur
with disease and injury. Prerequisites: 105, 121. <Spring>

301. Advanced Radiological Physics. (2) Staff
Diagnostic and therapeutic radiation physics; nuclear physics, principles of radiologic
and nuclear instrumentation. Prerequisite: 201. <Fall>

309L. Basic Nuclear Laboratory Procedures. (2) Mason
Principles of counting, counting statistics, venesection, and preparation of patient
samples. <Summer>

311L. Intermediate Nuclear Laboratory Procedures. (2) Rochford
Principles of thyroid uptake measurements, in vitro thyroid studies, Schilling tests, and
blood volume studies. Prerequisite: 309L. <Spring>

313. Clinical Nuclear Medicine I. [Clinical Nuclear Medicine] (2) Damron, Shoop
Principles of performance and rationale for routine clinical nuclear medical procedures
involving organ imaging, dynamic function studies, blood flow studies, and ventilatory
function. Corequisite: 291 or equivalent. <Summer-Fall continuum>

314L. Clinical Nuclear Medicine II. [Clinical Nuclear Medicine Lab] (3)
A continuation of 313 with laboratory practice in organ imaging, blood flow studies,
kineic studies, and ventilatory function. Prerequisite: 313; corequisite: 291 or equivalent.
<Fall>

315. Clinical Nuclear Technology I. [Clinical Scintillation Camera Laboratory] (3) Appledorn
The student is assigned to a rotational schedule in the clinical laboratories of an approved,
affiliated teaching hospital. The student will gain experience performing diagnostic
examinations with a variety of nuclear medical instruments. Corequisite: 313. <Summer>

316. Clinical Nuclear Technology II. [Clinical Single Probe Scintillation Scanner Laboratory]
(6) Appledorn, Staff
A continuation of student rotation through the division of nuclear medicine in the affiliated
teaching hospitals. Prerequisite: 315. <Fall>

317. Clinical Nuclear Technology III. [Clinical Dual Probe Scintillation Scanner Laboratory]
(6) Appledorn, Staff
A continuation of student rotation through the division of nuclear medicine in an affiliated
teaching hospital. Prerequisite: 316. <Spring>

321. Nuclear Radiation Biology. (2) Staff
Interaction of alpha, beta, gamma, and high LET particle radiations from nuclear inter­
actions and disintegrations with biologic material. Prerequisite: 201. <Spring>

322. Radionuclide Therapeutics. (1) Shoop
Principle and practice of therapy and benign and malignant disease with therapeutic
radionuclide preparations. Prerequisites: 313, 314L. <Spring>

341. Nuclear Instrumentation I. [Nuclear Instrumentation] (3) Appledorn
Principles and demonstrations of ionization chambers, G-M tubes, scintillation and solid­
state detectors, pre-amplifiers, amplifiers, pulse height analysis, and read-out instrumen­
tation. Prerequisite: 201. <Fall-Spring continuum>
342L. Nuclear Instrumentation II. [Nuclear Instrumentation Lab] (4) Appledorn
A continuation of 341; Principles and Theory of Tomographic techniques of imaging. Lab practice in set-up, calibration, routine and special uses of standard nuclear medical instrumentation. Computer processing of data and image manipulation.

352L. Radioimmunoassay Laboratory. (3) Standefer, Calalang
Laboratory investigation of competitive binding assay and radioimmunoassay of hormones, mediators, and drugs. Pre- or corequisite: Pharm 416. <Fall, Spring>.

391. Special Problems. (1-3) Shoop
Supervised investigation in radiopharmaceutical effects and tissue localization. Pre- or corequisites: 311L, 341-342L, Pharm 412. <Fall, Spring>.

PHYSICIAN'S ASSISTANT TRAINING PROGRAM

Offered at Gallup Branch only.

015. Reading and Study Skills. (0)
Techniques of improving learning efficiency are taught. Scheduling study time, organizing materials, critical listening, increasing vocabulary, and improving reading speed and comprehension are emphasized. Common medical roots, prefixes, and suffixes are introduced. Pre-testing determines student participation in the course. Not a required course.

101. Basic Concepts in Health and Illnesses. (2)
The organization of the human body at the cellular, tissue and organ levels is discussed. Homeostasis, the basic principles of nutrition body defense mechanisms, mechanisms of infections, and etiologic categories of disease are discussed.

103. Pediatric Growth and Development, Nutrition. (2)
Students will be taught at UNM campus the basic information concerning nutritional needs of infants and children. Lectures on normal growth and development of preschool children will be followed by demonstration of the Denver Developmental Screen Test.

105. Surface Anatomy and Organ Systems. (2)
Terminology used in clinical medicine to locate lesions with respect to major surface anatomical landmarks are taught.

107. Origin and Significance of Symptoms and Signs. (2)
Students are introduced to the most common and serious symptoms and signs encountered in ambulatory medicine. This course is combined with and inseparable from 119.

109. Epidemiology and Preventive Medicine. (2)
The discipline is defined and its application to diagnostic reasoning and the control of infectious diseases is illustrated. Host, infectious agents, and environmental relationships in infectious disease are discussed.

111. Pharmacotherapeutics. (1)
Sources, preparation, naming, and regulations governing drugs are reviewed. Basic concepts of drug administration, absorption, distribution, metabolism, and excretion are presented. Discussion of clinical applications is limited to drugs regularly encountered in ambulatory medicine.

113. The Problem Oriented Medical Record. (0)
Students are acquainted with the problem-oriented record system by contrasting it with the source-oriented medical records system. The formulation and utilization of a complete and accurate patient problem list is emphasized.

117. CHM (P.A.) Role Development. (1)
Students meet weekly with members of the Mental Health Team to discuss group, family, and personal problems related to the process of learning new skills, assuming greater responsibilities in health care, adjusting to the demanding time commitments of clinical medicine, and learning to relate effectively to other medical and paramedical personnel. Literature assignments are included giving historical perspective on health care systems.

119. Adult and Pediatric Physical Examination. (3)
Students are taught to perform a complete general physical examination according to a routine established by the training staff. This routine is adhered to both in content and in sequence of the examination throughout the first year of training. The basic examining techniques of observation, palpation, percussion, and auscultation are stressed.

121. Interview Techniques, Adult and Pediatric Medical History Taking. (2)
The basic principles of interviewing are practiced extensively. Students are taught to proceed from general to specific questions and to analyze each symptom in terms of seven dimensions: bodily location, quality, quantity, timing, setting, modifying factors, and associated symptoms.
123. Basic Laboratory and Radiologic Skills. (2)
Subjects presented include the collection, storage, transportation, and disposal of specimens; laboratory safety; care and use of the microscope; and an introduction to the performance and interpretation of laboratory tests commonly used in ambulatory medicine.

125. Medical Procedures. (1)
This course familiarizes the student with many of the diagnostic and therapeutic procedures performed by physicians' assistants. Indications for and complications of each procedure are learned. Students are acquainted with the fundamentals of sterile technique appropriate for both major and minor surgery.

201. Adult and Pediatric Clinical Pathology. (10)
Clinical aspects of common and emergency illnesses are presented. Management decisions relating to the identification of emergency conditions which require immediate treatment and physician referral are emphasized.

307. Clinical Problems in Adult Medicine. (9)
Students are assigned singularly or in pairs to hospitals in the vicinity which provide primary medical care to a defined community. Students are evaluated monthly by means of a written examination.

309. Clinical Medicine Preceptorship (Adult and Pediatrics). (10)
Students are provided with supervised experience in the recognition and management of a variety of clinical problems encountered in a community hospital and clinic system. The Skills Proficiency List is signed by the supervisory physician when he or she is convinced that the student has mastered a particular skill.

311. General Principles of Management of Community Health Medics. (2)
Basic concepts and structure of sound management is presented in order to prepare the students for understanding and supervising employees in Service Units and Field Clinics. Some community development concepts are also discussed.

313. Seminars: Special Topics in Clinical Medicine (Adult and Pediatric). (3)
Students return to Gallup Indian Medical Center once each month for special instruction in subjects which while relevant and useful for their practice, cannot be taught in the field units.

MODERN AND CLASSICAL LANGUAGES


Explanation of footnotes not indicated will be found on p. 210.
GROUP REQUIREMENTS

Courses taught in English and in the Modern Languages Division are not accepted toward fulfillment of Foreign Language group requirements.

LANGUAGE LABORATORY

The Department operates a Language Laboratory where students in beginning language classes go for weekly exercises. Any student having special difficulties may be assigned work in the Laboratory. No extra credit is allowed for this work which is done chiefly in connection with regular courses.

PLACEMENT OF FRESHMEN

Students who have studied FRENCH or GERMAN in high school and who intend to continue the same language at the University are expected to take a placement examination administered by the department. Normally students in other languages with 2 years' high school credit who intend to continue the study of the same language will take a second (102) semester course; students with 3 years will take a third (201) semester course; students with 4 or more years will take a fourth (202) semester or higher course. However, a student is free to select his own level and may elect to take the beginning course (101) for credit. Students who wish to begin the study of ITALIAN or PORTUGUESE must have studied 6 hours of another Romance language or Latin (or equivalent).

PERIOD MINOR

Students majoring in any foreign language may take the period minor described under COMPARATIVE LITERATURE offerings on p. 249.

MODERN LANGUAGES

No major or minor study offered.

292. Introduction to the Study of Language. (3 or 4) (See Ling 292.)

*457. Special Topics in Modern Languages. (3)†

*478. Seminar in International Studies. (3) Slavin
(Also offered as Econ 478, Geog 478, Pol Sc 478, Soc 478.) Designed to provide seniors from any discipline an opportunity to apply an international perspective to their undergraduate training. Each student will present a term project drawing upon his particular background and relating it to international matters.

*480. Second Language Pedagogy. (3)
(Also offered as C&I 480)

497. Undergraduate Problems. (1 to a maximum of 6) Permission of instructor required.

*515. Medieval Paleography. (3) White

*516. Old Provencal-Old Catalan. (3) White

*517. Comparative Romance Philology. (3) White

*518. Medieval Romance Lyric. (3) Tomlins, White
Prerequisites: Span 442 or French 501.

*551. Graduate Problems. [Problems] (1-6 hrs. per semester) Permission of instructor required.

*555. Seminar in Linguistics and Language Pedagogy. (1-3) Rigsby, Spolsky
(See Ling 555.)

*580. Seminar in Modern Languages and Literatures. (1-6)†
(Also offered as Comp L 580.)
AMERICAN INDIAN LANGUAGES

APACHE

105. Reading and Writing Jicarilla Apache. (3)
For native speakers of Apache only. Emphasis on development of literary skills and use of Apache language and culture in the classroom.

NAVAJO

No major or minor study offered.

101-102. Elementary Navajo. (3, 3)
<101—Fall, 102—Spring>

103-104. Basic Medical Navajo. (3, 3)
Fundamentals of Navajo for students in the medical profession. Does not satisfy language requirement of College of Arts and Sciences. <Offered upon demand>

105. Written Navajo. (3)
Introduction to Navajo writing and reading; for native speakers of Navajo only. 101 and 105 may not both be counted for credit.

201-202. [203-204] Intermediate Navajo. (3, 3)
Prerequisite: 101-102 or 105 or equivalent. <201—Fall, 202—Spring>

206. Creative Writing and Advanced Reading. (3)
For native speakers of Navajo only. Prerequisite: 105 or permission of instructor.

*301-302. Advanced Navajo. (3, 3)
Prerequisite: 202 or 206 or equivalent.

*401. Navajo Linguistics. (3)
Study of selected aspects of the structure of the Navajo language. Emphasis on individual research. Prerequisite: 202, or permission of instructor.

*497. Undergraduate Problems. (1 to maximum of 6)
Permission of instructor required.

**451. Graduate Problems. [Problems] (1-6 hrs. per semester)
Permission of instructor required.

QUECHUA

No major or minor study offered.

*311-312. Introduction to Quechua. (3, 3)
Bills Emphasis on the grammatical structure of Bolivian Quechua. Permission of instructor is required and a working knowledge of Spanish is desirable. <Offered upon demand>

ZUNI

No major or minor study offered.

105. Reading and Writing Zuni. (3)
For native speakers of Zuni.

CLASSICS

MAJOR STUDY

12 hours in Latin courses numbered above 200, including 303 and 304; 9 hours in Greek courses numbered above 250; Hist 313, 314; and two of the following: Phil 201, Art Hi 350, Anth 391.

MINOR STUDY

Not offered.

COMPARATIVE LITERATURE

The major in Comparative Literature is an interdepartmental major administered jointly by the Department of English and the Department of Modern and Classical Languages. See p. 249.

*Offered at the University of New Mexico-Gallup Branch only and on site Teacher Training Project.
**Offered through Continuing Education at Dulce.
FRENCH

MAJOR STUDY

30 hours in French courses numbered above 290, including 301, 302, 345, 346, 351, 352, 405; and 2 years of college work in another foreign language (or reading knowledge).

MINOR STUDY

15 hours in French courses numbered above 290, including 301 or 302 and 345 or 346.

PLACEMENT—ELEMENTARY AND INTERMEDIATE COURSES

Students who have studied French in high school and who plan to continue it at the University are expected to take a placement test administered by the department. This examination is for advisement only, and no student will be forced to take a course for which he does not feel qualified. A student, if he so desires, may take the beginning course (101) for credit. If a student places above 101, it is possible by additional testing to earn credit for those courses by-passed.

FIRST-YEAR PROGRAM

All beginning students should enroll in Elementary French (101-102), which provides a foundation in reading, writing, listening, and speaking for all subsequent courses.

101 and 102 may each be supplemented by a 1-hour conversation course (103-104) and/or a 1-hour reading course (107-108). The supplemental courses are intended for those students who wish to develop a specific language skill more rapidly than the basic course permits. They are taught as parallel courses to 101-102, and students must either be concurrently enrolled in the basic course or demonstrate equivalent preparation.

101-102. Elementary French. (3, 3) Book and Staff
103-104. Elementary French Conversation. (1, 1)
   Supplementary course to French 101-102 for students interested in additional practice in speaking.
107-108. Elementary French Reading. (1, 1)
   Supplementary course to French 101-102 for students interested in additional practice in reading.
201-202. [251-252] Intermediate French. (3, 3)
   201—Study of 3 modern French film classics. At least 2/3 of the class in French. 202—Reading of modern French literary masterpieces. Entire course in French.
203. [254] Intermediate French Conversation. [French Conversation and Composition] (3)
   Designed primarily to give qualified students of 201-202 extra practice in the oral use of the language; therefore, it is recommended that it be taken concurrently with 201 or 202. Enrollment limited to 15 students.
265-266. [105-106] French Reading for Graduate Students. [Basic French for Graduate Students and Rapid Reading for Graduate Students] (3, 3)
   Accelerated course for graduate reading requirements. 265 emphasizes fundamentals of grammar; 266 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor.
275-276. Beginning French (Accelerated). (3, 3)
   275 and 101-102 may not both be counted for credit; 276 and 201-202 may not both be counted for credit. Prerequisite: 6 hours (or equivalent) of another Romance language or Latin.
285. Readings in the Social Sciences. (3) Staff
   Designed to acquaint students with contemporary French thought in the areas of the Social Sciences or with previous outstanding contributions by French thinkers. Readings will include books, articles from scholarly journals, newspaper articles.
286. Readings in the Sciences. (3) Staff
Designed to acquaint students with contemporary French thought in the areas of the Sciences or with previous outstanding contributions by French scientists. Readings will include books, articles from scholarly journals, material previously untranslated.

287. Readings in the Humanities. (3) Staff
Designed to acquaint students with contemporary French thought in the areas of the Humanities or with previous outstanding contributions by French thinkers. Readings will include books, articles from scholarly journals, newspaper articles.

288. Readings in the Fine Arts. (3) Staff
Designed to acquaint students with contemporary French thought in the areas of the Fine Arts or with previous outstanding contributions by French artists, critics, and thinkers. Readings will include books, articles from scholarly journals, newspaper articles.

French 202 or the equivalent is prerequisite to all courses listed below, except 335.

*301-302. Advanced Composition and Conversation. (3, 3)
Prerequisite: 202 or the equivalent.

*335. French Literature in Translation. (3) Kolbert, Murphy
Does not count for the French major or minor.

*345-346. French Civilization. (3, 3)
345: Origins to French Revolution; 346: French Revolution to the present. Prerequisite: 202 or the equivalent.

*351-352. Survey of French literature. (3, 3) Murphy, Senninger, White
351: Origins to 1800; 352: 1800 to present.

*401. French Stylistics and "Explication de Textes." (3) Kolbert, Senninger
Analysis of texts of poetry, prose, and drama, and review of literary movements. Required for the M.A. degree.

*405. French Phonology. (3) Book
Phonetic and phonemic system of French. Required for the undergraduate major.

*411. French Poetry of the Renaissance. (3) Kolbert
Development of French poetry from Marot through M. Régnier with special stress on La Pléiade (Du Bellay and Ronsard).

*412. French Non-Poetic Literature of the Renaissance. (3) Kolbert, Murphy
Major concentration on Rabelais and Montaigne with briefer study of some of the minor prose-writers of the period.

*422. French Dramatic Literature of the Classical Period. (3) White
Representative plays of Corneille, Molière, and Racine.

*423. French Non-Dramatic Literature of the Classical Period. (3) White
Lyric poetry and prose from Pascal to the end of the reign of Louis XIV.

*431-432. French literature of the 18th Century. (3,3) Murphy
431: Through 1750, emphasis on Montesquieu and Voltaire; 432: Since 1750, emphasis on Diderot and Rousseau.

*440. Teaching of French. (3) Book
(Also offered as Sec Ed 440.) Prerequisite: Sec Ed 361. Does not count for the French major or minor. <Spring>

*441. French Prose Fiction of the 19th Century. (3) Book, Kolbert
The most representative novels of the Romantics, Realists, and Naturalists.

*442. French Dramatic Literature of the 19th Century. (3) Senninger
Survey of the drama from the melodrama and neoclassicism through the Théâtre d'art of Paul Fort.

*443. Practicum in 19th Century French Theatre. (3) Senninger
May be taken together with 442. Study through a live experience that reconstructs the theater as part of the political, sociological, and artistic context of the time.

Selected novels from Gide and Proust through the Nouveau Roman.

*452. 20th Century Theater. [French Dramatic Literature of the 20th Century] (3) Book
Study of the 14 plays written in French which have shaped the Modern Theater throughout the world. The plays are read and discussed in French. Non-French majors may participate in English.
*453. Practicum in 20th Century French Theatre. (3) Senninger
May be taken together with 452. Study through a live experience that reconstructs the theatre as part of the political, sociological, and artistic context in which it developed. 443 and 453 may not both be counted toward the French major.

*460-461. Survey of French Poetry. (3, 3) Kolbert, Senninger
460: to 1800; 461: since 1800.

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

498. Reading and Research for Honors. (3)
Open to juniors and seniors approved by the Honors Committee.

499. Honors Essay. (3)
Open only to seniors enrolled for departmental honors.

*500. Teaching Practicum. (1) Book
Required of all new teaching assistants in French; others by permission of instructor only. <Fall>

*501. History of the French Language. (3) White
Required for the M.A. degree.

*502. Readings in Medieval French Literature. (3) White

*503. Proseminar in Medieval French Genres. (3) White

*505. Introduction to Research Methods. (1) Kolbert, Senninger
Required for the M.A. degree.

*510. History of French Literary Criticism. (3) Kolbert
Required for the Ph.D. degree.

*515. Medieval Paleography. (3) White
(See M Lang 515.)

*516. Old Provençal-Old Catalan. (3) White
(See M Lang 516.)

*517. Comparative Romance Philology. (3) White
(See M Lang 517.)

*518. Medieval Romance Lyric. (3) Tomlins, White
(See M Lang 518.)

*520. French Thought (3) Murphy, Senninger

*524. Seminar in 19th Century French Literature. (3) White

*551. Graduate Problems. [Problems] (1-6 hrs. per semester)
Permission of instructor required.

*560. Seminar in French Literature. (3)

*599. Master's Thesis. (1-6 hrs. per semester)

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

GERMAN

MAJOR STUDY
A student may select one of the following two options with the approval of the German adviser.

1. 33 hours in German courses above 300, including 301 and 302 or the equivalent.

2. 27 hours in German courses above 300, and 2 years of college work, or the equivalent, in another foreign language.

MINOR STUDY
15 hours in German courses numbered above 300.

PLACEMENT EXAMINATION AND EXAMINATION TO VALIDATE CREDIT FOR PREVIOUS WORK
Students who have had previous exposure to German in high school or
elsewhere and who plan to continue at the University are expected to take a placement test administered by the Department. This examination is for advisement only, and no student will be forced to take a course for which he does not feel qualified. A student, if he so desires, may take the beginning course (101) for credit. If a student places above 101, it is possible by additional testing to earn credit for those courses by-passed.

**FIRST-YEAR PROGRAM**

All beginning students should enroll in Basic German (101-102), which provides a foundation in reading, writing, listening, and speaking for all subsequent courses.

101 and 102 may each be supplemented by a 2-hour conversation course (103-104) and/or a 1-hour reading course (107-108). The supplemental courses are intended for those students who wish to develop a specific language skill more rapidly than the basic course permits. They are taught as parallel courses to 101-102, and students must either be concurrently enrolled in the basic course or demonstrate equivalent preparation.

101-102. Basic German. (3, 3) Jespersen and Staff

Foundation course for all beginning students, whether they are primarily interested in reading or speaking. 101 may be supplemented by 103 and/or 107; 102 may be supplemented by 104 and/or 108.

**SUPPLEMENTAL COURSES TO BASIC GERMAN**

103-104. Elementary German Conversation. (2, 2) Jespersen, Staff

Supplementary course to German 101-102 for students interested in additional practice in speaking. Intensive use of German in the classroom based on a variety of audio-visual stimuli. Students not concurrently taking 101-102 must obtain permission of instructor to enroll.

107-108. Elementary German Reading. (1, 1) Jespersen, Staff

Supplementary course to German 101-102 for students interested in additional practice in reading. The course stresses individual study, using a variety of reading texts.

110. Individualized Basic German. (2-6) Hannemann

A self-study course utilizing instructional material designed for individualized learning. Reading, writing, listening, and speaking are developed, by means of a language laboratory program. A student must enroll for a minimum of 2 credit hours but may earn up to a total of 6 hours in one semester. While the course is basically a self-study course an instructor is assigned to the class for students who need assistance. May be repeated to a maximum of 6 hours credit. Completion of 3 hours of 110 is equivalent to 101; completion of 6 hours of 110 is equivalent to 101-102. Permission of instructor only.

**ELEMENTARY COURSES FOR GRADUATE STUDENTS**

265-266. [105-106] German Reading for Graduate Students. [Basic German for Graduate Students and Rapid Reading for Graduate Students] (3, 3) Staff

Accelerated course for graduate reading requirements. 265 emphasizes fundamentals of grammar; 266 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor.

**SECOND-YEAR PROGRAM**

All second-year German students should enroll in Intermediate German (201-202) which continues the development of reading, writing, speaking, and listening.

201 and 202 may each be supplemented by a 2-hour conversation course (203-204), and/or a reading course (207-208) for either 1 or 2 hours credit. The supplemental courses are intended for students who wish more intensive practice in a specific language skill than the intermediate course alone permits. They are
taught as parallel courses to 201-202 but are open in special cases to any student with a first-year foundation or equivalent preparation. Those intending to go beyond the second year are encouraged to take the conversation course (203-204) in addition to 201-202. Transfer students and those who have studied German in high school should take the placement test and/or seek advice from a member of the German staff.

201-202. Intermediate German. (3, 3) R. Holzapfel and Staff
Continues development of reading, writing, speaking, and listening at the second-year level.

SUPPLEMENTAL COURSES TO INTERMEDIATE GERMAN

203-204. Intermediate German Conversation. (2, 2)
Supplemental course to German 201-202 for students desiring additional practice in speaking and listening. Intensive use of German in the classroom. May be taken by students not concurrently enrolled in 201-202 only with the permission of the instructor.

207-208. Intermediate German Reading. (1-2, 1-2)
Supplemental course to German 201-202 for students desiring additional practice in reading. The course stresses individual study, using a variety of advanced reading texts. Open to all students with a first-year foundation or equivalent preparation.

256. German Folksongs. (1):j:
Informal study and singing of German folksongs. May be repeated to a maximum of three hours credit.

German 202 or equivalent is prerequisite to all courses below except 336.

*301-302. Advanced German. (3, 3) Hannemann, Pabisch
Written and oral work for the third year student, using a variety of literary and cultural material. 302 stresses the geography, culture and politics of the two Germanies, Austria and Switzerland.

303. Advanced German Conversation. (1):j:
Small conversation groups for advanced students. It is recommended that this course be taken concurrently with 301-302. May be repeated to a maximum of three hours credit.

307. Introduction to German Literature. (3) Peters
307 is a prerequisite for all literature courses listed below, except 336.

*336. Special Topics in German Literature in Translation. (3):j:
Topics will deal with individual authors, genres, or periods. Does not count for the major or minor.

*345. German Civilization. (3) Welsh
*351. The Age of Goethe. (3)
*352. 19th Century German Literature. (3)
*353. 20th Century German Literature. (3)

German 302 or the equivalent is prerequisite for all courses below.

*401-402. Contemporary Germany. (3, 3) Hannemann, Pabisch
Development of language skills on an advanced level using cultural materials from contemporary Germany.

*405. Advanced Grammar and Phonology. (3)
*445. Teaching of German. (3) Jespersen
(Also offered as Sec Ed 445.) Does not count for the German major or minor.

*450. Special Topics in German Literature. (3):j:
Topics will deal with individual authors, genres, or periods.

*451. The Novel. (3)
*452. The Drama. (3)
*453. Lyric Poetry. (3)
*454. The “Novelle.” (3)

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.
498. Reading and Research for Honors. (1 to a maximum of 6)
Open to juniors and seniors approved by the department honors committee.

*551. Problems. (1-6 hrs. per semester)
Permission of instructor required.

GREEK

MAJOR STUDY
Not offered.

MINOR STUDY
12 hours in courses numbered above 200, including 301 and 302.

101-102. Elementary Greek. (3, 3) Smith
101: Introduction to Classical Greek; 102: Readings from simple prose, including the
New Testament. (Alternates yearly with 301-302.)

*301-302. Classical Greek. (3, 3)
Prerequisite: 102 or equivalent.

*341. Greek Mythology. (3) Smith
Theory of origin and use of myths examined from point of view of psychologist,
anthropologist, and religious historian.

*345. Topics in Greek Literature in Translation. (3) Mellon, Smith
Topic will deal with individual authors, genres, or periods.

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

*551. Graduate Problems. (Problems) (1-6 hrs. per semester)
Permission of instructor required.

ITALIAN

No major or minor study offered.

275-276. Beginning Italian (Accelerated). (3, 3)
Prerequisite: 6 hrs. (or equivalent) of another Romance language or Latin.

*307. Introductory Readings in Prose. (3) Guyler
Prerequisite: 276 or equivalent.

*308. Introductory Readings in Poetry. (3) Guyler
Prerequisite: 276 or equivalent.

*475. Dante in Translation. (3) White
Principally the Vita Nuova and the Divine Comedy.

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

*551. Graduate Problems. (Problems) (1-6 hrs. per semester)
Permission of instructor required.

LATIN

MAJOR STUDY
Not offered.

MINOR STUDY
12 hours in courses numbered above 200.

PLACEMENT—ELEMENTARY AND INTERMEDIATE COURSES
Normally students with two years’ high school credit in Latin will take the
second (102) semester course; students with three years will take the third (201)
semester course; students with four years will take the fourth (202) semester or
higher course. However, a student may elect to take the beginning course (101)
for credit.
101-102. Elementary Latin. (3, 3)

201-202. [251-252] Intermediate Latin. (3, 3)
Prerequisites: 101-102 or the equivalent.

*303-304. Readings in Latin Literature. (3, 3)†† Smith
303: Republican literature; 304: Empire literature. Prerequisite: 202 or equivalent.

Topic will deal with individual authors, genres, or periods.

*351-352. Latin for Language Students. (3, 3)
A comparative study of Latin and its relationship to modern languages for upper-division
and graduate students; the reading of selected classical and medieval texts.

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

*551. Graduate Problems. [Problems] (1·6 hrs. per semester)
Permission of instructor required.

PORTUGUESE

MAJOR STUDY
30 hours in Portuguese courses including 301, 307, 6 hours of Portuguese
literature, 12 hours of Brazilian literature, and two years college work in
another foreign language (or reading knowledge).

MINOR STUDY
18 hours in Portuguese courses.

275-276. Beginning Portuguese (Accelerated). (3, 3)
Prerequisite: 6 hrs. (or equivalent) of another Romance language or Latin.

277-278. Portuguese Drill. (2, 2)
Corequisite: 275-276.

General prerequisites for the following courses: 301 and 307, or the equivalent.
307 may precede 301 in the student’s schedule.

*301. Advanced Composition and Conversation. (3) <Fall, Spring>

*307. Introductory Readings in Literature. (3) <Fall, Spring>

*351. Survey of Portuguese Literature. (3) Tomlins
Representative readings from the medieval Cancioneiros to Modernism and later trends.

*352. Contemporary Portuguese Literature. (3) Tomlins
Investigation of the impact of the European Vanguard on 20th century Portuguese letters;
lyric poetry and Neo-Realism in the novel.

*357. Brazilian Poetry from the Colonial Period to Modernism. (3) Tomlins
Arrival of European Renaissance and Baroque modes on Brazilian soil: Neo-Classicism,
Arcadianism, Romanticism, Parnassianism, and Symbolism.

*358. Brazilian Poetry from Modernism to the Present. (3) Tomlins
Impact of European Vanguard; antecedents of Modernism and the generations of the
movement; concrete and recent developments.

*361. Brazilian Prose Fiction and Essay from Beginnings to Modernism. (3) Tomlins
Readings in the major trends of Brazilian prose: the Baroque sermon, 19th century
developments, Machado de Assis, Os Sertões.

*362. Brazilian Prose Fiction and Essay from Modernism to the Present. (3) Tomlins
Novel and short story from revolutionary Modernism: the new regionalism, the psychological
novel, the political novel. The essay as an investigation of Brazilian reality.

*365. Portuguese Literature to 1600. (3) Tomlins
Readings in the various medieval genres with special emphasis on Hispano-Arabic lyric
and the Cancioneiros; the Cancioneiro Geral and the Italian modes; Gil Vicente and his
school; Camões and the lyric, the drama, and the epic; Erasmian humanism.

*396. Iberian History since 1700. (3)
(See Hist 396.)
*421. Modern Brazilian Drama. (3)
Representative plays from the 18th century to the present.

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

*501. History of the Portuguese Language. (3) White
Required for the M.A. degree. Prerequisite: Latin 351, or equivalent.

*504. Seminar in Ibero-American Studies. (3) Dolkart, Floyd, T. Holzapfel, Lieuwen, Nason, Tomlins
(Also offered as Hist, Ib Am, and Span 504.) <Fall, Spring>

*515. Medieval Paleography. (3) White
(See M Lang 515.)

*516. Old Provençal-Old Catalan. (3) White
(See M Lang 516.)

*517. Comparative Romance Philology. (3) White
(See M Lang 517.)

*518. Medieval Romance Lyric. (3) Tomlins, White
(See M Lang 518.)

*551. Graduate Problems. [Problems] (1-6 hrs. per semester)
Permission of instructor required.

*560. Seminar in Portuguese Literature. (3)‡

*570. Seminar in Brazilian Literature. (3)‡

*599. Master’s Thesis. (1-6 hrs. per semester)

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

RUSSIAN

MAJOR STUDY
Not offered. See Russian Studies.

MINOR STUDY
18 hours in Russian courses beyond the 200 level. One course in Russian literature in translation may be counted toward the minor.

PLACEMENT—ELEMENTARY AND INTERMEDIATE COURSES
Normally students who have studied Russian in high school should take 102 or 201. A placement exam may be given on consultation with the Russian adviser. This exam can also serve as a “Challenge” exam so that the student may receive credit for the course covered by the study of Russian in high school or elsewhere. However, the student may choose to repeat the beginning course for credit.

101-102. Elementary Russian. (3, 3)
201-202. [251-252] Intermediate Russian. (3, 3)
Prerequisites: 101-102, or the equivalent.

203. [254] Russian Conversation. [Russian Conversation and Composition]. (1-3) Lindsey
Pre- or corequisite: 201-202. For intermediate students who wish to improve speaking and writing skills. May be repeated to a maximum of three hours credit.

265-266. [105-106] Russian Reading for Graduate Students. [Basic Russian for Graduate Students and Rapid Reading for Graduate Students] (3, 3)
Accelerated course for graduate reading requirements. 265 emphasizes fundamentals of grammar; 266 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor.

*301. Advanced Russian. (3)
Prerequisite: 202, or equivalent.

*302. Translating Russian. (3)
Continuation of 301, with emphasis on problems of translating non-literary texts. Prerequisite: 202, or equivalent.
*303. Advanced Russian Conversation. (1):
Intensive practice in Russian conversational patterns, including proverbs and contemporary slang leading to moderate fluency. Prerequisite: 202 or the equivalent. It is recommended that the course be taken concurrently with 301-302. May be repeated for a maximum of three hours credit.

307. Introduction to Russian Literature. (3) Lindsey
Readings in the poetry of Pushkin, Lermontov, and Tiutchev and in the prose of Tolstoy, Dostoevsky, and Chekhov. Emphasis on increased reading comprehension in Russian and on major literary aspects of the individual authors.

*308. Russian Poetry. (3) Lindsey
Prerequisite: 202, or the equivalent.

*338. Russian Literature in Translation. (3) T. Holzapfel, Lindsey

*343. Soviet Literature in Translation. (3)
(Also offered as Comp L 343.) Readings in Russian literature since the revolution: Sholokhov, Maiakovsky, Babel, Pasternak, Solzhenitsyn.

345. Russian Civilization. (3) Lindsey
Required for the major in Russian Studies. A study of the major creative works in literature, music, art, and architecture from Kievan times to the present. In Russian.

*401-402. Contemporary Russia. (3, 3) Lindsey
Current language and literature including samizdat.

*490. Special Topics in Russian Literature. [Undergraduate Seminar in Russian Literature.] (3)† Lindsey
Topic will deal with individual authors, genres, or periods.

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

SPANISH

MAJOR STUDY
30 hours in Spanish courses numbered above 290, including 301-302, 351, 352 or 358, 340, and at least nine additional hours of literature courses from Section III below; and completion of work in another foreign language at the level of 202 or 276 (or reading knowledge). It is recommended that students who do not speak Spanish natively take 203 concurrently with 201 or 202.

MINOR STUDY
15 hours in Spanish courses numbered above 290, including 301-302, and at least six additional hours of literature courses from Section III below.

PLACEMENT—ELEMENTARY AND INTERMEDIATE COURSES

Normally students with two years of high school Spanish will take the second semester course (102 or 112); students with three years will take the third semester course (201 or 211); students with four or more years will take the fourth semester (202 or 212) or higher course. However, the student may elect to begin with the first semester course (101) with full credit. There is no placement test.

COURSES FOR SPANISH SPEAKING STUDENTS

New Mexican and Southwestern students who speak Spanish natively at home or with friends should take the specially designed sequence 112-211-212. A placement test is given in these courses on the first day of classes. This test is for advisement only; no student will be forced into a higher course for which he does not feel qualified. These courses are not designed for foreign students whose education has been in Spanish.
I. LANGUAGE

101-102. Elementary Spanish. (4, 4) Lamadrid and Staff
For students who do not speak Spanish natively and who have had little or no previous exposure to Spanish. 101 or equivalent is prerequisite for 102.

112. Elementary Spanish for Spanish Speakers. (3) Márquez and Staff
For Southwest Spanish speakers who have had little or no previous exposure to written Spanish. Standard Spanish, grammar, vocabulary. Cultural readings. 101-102 and 112 may not both be counted for credit.

120. Workshop in Conversational Spanish. (1-3) Staff
Conversational Spanish on the Freshman and Sophomore levels. For off-campus students only, through the Division of Continuing Education. May not be used to satisfy language requirements. May be repeated for a maximum of 3 credit hours.

201-202. Intermediate Spanish. (3, 3) Bergen and Staff
For students who do not speak Spanish natively and who have completed 102 or three or more years of high school Spanish. 201 or equivalent is prerequisite for 202.

203. Intermediate Spanish Conversation. (3) Bergen and Staff
Extra oral practice in small classes for non-native speakers. Pre- or corequisite: 201 or 202.

205. Spanish Commercial Correspondence. (2)

207. Conversational Spanish. (3)

211-212. Intermediate Spanish for Spanish Speakers. (3, 3) Márquez and Staff
For Southwest Spanish speakers who have completed 112 or three or more years of high school Spanish. 201-202 and 211-212 may not both be taken for credit. 211 or equivalent is prerequisite for 212.

265-266. Spanish Reading for Graduate Students. (3, 3) Bills and Staff
Accelerated course for graduate reading requirements. 265 emphasizes fundamentals of grammar; 266 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor. <Offered upon demand>

275-276. Accelerated Beginning Spanish. (3) Bills and Staff
Intensive course designed especially for language majors and language enthusiasts. The sequences 275-276 and 101-102-201-202 or 112-211-212 may not both be counted for credit. Prerequisite: 12 hrs. or equivalent of another Romance language or Latin.

277-278. Professional Spanish. (3, 3) Márquez and Staff
Intensive course for overseas field researchers and technical program staff; attention to specialized professional vocabularies. Restricted to faculty, staff, and doctoral candidates in Latin American fields. Permission of instructor is required.

*301. Advanced Grammar and Composition. (3) Cobos and Staff
Thorough review of grammar and usage; with readings, conversation, expository writings. Prerequisite: 202 or 212 or equivalent.

*302. Advanced Composition and Conversation. (3) Cobos and Staff
Emphasis on oral and written expression, with readings and literary criticism. Pre- or corequisite: 301 or equivalent.

*315. Creative Writing for New Mexico Spanish Speaking Students. (3) Ulibarri
Writing of original short stories and poems, with emphasis on use of New Mexican Spanish. Prerequisite: 302. <Spring>

*401. Spanish Stylistics. (3) Fernández
Literary style, figurative language, literary genres and versification, aesthetics, text analysis. Good command of Spanish essential. Prerequisite: 301-302. <Fall>

II. LINGUISTICS, PHILOLOGY, AND METHODOLOGY

*311. Southwest Spanish. (3) Cobos
Analysis of Spanish of U.S. Southwest, especially New Mexico; comparisons with standard Spanish. Prerequisite: 212 or 302 or equivalent.

*340. Spanish Phonology. (3) Bills
Introduction to Spanish phonetics and phonemics. Prerequisite: 301. <Fall, Spring>
*341. [420] Spanish Linguistics for Elementary Teachers. (3) Lamadrid
Selected aspects of Spanish phonology, morphology, and syntax; theory and application
to bilingual teaching. Taught in Spanish. Does not count toward Spanish major or minor.
Prerequisites: 302 and Ling 292 or equivalents. <Offered upon demand>

*342. [440] Spanish Linguistics for High School Teachers. (3) Lamadrid
With approval of adviser, may be counted toward Spanish major. Prerequisite: 302.
Suggested prior or parallel courses: 340 and Sec Ed 361. <Fall>

*441. Teaching of Spanish. (3) Lamadrid, Macias
(Also offered as Sec Ed 441.) Applies linguistic basis acquired in 342 to problems of
teaching. May be counted for Teaching Certificate, but not for Spanish major or minor.
Students are advised to take 441 prior to or parallel with Student Teaching. Prerequisite: 342.

*442. [501] History of the Spanish Language. (3) Bergen
Major features of evolution from Vulgar Latin to Modern Spanish. Required of all
candidates for graduate degrees. Suggested prior or parallel course: 340. <Fall>

*443. [554] Spanish Morphology. [Spanish Linguistics: Theory and Application to Teaching]
(3) Bergen
Introduction to linguistics and applied linguistics; analysis and teaching of word forma-
tion; emphasis on verb system. Required of all T.A.'s and Ph.D. candidates. Prereq-
or corequisite: 340. <Fall>

*444. [542] Structure of Spanish. (3) Bills
Descriptive analysis of phonological, grammatical, and semantic structure of contem-
porary Spanish; emphasis on morphology and syntax. Suggested prior course: 443.

*500. Teaching Practicum. (1)† Bergen, Lamadrid, Márquez
At least two semesters required of all new teaching assistants in Spanish; others by
permission of instructor only.

*515. Medieval Paleography. (3) White
(See M Lang 515.)

*516. Old Provençal-old Catalan. (3) White
(See M Lang 516.)

*517. Comparative Romance Philology. (3) White
(See M Lang 517.)

*540. Latin American Dialectology. (3) Bills
Prerequisite: 442.

*541. Recent Research on the Teaching of Spanish. [Research Methods for Teachers] (3)
Bergen, Lamadrid
Required of M.A.T.S. candidates. Prerequisite: 443. <Spring>

*543. [556] Spanish Syntax. [Spanish Linguistics] (3) Bergen
Prerequisite: 443. <Spring>

*549. [540] Seminar in the Language of Spain or Spanish America. (3)† Bergen, Bills,
Lamadrid

III. LITERATURE

292. Introduction to Spanish Literature. (3) Cobos, Ulibarri
Panoramic view of Spanish literature and literary criticism from beginning to present.
Prerequisite: 202 or 212 or equivalent.

Span 292 or equivalent is prerequisite for all literature courses below except
334 and 337.

A. Peninsular Literature

*337. Spanish Literature in Translation. (3) MacCurdy, Rodríguez
Does not count for the Spanish major or minor.

*351-352. Survey of Spanish Literature. (3, 3) Fernández, Guyler, MacCurdy
351: 11th to 17th centuries. 352: 18th, 19th, and 20th centuries.

370. Topics in Spanish Literature. (3)†
For undergraduates only. Variable topics will deal with individual periods or genres.

*415. Eighteenth Century Spanish Literature. (3) Rodriguez
Major authors and works.
*416. [450] Nineteenth Century Spanish Novel. (3) Fernández, Rodríguez
Analysis of development from costumbrista and romantic novels to regional and naturalistic novels.

*417. [461] Major Figures from 1898 to 1936. [Contemporary Spanish Literature] (3) Fernández
20th century Spanish literature from Modernism and Generation of '98 to post-Civil War writers. <Fall>

*418. [462] Spanish Novel Since the Civil War. (3)
Major novelists of the post-Civil War and contemporary generations.

*419. [460] Spanish Poetry. (3) Ulibarri
Stylistic, linguistic, and analytical approach to selected poems and poets of each literary epoch from beginning to present. <Spring>

*420. [422] Modern Spanish Drama. (3)
Development of Spanish theatre in 19th and 20th centuries, since Romanticism, with major stress on contemporary.

*421. [466] Lope de Vega and His Contemporaries. (3) MacCurdy
Survey of Spanish Drama from Auto de los Reyes Magos through Lope de Vega and major contemporaries.

*422. [467] Calderón and His Contemporaries. (3) MacCurdy
Continuation of 421; emphasis on Calderon, Francisco de Rojas and Agustin Moreto.

*423. [475] Cervantes: The Quijote. (3) MacCurdy
Detailed analysis of the Quijote and treatment of its place in world literature.

*424. [476] Cervantes: Other Works. (3) MacCurdy
Works other than the Quijote with emphasis on Novelas ejemeplares and the theatre.

*429. [456] Special Topics in Spanish Literature. (3)†
Topic will deal with individual authors, genres, or periods.

*518. Medieval Romance Lyric. (3) Tomlins, White
(See M Long 518.)

*519. [502] Proseminar in Medieval Spanish Genres. (3) Tomlins
Prerequisite: 442.

*520. [578] Seminar in the Spanish Picaresque Novel. (3) Guyler

*521. [568] Seminar in Spanish Drama. (3)† Fernández, MacCurdy

*522. [571] Seminar in Spanish Poetry. (3) Ulibarri


*524. [507] Seminar in the Spanish Novel. (3)† Fernández

*529. [560] Seminar in Spanish Literature. (3)†

B. Spanish American Literature

290. Chicano Literature. (3)
Survey of the thought and life-style of the Southwestern Spanish-speaking peoples through literature. Works from Spain and Spanish America influencing the Southwestern people to be studied through contemporary Chicano literary art forms. Does not count for the Spanish major or minor.

*334. Spanish American Literature in Translation. (3) T. Holzapfel
Does not count for the Spanish major or minor.

*357-358. Survey of Spanish American Literature. (3, 3) Cvitanovic, T. Holzapfel, Nason, Roberts
357: From discovery to 1880. 358: From 1880 to present.

371. Topics in Spanish American Literature. (3)† For undergraduates only. Topic will deal with individual periods or genres.

*430. [458] Spanish American Short Story. (3) T. Holzapfel
Short story as a genre; its diverse forms in contemporary Spanish America.

Careful study of Rubén Dario and contemporaries and main trends to 1960.


*433. [464] Criollismo in Spanish American Literature. (3) Cvitanovic, Nason
Nativist literature, with special attention to prose fiction, from mid-19th to mid-20th centuries.
MODERN AND CLASSICAL LANGUAGES

*434. [468] Literature of the River Plate Region. (3) Cvitanovic, Nason
Major literary works and movements of Argentina and Uruguay.

Survey of major trends in early 20th century prose fiction.

Survey of major trends in contemporary prose fiction; emphasis on "new novel."

*439. [455] Special Topics in Spanish American Literature. (3)
Topic will deal with individual authors, genres, or periods.

*504. Seminar in Ibero-American Studies. (3) T. Holzapfel, Lieuwen, Nason, Tomlins
(Also offered as Hist, Ib-Am, and Port 504.) <Fall, Spring>

*530. [561] Seminar in Spanish American Drama. (3) T. Holzapfel


*532. [563] Seminar in 20th Century Spanish American Fiction. (3)


*539. [567] Seminar in Spanish American Literature. (3)

IV. CIVILIZATION AND FOLKLORE

297. Southwestern Hispanic Folklore. (3) Cobos

*345. Spanish Civilization. (3) Fernández, Ulibarri
<Fall>

*346. Ibero-American Civilization. (3) Cobos, Cvitanovic, Márquez
Development of European culture in Latin America and fusion with indigenous cultures. Taught in Spanish. <Spring>

*361. Hispanic Folktales. (3) Cobos
Transmission of folklore from Spain to New World; collection of local folktales by students. Taught in Spanish.

*362. Hispanic Folk Ballads and Songs. (3) Cobos
Study of types of ballads sung throughout Hispanic Southwest. Taught in Spanish.

V. GENERAL

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.

498. Reading and Research for Honors. (3)
Open to juniors and seniors approved by Honors Committee. Permission of supervising instructor required.

499. Honors Essay. (3)
Open only to seniors enrolled for departmental honors. Permission of supervising instructor required.

*551. Graduate Problems. [Problems] (1-6 hrs. per semester)
Permission of instructor required.

*599. Master's Thesis. (1-6 hrs. per semester)
See Graduate School Bulletin for total credit requirements.

*699. Dissertation. (1-9 hrs. per semester)
See Graduate School Bulletin for total credit requirements.

SWAHILI

No major or minor study offered.

101-102. [110-111] Introduction to Swahili. (3, 3)

201-202. Intermediate Swahili. (3, 3)
Prerequisite: 102 or equivalent.

254. Intermediate Swahili Conversation. (3)
Prerequisite: 102. <Offered upon demand>

497. Undergraduate Problems. (1 to a maximum of 6)
Permission of instructor required.
MAJOR STUDY
For curricula leading to the Bachelor of Music, Bachelor of Arts in Fine Arts, and Bachelor of Music Education, see pp. 160-163.

MINOR STUDY
1. For a minor in music: 20 hours, including a total of 4 hours in music theory and 4 hours in ear-training; 6 hours selected from 139-140 or 371-372; 4 hours in applied music; and 2 hours of electives in music.

2. For a minor in music education see p. 395.

Applied music fees of $32 per credit hour, in addition to regular tuition, will be charged all full-time University students enrolling for applied music courses beyond their curriculum requirements. Part-time students should consult the music department for a schedule of applied music fees.

COURSES FOR NON-MAJORS
139. Music Appreciation. (3)
Introduction to music. The basic materials and properties, media and forms. <Fall and alternate Summers>

140. Music Appreciation. (3)
Introduction to music literature. Symphony, opera, religious music, solo song, dance music, and other major categories. <Spring and alternate Summers>

171. Music Today. (3)
Music in today's society, covering popular, serious, experimental, avant garde, and electronic music. <Fall>

295. Music in Recreation. (2)
Social foundations and practices of music in recreation. Emphasis on equipping the recreational leader with effective means to deal musically with children and adults. Covers all phases of public performance from planning to production. <Fall>

296. Music in Recreation. (2)
Prepares the major in recreational leadership for practical supervision of recreational music programs covering appreciation of music, music in the hospital as entertainment and therapy, music in the industrial plant, and music in the community center. Prerequisite: 295. <Spring>

371. General History of Music. (3)
From antiquity through the Baroque. Non-technical study of the forms, styles, schools, principal composers, and representative masterpieces of each era. <Fall>

372. General History of Music. (3)
The Classical, Romantic, and Modern eras. Non-technical study of the forms, styles, schools, principal composers, and representative masterpieces of each era. <Spring>

APPLIED
Group Instruction. Class instruction in applied music is provided for students whose experience and background do not qualify them for private instruction. Course numbers are:

Piano, 111-112, 211-212
Voice, 109-110; and
Other instruments, 155-001 through 155-010.
Private Instruction. Two series of course numbers are available here:

1. Courses carrying 1 or 2 hours credit: 119-120, 219-220, 319-320, and 419-420. If your major program is in Theory and Composition, Liberal Arts, or Music Education, follow this series of numbers beginning with your freshman year.

2. Courses carrying 2 or 4 hours credit. If your major program is in Performance or Pedagogy, enroll for 119-120 your first year and then follow this series of numbers for your major instrument: 201-202, 301-302, and 401-402.

Note: If you study a secondary instrument or instruments, use the series of numbers under paragraph 1 above.

109. Group Voice I. (1)
Open to beginners in voice except voice majors. (Fall)

110. Group Voice II. (1)
Prerequisite: 109. (Spring)

111. Group Piano I. (1)*
Open to beginners in piano except piano majors. (Fall, Spring)

112. Group Piano II. (1)*
Prerequisite: 111. (Fall, Spring)

113. Mexican Guitar. (1)
Group instruction. Audition required.

114. Mexican Guitar. (1)
Continuation of 113. Audition required.

119-120. Applied Music. Freshman major, secondary or elective course. (1 or 2 hrs. each semester) (Summer, Fall, Spring)

155. Orchestral Instruments. (1)*
Group instruction in woodwind, brass, percussion, string instruments, and guitar. Music education majors only. (Fall, Spring)

201-202. Applied Music. Major Sophomore Course. (2 or 4 hours each semester) (Summer, Fall, Spring)

211. Group Piano III. (1)
Open to all students except piano majors. Prerequisite: 112. (Fall)

212. Group Piano IV. (1)
Open to all students except piano majors. Preparation for the piano proficiency examination emphasized. Prerequisite: 211. (Spring)

219-220. Applied Music. Sophomore Secondary or Elective Course. (1 or 2 hours each semester) (Summer, Fall, Spring)

301-302. Applied Music. Major Junior Course. (2 or 4 hrs. each semester)
(Summer, Fall, Spring)

319-320. Applied Music. Junior Secondary or Elective Course. (1 or 2 hours each semester)
Prerequisite: 4 hrs. credit or equivalent in the instrument to be studied. Maximum allowable graduate credit 4 hrs. or equivalent (Summer, Fall, Spring)

401-402. Applied Music. Major Senior Course. (2 or 4 hours each semester)
(Summer, Fall, Spring)

419-420. Applied Music. Senior Secondary or Elective Course. (1 or 2 hrs. each semester)
Prerequisite: 4 hrs. credit or equivalent in the instrument to be studied. Maximum allowable graduate credit 4 hrs. or equivalent. (Summer, Fall, Spring)

501-502. Applied Music. Major Graduate Course. (2 or 4 hrs. each semester)
(Summer, Fall, Spring)

519-520. Applied Music. Graduate Secondary or Elective Course. (1 or 2 hrs. each semester)
(Summer, Fall, Spring)

* Open only to graduate students and to undergraduates enrolled in pre-professional curricula of the College of Fine Arts. Exceptions may be made with permission of the Chairman of the Department. Graduate credit allowed only when asterisk appears.
*569-570. Applied Music. Graduate Secondary or Elective Course. (1 or 2 hrs. each semester)  
<Summer, Fall, Spring>

CONDUCTING

363. Conducting. (2)  
Basic theory and technique of conducting. Prerequisites: 206, 208; junior standing in the  
major field; piano and voice proficiency examinations. <Fall>

364. Choral Conducting. (2)  
Choral conducting techniques, score reading, interpretation. Prerequisite: 363. <Spring>

365. Instrumental Conducting. (2)  
Instrumental conducting techniques, score reading, interpretation. Prerequisite: 363.  
<Spring>

*564. Advanced Choral Conducting. (2)  
Prerequisites: 363 and 453 or the equivalent. <Alternate summers>

*565. Advanced Instrumental Conducting. (2)  
Prerequisites: 363 and 453 or the equivalent. <Alternate summers>

ENSEMBLE

143. University Chorus. (1)#  
Mixed Chorus. Open to all University Students. <Fall, Spring>

230. Opera Studio. (1)†  
Basic training in music theater. Open by audition to singers, conductors, pianists, stage  
directors, and producers. <Fall, Spring>

231. Chamber Music. (1)†  
Practice, performance, and study of chamber music in various ensemble groups.  
<Summer, Fall, Spring>

233. Symphony Orchestra. (1)#  
Study and public performance of symphonic literature. <Fall, Spring>

241. University Band. (1)#  
Study and performance of concert band literature. Marching band required of wind and  
percussion concentrates in music education during freshman and sophomore years. <Fall,  
Spring>

243. Concert Choir. (1)#  
Auditions required. Open to all University students. <Fall, Spring>

*395. Accompanying. (1)†  
Study and performance of accompaniments for other students. <Fall, Spring>

*430. Advanced Opera Studio. (1-2)†  
Advanced performance in music theater and opera, culminating in major performances.  
Open by audition to singers, conductors, pianists, stage directors, and producers. Pre-  
requisite: 230. <Fall, Spring>

HISTORY AND LITERATURE

261. History of Music I. (3)  
Forms, styles, schools, principal composers and representative masterworks from antiquity  
through Baroque. Music majors only. <Fall>

262. History of Music II. (3)  
Continuation of Music 261, from Baroque to the present. Music majors only. Prerequisite:  
261. <Spring>

*411. Contemporary Period. (2)  
Music of the twentieth century and study of representative works by principal composers.  
Prerequisites: 261, 262. <Spring, alternate years>

*412. Baroque Period. (2)  
Music of Western Europe from 1600 to 1750 with emphasis on forms, styles, principal  
composers, and performance practices. Prerequisites: 261, 262. <Spring, alternate years>

# Maximum of 8 hours credit allowed toward degrees in the B.U.S., in the College of Fine  
Arts or College of Education, 4 hours in other colleges.  
° Qualified sophomores may enroll with piano faculty approval.  
* Open only to graduate students and to undergraduates enrolled in pre-professional  
curricula of the College of Fine Arts. Exceptions may be made with permission of the Chairman of  
the Department. Graduate credit allowed only when asterisk appears.
Special Studies in Music Literature. (2)†
Intensive study of one composer or genre of composition, designated by the instructor. Prerequisites: 261, 262. <Offered upon demand>

Music Repertory. (2)†
Comprehensive study of solo repertory for voice or individual instruments. Specific area is announced in the class schedule when the course is offered. Prerequisites: 261, 262. <Fall, Spring>

The Classical Period. (2)
Music of Haydn, Mozart, and Beethoven, their immediate forerunners and contemporaries. Prerequisites: 261, 262. <Fall, alternate years>

The Romantic Period. (2)
Music in the nineteenth century after Beethoven; leading composers and their works. Prerequisites: 261, 262. <Spring, alternate years>

Opera. (2)
Opera and its principal composers. Prerequisites: 261, 262. <Summer>

Concerto. (2)
Its form and principal composers from Bach to the present. Prerequisites: 261, 262. <Summer>

Symphonic Literature. (2)
Developments in orchestral music from Bach to the present. Prerequisites: 261, 262. <Fall, alternate years>

The Medieval Period. (2)
Music from the Early Christian era to mid-fifteenth century. Prerequisites: 261, 262. <Fall, alternate years>

The Renaissance Period. (2)
Music of Western Europe from the Middle of the fifteenth century to the close of the sixteenth century. Prerequisites: 261, 262. <Fall, alternate years>

History of Chamber Music. (2)
Chamber music literature from the Baroque to the present. Prerequisites: 261, 262. <Spring, alternate years>

Choral Literature. (2)
Choral music from Gregorian Chant to the present. Prerequisites: 261, 262. <Summer>

United States Composers. (2)
Music of the United States from the 17th century to the present. Prerequisites: 261, 262. <Summer>

Bibliography and Research. (3)
<Fall>

Seminar in Music. (3)†
Subject matter determined by instructor and class. <Spring>

Selected Topics in Music Literature. (3)
<Offered upon demand>

MUSIC THEORY
All beginning students in music must register for courses 103 and 104. Theory and ear training courses must be taken concurrently as follows: 103-104, 105-107, 106-108, 205-207, 206-208.

103. Fundamentals of Music Theory. (2)
Notation, scales, key signatures, and intervals. Credit not allowed toward a major in music or music education. 103 and 104 must be taken concurrently. <Summer, Fall>

104. Basic Ear-Training. (2)
Aural apprehension of materials learned in Music 103 through sight-singing, rhythmic and melodic dictation. Credit not allowed toward a major in music or music education. 103 and 104 must be taken concurrently. <Summer, Fall>

*Open only to graduate students and to undergraduates enrolled in pre-professional curricula of the College of Fine Arts. Exceptions may be made with permission of the Chairman of the Department. Graduate credit allowed only when asterisk appears.
105. Music Theory I. (2)
Fundamentals of music: scales, key signatures, intervals, triads, simple four-part writing. Prerequisite: Adequate score on music theory placement test, or completion of Music 103 with a grade of A. <Fall, Spring>

106. Music Theory II. (2)
Diatonic part-writing and analysis: inversions, dominant seventh chords, non-harmonic tones, simple modulation, secondary dominants. Prerequisite: 105 with grade of C or better. <Spring, Summer>

107. Ear-Training I. (2)
Perception through sound of the materials of 105, with special emphasis on melodic, rhythmic, and harmonic dictation, and the singing of melodies and intervals. Prerequisite: adequate score on ear training placement test or completion of Music 104 with grade of B. <Fall, Spring>

108. Ear-Training II. (2)
Perception through sound of the materials of 106, with more advanced singing and dictation. Prerequisite: 107 with grade of C or better. <Summer, Spring>

205. Music Theory III. (2)
Chromatic alterations and analysis: chorale harmonization, remote modulation. Prerequisite: 106 with grade of C or better. <Fall>

206. Music Theory IV. (2)
Continued chromatic alterations and analysis. Prerequisite: 205 with grade of C or better. <Spring>

207. Ear-Training III. (2)
More advanced singing and dictation, correlated with the materials of 205. Prerequisite: 108 with grade of C or better. <Fall>

208. Ear-Training IV. (2)
Continuation of advanced singing and dictation. Prerequisite: 207 with grade of C or better. <Spring>

305. Composition I. (2)
Beginning compositional techniques. Prerequisites: 206 and 208. <Fall>

306. Composition II. (2)
Beginning compositional techniques. Continuation of 305. Prerequisite: 305. <Spring>

309. Form and Analysis. (3)
Structural elements of music from Gregorian Chant to the present. Prerequisites: 206, 208, 261, 262. <Fall>

405. Counterpoint. (2)
Analysis and writing in the style of the 16th century. Prerequisites: 206, 208. <Fall>

406. Counterpoint. (2)
Analysis and writing in the style of the 18th century. Prerequisites: 206, 208. <Spring>

409. Composition. (2)
Techniques and procedures in the composition of music. Prerequisite: 309. <Fall>

410. Composition. (2)
Continuation of 409. Composition majors only. Prerequisite: 409. <Spring>

453. Orchestration. (2)
Scoring for orchestra, including properties and limitations of string, wind, and percussion instruments, notation, principles of combination and balance, and characteristics of the various "schools" of orchestration. Prerequisite: 309. <Fall>

463. Band Arranging. (2)
Scoring for band and large wind ensemble, including properties and limitations of wind and percussion instruments, and principles of combination and balance. Prerequisite: 309. <Spring>

*505. Advanced Composition. (2)†
May be repeated to the limit of 4 hrs. credit. <Fall, Spring>

*535. History of Music Theory. (3)
<Offered upon demand>

*540. Studies in Musical Analysis. (3)
Material will vary with interests of the class and instructor. <Offered upon demand>

* Open only to graduate students and to undergraduates enrolled in pre-professional curricula of the College of Fine Arts. Exceptions may be made with permission of the Chairman of the Department. Graduate credit allowed only when asterisk appears.
PEDAGOGY

*388. Music Pedagogy. (2)
For the music student who plans to teach privately—preparation for beginners at various age levels. Prerequisite: junior standing. <Fall>

*389. Music Pedagogy. (2)
Continuation of 388, treating problems in teaching intermediate and moderately advanced students. Prerequisites: 388 and junior standing. <Spring>

PROBLEMS

*391-392. Undergraduate Problems. (1-3 hrs. each semester)
Prerequisite: junior standing. <Summer, Fall, Spring>

*551-552. Problems. (1-3 hrs. each semester)

SPECIALIZED COURSES

209. Diction for Singers. (2)
The International Phonetic Alphabet and its application. <Fall>

*387. Vocal Coaching. (1)†
One-half hour of private instruction per week. <Fall, Spring>

*490. Interdepartmental Proseminar. (3) Honors Staff
(See F A 490.) <Fall>

THESIS COURSES

*499. Senior Thesis. (3)
Open to seniors approved by the departmental honors committee. <Summer, Fall, Spring>

*591. Graduate Recital. (2-4 hrs. per semester)

*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

MUSIC EDUCATION

CURRICULUM

See p. 162.

MINOR STUDY

2 hours in music theory;
4 hours in piano;
2 hours in eartraining;
2 hours in voice or another instrument;
2 hours in ensemble; and
10 hours minimum in which each of the following areas is represented: music history or appreciation, music education, electives in music or music education.

194. Introduction to Music Education. (1)
Designed to assist the student in discovering his personal strengths and weaknesses relative to a career as a professional music educator. <Fall>

293. Cultural Awareness Through Music Skills. (2)
The music of global ethnic groups with emphasis on the musical skills needed to assist the elementary teacher toward relevant enrichment in teaching the humanities. <Summer, Fall, Spring>

294. Teaching Music in the Elementary Schools. (2)
(Also offered as Spc Ed 294.) Prerequisite: 293 for non-music majors; 194 for music majors. <Summer, Fall, Spring>

*Open only to graduate students and to undergraduates enrolled in pre-professional curricula of the College of Fine Arts. Exceptions may be made with permission of the Chairman of the Department. Graduate credit allowed only when asterisk appears.
297. **Music for Special Education.** (2)
(Also offered as Spc Ed 297.) The therapeutic and educational values of music in the development of children in Special Education. Methods and materials of instruction to assist teachers in their work with physically, mentally and emotionally disturbed children.

313. **Administration of Choral and Instrumental Music.** (2)
Administration and organization of programs for chorus, band, and orchestra in the secondary schools. Includes a survey of music literature and methods of selection and purchase of equipment related to each ensemble. Prerequisite: 294 and junior standing in music. <Fall>

344. [444J **Supervision of Music in the Elementary Schools.** (2)
The role of the music consultant, curriculum development, and materials of instruction. Prerequisite: 294. <Spring>

366. **Beginning Student Teaching in Music.** (2)
Orientation in practice teaching. Prerequisites: 294, admission to student teaching, and junior standing in music. <Spring>

400. **Student Teaching in the Elementary School.** (3-6-9, maximum total allowed 15)
See Department of Music Handbook for prerequisites. <Fall, Spring>

*429. **Workshop.** (1-4)
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 107 of this catalog or consult the Graduate School Bulletin. <Summer>

*440. **Laboratory Experiences in Music Education.** [Investigations in Music Education.] (3)
Music in the open classroom, in general music classes, in the humanities, and team teaching. Prerequisite: junior standing. <Summer>

*443. **Music for the Pre-school Child.** (2)
The teacher in private pre-school institutions, church school, kindergarten, and the music consultant. Prerequisite: junior standing. <Offered upon demand>

*445. **Junior High-Middle School Music Education.** [Junior High School Music.] (3)
A curriculum in music for the adolescent. Prerequisite: junior standing. <Fall>

*446. **Secondary School Music.** (2)
Students, music curricula, methods and materials in secondary schools. Prerequisite: junior standing. <Spring>

*451. **Foundations of Musical Behavior.** (3)
Acoustics, perception, learning and affective response in musical behavior. Prerequisite: junior standing. <Fall>

*459. **Concepts of Teaching Music in the Elementary School.** (3)
Melodic harmonic interpretation, creative writing, directed listening and movement. Prerequisite: junior standing. <Summer>

461. **Student Teaching in the Secondary Schools.** (3-6-9, maximum total allowed 15)
See Department of Music Handbook for prerequisites. <Fall, Spring>

462. **Student Teaching in the Secondary Schools.** (3-6-9, maximum total allowed 15)
See Department of Music Handbook for prerequisites. <Fall, Spring>

463. **Student Teaching in the Secondary Schools: Professional Education Block.** (6-15)

*534. **Seminar in Music Education.** (3)
<Spring>

*550. **Philosophy of Music Education.** (3)
<Offered upon demand>

*551-552. **Problems.** (1-3 hrs. each semester)

*599. **Master's Thesis.** (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

**NATIVE AMERICAN STUDIES**

Coordinator: Harvey D. Paymella, M.S., Assistant Professor of Elementary Education.
Assistant Coordinator: Junella Haynes

Courses offered in the area of Native American Studies help students to understand and appreciate more fully both the cultural heritage received from the native people of the American continents and the distinctive life and culture of contemporary Native Americans. Another function of the program is to guide
and assist Native American students in growth toward positions of leadership. To this end the Native American Studies Center, staffed by Native American professional people, provides counseling, a gathering place for Native American students, and assistance with financial matters related to tribal scholarships and grants from the Bureau of Indian Affairs.

CURRICULUM

Amer St. 301. Interdepartmental Studies in the Culture of the United States. (3)
- The Five Civilized Tribes.
- The Indian and the Law.
- Seminar: Indian Law.
- Introduction to Native American Literature.
- Native American Literature.
- Pueblo Indian History.
- Reservation Economic Development.
- Southwest Indian Lifestyles.

Amer. St. 302. Interdepartmental Studies in the Culture of the United States. (3)
- The Indian in a Multicultural Setting.

Anth. 315. Current American Indian Problems. (3)


NAVAL SCIENCE


CURRICULUM

See Naval Science Department.

010. Naval Professional Laboratory. (0)
- Drills and information for NROTC students. (30 hours each semester)

105-106. Naval Ship Systems I & II. (3, 3) Moreland
- Introduction to types, structure, and purpose of naval ships. Ship compartmentation, propulsion systems, auxiliary power systems, interior communications, ship control, and elements of ship design to achieve safe operations are included. <Fall, Spring>

303-304. Navigation and Naval Operations (3, 3)
- Theory, principles, and procedures of ship navigation and employment. Included are spherical trigonometry, mathematical analysis, spherical triangulation, sights, sextants, and publications and report logs. Tactical formations and dispositions, relative motion, and maneuvering board and tactical plots are analyzed. Rules of the road, lights, signals, and navigational aids including inertial systems are studied. <Fall, Spring>

331. Evolution of Warfare. (3)
- Evolution of the basic principles and techniques of warfare from 490 BC to the present time. Emphasis is placed on an understanding of the theoretical principles underlying modern tactics and strategy. <Fall 1975 and alternate years>

407. Principles of Naval Organization and Management. (3) Emarine
- Structure and principles of Naval organization and management in which underlying concepts are examined within the context of American social and industrial organization and practice. Emphasis is given to management and leadership functions. <Fall>

409. Flight Instruction. (3)
- Aviation meteorology, aerodynamics, principles of flight, federal aviation regulations, aircraft systems, visual and radio instrument navigation, flight publications, emergency procedures, 36½ hours airborne instruction. Successful completion results in FAA certification as a private pilot. Prerequisite: Qualified senior students enrolled in Naval Science program. <Fall>

431. Amphibious Warfare. (3)
- Concepts, techniques and history of amphibious warfare. The role of the U.S. Marine Corps in the development and implementation of amphibious warfare is emphasized. <Fall 1976 and alternate years>
NURSING


CURRICULUM
See p. 187.

129. Workshop. (1-3)
An opportunity for nurses to update their knowledge and skills in nursing process in maintenance, preventive, therapeutic, and restorative health care.

222. Health Care Delivery Systems. (2)
Introduces the students to the health care delivery system and to the roles of the various members of the health team. Prerequisites: 6 hours of communication arts including a course in expository writing. 12 hours of biological and physical sciences including 3-4 hours integrated organic and biochemistry and Biology I. Psy 102. <Fall, Spring>

223. Introduction to Nursing Seminar. (2)
Provides a forum for discussion of professional nursing education, opportunities, challenges, trends, and issues. Introduction to College of Nursing philosophy and conceptual framework. Prerequisite: 222. <Fall, Spring>

239L. Pharmacy Pathology I. (2) Trimberger, Staff
(Also offered as Pharm 239L.) A beginning course in human pathology for Pharmacy and Nursing students. The course will be presented as an audio-tutorial program. Space restrictions limit admission to enrolled Pharmacy students or by permission of the instructor. Pre- or corequisites: Biology 237L and 238L. 1 lecture, 3 hrs. lab. <Spring>

240L. Pharmacy Pathology II. (2) Trimberger, Staff
(Also offered as Pharm 240L.) Continuation of Pharmacy 239L. Pre- or corequisites: Biology 237L and 238L. 1 lecture, 3 hrs. lab. <Spring>

297. Independent Study. (1-3)
Permission of instructor. <Fall, Spring>

302L. Clinical Instrumentation. (3)
(Also offered as EE 302.) A survey of electrical and electronic instrumentation used in clinical medicine. Topics covered include basic principles of electricity, physiological effects of electrical shock, ECG, EEG, intensive care instrumentation, surgery instrumentation, and diagnostic instrumentation. <Offered upon demand>

Tutorial arrangement with member of the faculty. <Fall, Spring>

308, 309, 310. Problems in Nursing: Selected Topics. (2, 2, 2)
Tutorial arrangement with member of the faculty. <Fall, Spring>

311L. Level I Nursing. (8)
Theoretical study and laboratory application of basic roles of professional nursing; principles of health/illness continuum, stress/adoption theories; the nursing process; principles of research; techniques of communication, teaching-learning principles; and health care delivery systems. Relates to clients of all ages in dynamic equilibrium. Prerequisites: Anatomy-Physiology, Microbiology, Pharmacology, Interpersonal Communication, 239, 222, 223. <Fall>

312L. Level II Nursing, A and B. (4)
Theoretical study and laboratory application of specialty roles in nursing, leadership-management principles; methods of coping with stress; problem-solving; community resources; research methodology; group dynamics; client-initiated health programs; legislative systems. Relates to clients of all ages in mild disequilibrium. Prerequisite: 311L. <Fall, Spring>

313L. Level III Nursing. (8)
Theoretical study and laboratory application of nursing functions in restorative care, principles of management in working with groups; group planning of nursing care; research problems in nursing practice; organizational structure of agencies. Relates to clients of all ages in moderate disequilibrium. Prerequisites: 311L, 312L. <Fall, Spring>
397. Independent Study. (1-3)  
Upper division standing. Permission of instructor. <Fall, Spring>

405, 406, 407. Problems in Clinical Nursing: Electives. (3, 3, 3)  
Focus on study of the theoretical bases of selected problems in clinical nursing with application in a laboratory situation. Offered on demand. <Fall, Spring>

408, 409, 410. Problems in Clinical Nursing: Electives. (2, 2, 2)  
Focus on study of the theoretical bases of selected problems in clinical nursing with application in a laboratory situation. Offered on demand. <Fall, Spring>

414L. Level IV Nursing, A and B. (4)  
Theoretical and laboratory study of nursing responsibilities directed toward supporting persons in severe disequilibrium in any age group and in relation to family and community. Emphasis on principles relating to management and coordination of nursing care, leadership, change, and decision-making. Evaluation of standards of care, consumer advocacy and professional accountability will be emphasized in relation to health care delivery. Prerequisite: 312L. <Fall, Spring>

415L. Level V Nursing. (8)  
Theoretical and laboratory study of nursing responsibilities directed toward client groups needing preventive, maintenance or restorative care with an emphasis on the integration of prior knowledge and skill. Acculturation of students to professional nursing practice. Experiences selected by students with faculty guidance over a minimum period of ten weeks. Prerequisite: 414L. <Fall, Spring>

429. Workshop. (1-6)  
<Offered upon demand>

450. Psychiatric Nursing. (4)  
Principles and practice of nursing care of patients with psychiatric disorders; interpersonal, physiological, emotional, cultural factors. Emphasis on prevention. Prevention and treatment of mental illness. Prerequisite: all 300 level nursing courses; corequisite: 451L. <Fall, Spring>

451L. Psychiatric Nursing Laboratory. (3)  
Clinical practice in selected facilities for application of knowledge and skills learned in 450. Prerequisite: completion of all 300 level nursing courses; corequisite: 451L. 12 hrs. lab. <Fall, Spring>

452. Community Health Nursing. (4)  
Boca  
Theory and practice of nursing in the community in a variety of settings. Application of family centered nursing through health teaching and guidance; survey of and projects in the community. Prerequisite: completion of all 300 level nursing courses; corequisite: 453L. <Fall, Spring>

453L. Community Health Nursing Laboratory. (5)  
Clinical practice in selected facilities for application of knowledge and skills learned in 452. Prerequisite: completion of all 300 level nursing courses. Corequisite: 452. 15 hrs. lab. <Fall, Spring>

462. Senior Seminar. (5)  
Content is selected by students and instructor from major societal health problems, alternative ways of dealing with problems and dominant movements. Students conduct and report projects. Prerequisite: completion of all 300 level nursing courses; <Fall, Spring>

463. Senior Nursing Practicum. (3)  
Discussion of the types of organizational systems is held in a seminar setting. Emphasis is placed upon group dynamics and leadership abilities as they apply to the practice of nursing. This course assists the student in understanding and assuming the role and responsibilities of a graduate nurse. Prerequisite: completion of all 300 level nursing courses. <Fall, Spring>

464L. Senior Nursing Practicum Laboratory. (3)  
Clinical practice in selected facilities for application of knowledge and skills learned in 463. Corequisite: 463. 9 hrs. lab. <Fall, Spring>

497. Independent Study. (1-3)  
Upper division standing and permission of instructor. <Fall, Spring>

498. Honors Study (3)  
First part of two courses in Departmental Honors. Prerequisites: junior standing in the College of Nursing and a 3.2 or better grade point average. <Fall, Spring>

499. Honors Study. (3)  
Second part of Departmental Honors. Prerequisite: 498. <Fall, Spring>
PALEOCOLOGY

COMMITTEE IN CHARGE: PROFESSORS R. Y. Anderson, Ph.D. (Geology), Chairman; J. S. Findley, Ph.D. (Biology); F. C. Hibben, Ph.D. (Anthropology); L. D. Potter, Ph.D. (Biology).

Interdepartmental undergraduate and graduate minors in Paleoecology are offered to majors in the Departments of Anthropology, Biology, Chemistry, and Geology.

UNDERGRADUATE MINOR

The minor requires 30-36 hours in courses listed in the "Paleoecology Pool" including Paleo 209 or 539. No more than 18 hours may be taken in any one department and courses in the major field may not be used for the minor. The following courses have been approved (see appropriate departmental listings for course descriptions and prerequisites):

Anth 366F, 303L, 307L
Chem 101L, 102L or 122L, 253L, 301, 302, 303L, 304L, 311, 312
Math 345-346, 441

GRADUATE MINOR

Requirements are listed in the Graduate School Bulletin.

209. The Earth Environment. (3) Anderson, Kues
(Also offered as Geol 209) Studies of the atmosphere, the ocean, and the terrestrial environment as a total system, including environments of the past. Interrelationships of physical, biological, and human processes and resources.

451-452. Problems in Paleoecology. (2, 2)

*539. Environmental Reconstruction. (3) Anderson
(Also offered as Geol 539.) Concepts and methods of reconstructing sedimentary environments and ancient ecosystems, from the standpoint of variability of physical, biological and geochemical parameters. Prerequisite: permission of instructor. <Spring 1977 and alternate years>

*551-552. Problems. (2-3 hrs. each semester)

PHARMACY


Explanation of footnotes not indicated will be found on p. 210.

CURRICULUM

See pp. 195-198.

239L. Pharmacy Pathology I. (2) Trimberger and School of Medicine Staff
(Also offered as Nurs 239L) A beginning course in human pathology for Pharmacy and Nursing students. The course will be offered as an auto-tutorial program. Space restrictions limit admission to enrolled pharmacy students or by permission of instructor. Pre- or corequisite: Biol 237L or 239L. 1 lecture, 3 hrs. lab. <Fall>

240L. Pharmacy Pathology II. (2) Trimberger and School of Medicine Staff
(Also offered as Nurs 239L) Continuation of Pharmacy 239L. Pre- or corequisite: Biol 237L or 238L. 1 lecture, 3 hrs. lab. <Spring>
244. History of Pharmacy. (2) Fiedler
   Historical development of pharmacy as a profession. <Spring, Summer>

276. Principles of Pharmacology. (3) Staff
   Actions of drugs on living tissues and the basis upon which drugs are classified for their
   therapeutic usefulness. Includes the subdivisions of pharmacology: pharmacodynamics,
   posology, toxicology, and pharmacy. Prerequisite: Chem 281; pre- or corequisites: 237L-
   238L or 136-139L. (Open only to students in the College of Nursing and in the Dental
   Hygiene Program.) <Spring, Summer>

291. Pharmacy Orientation. (2) Levchuk
   A survey of the profession of pharmacy, with emphasis on aspects of pharmacy education,
   professional practice, and other career opportunities. <Fall>

292. Socio-Economics of Health Care Delivery. (3) Levchuk, Watkins
   Health care problems of modern society, needs and demands for health care and health
   care delivery systems, the solution of socio-economic problems in promoting, restoring
   and maintaining high quality health, the health team approach in comprehensive health
   care planning, and the pharmacist's role in health care planning and delivery. Pre-
   requisite: 291 or permission of instructor. <Spring, Summer>

296. O.T.C. Drugs and Products. (2) Staff
   Discussion of the non-prescription drugs and products found in a pharmacy, with em-
   phasis placed on antacids, sleep-aids, antihistamines, nasal decongestants, antitussives,
   internal analesgesics, external analesgesics, laxatives, vitamins, dentifrices, and anthelmintics.
   Prerequisite: 291. <Spring, Summer>

334. Clinical Pharmacy I. (4) Shoop, Jeffery
   (Also offered as Nucl Med 291.) An introduction to disease processes and medical termi-
   nology as related to drug therapy in community and institutional settings. Prerequisite:
   Completion of first professional year or permission of instructor. <Spring, Summer>

336L. Clinical Pharmacy IA. (2) Calvert, Griffin, Jeffery and Staff
   An introduction to patient care with emphasis on patient case histories and clinical
   laboratory tests. Prerequisite: Concurrent enrollment in Pharm 334 or permission of
   instructor. <Spring>

341L. Operative Pharmacy I. (4) Fiedler
   Pharmacy technology, including principles and processes involved in formulation and basic
   manufacturing; a survey of the preparations of pharmacy. Prerequisite: enrollment in the
   College of Pharmacy; passing grade in Chem 302-304L. Pharm 343 must be taken con-
   currantly with Pharm 341 L (but Pharm 343 may be taken before Pharm 341 L). 3 lectures,
   3 hrs. lab. <Fall>

342L. Operative Pharmacy II. (4) Fiedler
   A continuation of 341L. Prerequisites: Passing grade in 341L. 3 lectures, 3 hrs. lab.
   <Spring>

343. Pharmaceutical Calculations. (2) Fiedler
   Metrology and the arithmetic involved in compounding and prescription work. (343 is
   pre- or corequisite for 341L.) <Summer, Fall>

*373. Pharmacology I. (2) Hadley and Staff
   Study of the effects produced by drugs and the mechanisms whereby these effects are
   produced. Includes the sub-divisions of pharmacology: posology, toxicology, biometrics,
   pharmacogenetics, drug interactions, and chemotherapeutics. Prerequisites: Chem 301,
   302, Biol 237L-238L, Pharm 239L-240L. <Summer, Fall>

392. Pharmaceutical Services and Indian Health Programs. (1-4) Levchuk
   Individualized program of studies in the analysis of pharmaceutical services in context with
   a field study of health care programs for Southwestern Indian populations. Prerequisites:
   292 and permission of instructor. <Offered upon demand>

394. Animal Health. (1) Day
   Introduction to animal husbandry and animal health problems. The interrelationship of
   pharmacy and veterinary medicine and the social and economic relationships between
   man and animals. Prerequisite: third year standing. <Offered upon demand>

412L. Radiopharmacy. (4) Staff
   Study of radiopharmacy in a clinical surrounding, including principles of radiopharmacy,
   preparation of radiopharmaceuticals, principles of nuclear medicine, nuclear physics, and
   health physics as applied to radiopharmacy. Prerequisite: 341L or permission of instructor.
   3 lectures, 3 hrs. lab. <Fall, Spring>

416. In-Vitro Studies (2) Shoop
   Study of the basic principles of radioimmunoassay, competitive binding analysis and re-
lated clinical laboratory tests utilizing radio-nuclides; effects of drug therapy on the various parameters being measured is stressed. Prerequisites: Chem 324, Biol 430L, or permission of instructor. <Spring>

417L. Radiopharmacy Rotation I. (2) Staff
This rotation is for the student opting the 5th year radiopharmacy option. During this rotation, the student will become actively involved in the service aspect (consulting and filling of prescriptions) of the University of New Mexico, College of Pharmacy, Radiopharmacy as it relates to the State of New Mexico. 6 hrs. lab per week. <Fall>

418L. Radiopharmacy Rotation II. [Radiopharmacy Rotation] (3) Staff
Rotation through UNM College of Pharmacy Radiopharmacy, BCMC (Dept. of Nuclear Medicine), Presbyterian Hospital (Dept. of Nuclear Medicine), and Lovelace Clinic (Dept. of Nuclear Medicine). Prerequisite: 412L. 9 hrs. lab. <Spring>

421. Pharmacy Accounting and Financial Management. (3) Staff
Principles and practices involved in basic accounting, the keeping of records, financial analysis, and the interpretation of financial reports applicable to community pharmacy. Prerequisite: 5th year standing or permission of instructor. <Fall>

422. Pharmacy Law. (3) Staff
Laws and regulations relating to the practice of pharmacy. Includes all federal and state drug laws, business law pertinent to pharmacy practice, fair trade laws, and review of current health-related legislation. Prerequisite: 5th year standing or permission of instructor. <Spring>

423. Principles of Pharmacy Administration and Organizational Behavior. (3) Staff
An integration of administrative and behavioral science principles applicable to the practice of pharmacy. (See B&AS 361.) Prerequisite: 5th year standing or permission of instructor. <Fall>

424. Pharmacy Retailing Management. (3) Watkins
General management activities involved in the operation of a community pharmacy. Includes such elements of merchandising as buying, selling, advertising, promotion and pricing. Prerequisite: 421. <Spring>

425. Seminar in Pharmacy Administration. (2) Staff
Reports and discussions on current literature and recent advances in the field. Student presentations on topics concerned with administrative, legal, and socio-economic aspects of pharmacy practice. Prerequisite: 5th year standing or permission of instructor. <Fall>

426. Pharmaceutical Marketing. (3) Watkins and Staff
The pharmaceutical market and marketing institutions with emphasis on the industrial sector. Includes principles of drug product development, pricing, promotion, distribution, control, and competition. Prerequisite: 5th year standing or permission of instructor. <Spring>

435L. Clinical Pharmacy III. (4) Calvert, Griffin, Jeffery, and Staff
Directed experience working with patients, pharmacists and other health professionals, designed to acquaint the prospective pharmacist with the functions and methods of members of the health team. Prerequisites: 334, 336L, and 373 or permission of instructor. Corequisite: 475L. 1 lecture, 9 hrs. lab. <Fall>

436L. Clinical Pharmacy IV. (4) Calvert, Griffin, Jeffery, and Staff
Continuation of 435L. Prerequisite: 435L or permission of instructor. Corequisite: 476L. 1 lecture, 9 hrs. lab. <Fall>

437L. Clinical Pharmacy V. (3-8) Calvert, Griffin, Jeffery, and Staff
A directed experience with the student working at an intermediate level as a member of the health care team in a varied environment. Prerequisite: 436L or permission of instructor. 3 lectures, 0-15 hrs. lab. <Fall>

438L. Clinical Pharmacy VI. (9-15) Calvert, Griffin, Jeffery, and Staff
A directed individualized experience with the student functioning at a professional level as a member of the health care team in a varied environment. Prerequisite: 437L or permission of instructor. 3 lectures, 18-36 hrs. lab. <Spring>

443L. Physical Pharmacy. (4) Hermann
A continuation of 342L with emphasis on the application of physicochemical principles to the study of pharmaceutical dosage forms and the technology involved in their formulation. Prerequisites: Physcs 151, Physcs 152, and Physcs 153L, 342L, grade of C or better in 343. 3 lectures, 3 hrs. lab. <Fall>
444. Biopharmaceutics. (3) Hermann
   Introduction to the relationship of the physical aspects of drug formulation to drug absorption. Elements of drug metabolism, accumulation and elimination are also discussed. Prerequisite: 443L. <Spring>

449L. Pharmacokinetics. (3) Strahl
   Application of mathematical principles to the evaluation of drug absorption, distribution and elimination profiles of drugs in man. Prerequisite: 444. 2 lectures, 3 hrs. lab. <Fall>

450. Clinical Pharmaceutics. (3) Strahl
   Selected aspects of Pharmaceutics which are of clinical significance are discussed. Prerequisite: 444. <Spring, Summer>

451. Institutional Pharmacy Practice. (3) Levchuk
   Objectives, principles, and methods for the provision of comprehensive pharmaceutical services in meeting modern patient care goals in hospitals and nursing facilities. Prerequisite: 5th year standing or permission of instructor. <Fall>

452. Institutional Pharmacy Management. (3) Levchuk
   Administrative and managerial processes and decision-making in the organization, control, operation and evaluation of pharmacies or drug rooms in hospitals and nursing facilities. Prerequisite: 451. <Spring>

453. Hospital and Hospital Pharmacy Administration. [Seminar in Hospital Pharmacy Administration] (2) Levchuk
   Hospital organization, administration, management; functional relationships between the pharmacy department and other hospital departments; study of procurement and allocation of resources to meet institutional health care objectives; current problems and issues. Prerequisite: 5th year standing or permission of instructor. <Fall>

455. Nursing Home Pharmacy. (1) Levchuk
   A directed independent study of the roles of the consultant pharmacist, the delivery of pharmaceutical services, and management of the pharmacy program for facilities in which pharmaceutical services are provided by part-time or consultant pharmacists. Prerequisites: 5th year standing and permission of instructor. <Fall>

456. Research Design and Statistical Methods for Pharmacy Practice. (3) Levchuk
   Methods, techniques, and designs for research problems in pharmacy practice. Elementary methods for dealing quantitatively with administrative, clinical, and hospital data, and data resulting from experimental investigations. Prerequisite: 5th year standing. <Spring>

459. Sterile Preparations. (3) Levchuk
   Theory and application of principles involved in the formulation, preparation, packaging, sterilization, and stabilization of sterile, pyrogen-free products. Sterile techniques and control procedures are stressed. 2 lectures, 4 hrs. lab. Prerequisites: Grade of C or better in Pharm 443L, 5th year standing or permission of instructor. <Fall, Spring, Summer>

461. Organic Pharmaceutical Chemistry I. (3) Stahl
   A study, from the chemical viewpoint, of organic substances used in pharmacy and medicine. Prerequisite: Chem 324; corequisite: 475L. <Fall>

462. Organic Pharmaceutical Chemistry II. (3) Stahl
   A continuation of 461. Prerequisite: 461; corequisite: 476L. <Spring>

463. Advanced Pharmaceutical Chemistry I (3) Stahl
   A comprehensive study of organic medicinal agents, with emphasis on the synthesis, properties, and relationships between chemical constitution and physiological activity. Prerequisites: 462, 476L. <Fall>

464. Advanced Pharmaceutical Chemistry II. (3) Stahl
   A continuation of 463. Prerequisite: 463. <Spring>

465L. Organic Pharmaceutical Chemistry Laboratory I. (3) Stahl
   The synthesis and analysis of representative organic compounds used as drugs. Prerequisite: Chem 253; pre- or corequisite: 461. 1 lecture, 6 hrs. lab. <Fall, Summer>

466L. Organic Pharmaceutical Chemistry Laboratory II. (3) Stahl
   A continuation of 465L. Prerequisite: Chem 253L; pre- or corequisite: 462. 1 lecture, 6 hrs. lab. <Spring, Summer>

467. Chemistry of Natural Products I. (3) Stahl
   The study of drugs of biological origin with emphasis on active constituents, their biosynthesis, structure, properties, and medicinal applications. Prerequisites: 462, 476L. <Fall>
468. Chemistry of Natural Products II. (3) Stahl  
A continuation of 467. Prerequisite: 467. <Spring>

*475L. Pharmacology II. (5) Hadley and Staff  
A continuation of 373. Coverage includes drugs affecting the nervous system, cardiovascular agents, stimulants and depressants. The actions of the more important drugs are demonstrated upon living animals. Prerequisite: 373 or permission of instructor. 4 lectures, 3 hrs. lab. <Fall>

*476L. Pharmacology III. (4) Hadley and Staff  
A continuation of 475L. Prerequisites: 475L or permission of instructor. 3 lectures, 3 hrs. lab. <Spring>

477L. Biological Assays. (3) Staff  
Principles, methods, and techniques employed in the biological standardization of drugs are presented together with information relative to the statistical evaluation of potency data. Prerequisite: 476L or permission of instructor. 1 lecture, 6 hrs. lab. <Fall>

478L. Psychopharmacology. (1 or 2) Staff  
A study of mental disease states utilizing films and site visitations to state mental institutions. Laboratory will consist of operant conditioning techniques to study the biochemical correlates of behavior. Prerequisites: 475L and permission of instructor. Class size limited to six students. 1 lecture, 3 hrs. lab. <Spring>

482. Toxicology I (3) Hadley  
Study of the toxicities produced by household, environmental, and industrial chemicals with emphasis placed on symptomology and treatment. Special emphasis will be directed toward industrial, economic, and therapeutic toxicity problems encountered by the hospital and community pharmacist. Drug interactions, toxic side effects, and idiosyncratic reactions will be considered. Prerequisites: 475L and 476L or permission of instructor. <Spring, Summer>

484L. Toxicology II. (4) Hadley  
The study of the sources and effects of environmental contaminants and the effects of acute exposure to higher concentrations of chemicals. Techniques and instruments used in toxicology research will be considered. Prerequisites: 475L and 476L or permission of instructor. 2 lectures, 6 hrs. lab. <Spring>

485L. Biochemical Pharmacology. (4) Hadley  
Study of drug metabolism and the biochemical changes produced by drugs. Both the lecture and the laboratory are directed towards methods used in biochemical pharmacology. Prerequisite: permission of instructor. 2 lectures, 6 hrs. lab. <Fall>

492. Drug Education. (2-3) Levchuk  
Interdisciplinary approach, utilizing in-class and out-of-class learning experiences, to the development of knowledge and skills related to the planning and provision of comprehensive community-based drug abuse/misuse programs. (Enrollment for the third unit entails independent study in addition to regular course requirements.) <Spring>

493L. Pharmacy Practice I. (2) Benischek  
A directed experience in the Student Health Center Pharmacy. Involves dispensing, compounding, interviewing patients, drug identification, maintaining patient medication histories and other pharmacy records. Prerequisite: 5th year standing. 6 hrs. lab. <Fall>

494L. Pharmacy Practice II. (2) Benischek  
A continuation of Pharmacy Practice I to include one (1) hour of lecture, composition to be: Medication Review, Business Communications for Pharmacy Students V, Review of Intravenous Fluid Incompatibilities and Electrolyte Balance, Family Planning Techniques. Laboratory to include techniques of professional practice of pharmacy within the Student Health Center. 1 lecture, 3 hrs. lab. <Spring>

496. Review of Pharmaceutical Principles. (1) Hadley and Staff  
A review of pharmaceutical principles and a brief introduction to material not covered elsewhere in the Pharmacy curriculum. Prerequisite: 5th year standing. <Spring>

497. Problems in Pharmacy. (1-5)††  
Research and library problems in some phase of pharmacy. Prerequisite: permission of instructor. <Fall>

498. Problems in Pharmacy. (1-5)††  
Research and library problems in some phase of pharmacy. Prerequisite: permission of instructor. <Summer, Spring>
PHILOSOPHY


Philosophical studies are one basic way to focus a liberal education. The philosophy major is designed to meet the needs of several different groups of students: (1) as a central background for a liberal education; (2) as a pre-professional major (for example, pre-law, pre-theological or even pre-medical); (3) as an inter-disciplinary program (for example, English-Philosophy, or Economics-Philosophy, or other courses in the philosophy of some field); and (4) for graduate study in Philosophy.

Explanation of footnotes not indicated will be found on p. 210.

MAJOR STUDY
30 hours, which may include 6 hours at the 100 level if taken at the beginning, and of which 24 hours must be distributed as follows: 201 and 202, 6 hours; 256, 257, 3 hours; 358, 3 hours; 441 and 442, 6 hours; one course taken from 352, 354, 356, 385, 3 hours; and one course taken from 365, 367, 380, 445, 455, 465, 470, 3 hours.

MINOR STUDY
15 hours in courses numbered 200 and above.

MINOR IN RELIGIOUS STUDIES
18 hours of which 9 must be in Philosophy, and 9 must be distributed among three other departments. Courses that will satisfy this minor are: Phil. 263-264, 304, 334, 336, 365, 431, 432, 441 (when topic is appropriate), 442 (when figure is appropriate); Anthro 398, 399; Arch 261; Art Hi 270, 351, 352; Engl 341; Hist 311, 325, 337; Greek 101-102; Music 476; Soc 422. (Sanskrit and Hebrew will also satisfy when they become available at UNM.)

DEPARTMENTAL HONORS
Students seeking honors in philosophy should (1) establish a committee of studies during their junior year; (2) enroll in Philosophy 498-499 for at least a total of six hours credit; and (3) check with the Departmental Honors Advisor for further information and requirements.

PERIOD MINOR
For requirements, see Comparative Literature, p. 249.

100. Introduction to Philosophical Problems. (3)
Selected problems in values, knowledge and reality. Social, political and religious philosophy.

101-102. Humanities. (3, 3)
Introduction to comparative religions, philosophies, and arts.

105. Introduction to Chicano Thought. (3) Mondragon
Backgrounds of Chicano Culture, including Spanish, Indian, French, and Anglo philosophical orientation.

145. Thought and Expression. (3)
Processes of communicating, symbolizing, thinking abstractly, imagining, generalizing, defining and inferring.
201. Ancient European Philosophy. (3) An historical study; especially of Greek philosophy.

202. Modern European Philosophy. (3) An historical study from the Renaissance through Kant.


242. Great Thinkers. (3)‡ Figure will vary. A study of the thought of some major world thinker.

253. Introduction to Philosophy of Science. (3) The place of science in the culture. Science and society. Elements of theory of meaning and truth; elements of deductive and inductive logic in application to problems of scientific methodology.

254. Philosophy of Science. (3) Selected ontological and methodological problems of empirical sciences. Prerequisite: 253, or 255, or 257.

255. Scientific Method. (3) Meaning and verification, scientific truth, hypotheses, models, empirical evidence, measurement, induction and probability, statistical knowledge.

256. Introduction to Logic. (3) Fallacies of argument; traditional forms of deductive and inductive inference.

257. Introduction to Symbolic Logic. (3) Methods and techniques of modern logic.

263. Eastern Religions. (3) Confucian, Taoist, Buddhist and Hindu religions.

264. Western Religions. (3) Judaic, Christian, Moslem and Humanist religions.

301-302. Interdepartmental Studies in the Culture of the U.S. (3, 3) (See Am St 301-302.) May be taken for departmental credit only with the consent of the Chairman.

*303. Hellenistic Philosophy. (3) Stoicism to Neoplatonism.

*304. Medieval European Philosophy. (3) Major thinkers from Augustine through Ockham.

*305. Topics in Medieval Philosophy. (3)‡


*334. Indian Philosophy. (3) Upanishads, Bhagavad-gita, Jainism, Buddhism, the six Hindu systems, and recent developments.

*335. Topics in Indian Philosophy. (3)‡


*337. Topics in Chinese Philosophy. (3)‡

341. Philosophic Questions. (3)‡ An investigation of some important philosophic debate.

342. Selected Philosophers. (3)‡ A treatment of the thought of a major philosopher.

*344. 19th Century Philosophy. (3) From Kant to Twentieth Century. Prerequisite: one previous Philosophy course.

*346. 20th Century Philosophy. (3) Twenty-fifth Century philosophies. Prerequisite: 100 or 202 or 256 or 356 or permission of instructor.
*348. Comparative Philosophy. (3)
Examination of conflicting ideals and presuppositions of Hindu, Chinese and Western
philosophies. Prerequisite: acquaintance with the history of Hindu, Chinese, and Western
philosophies.

*350. Introduction to Philosophical Problems of Physics. (3)
Introduction to Philosophical problems concerning space, time, laws of nature, causality,
in the light of fundamental theories of physics.

*352. Theory of Knowledge. (3)
Problems and theories of epistemology. Prerequisite: 100 or 202 or 256 or 356, or
permission of instructor.

*354. Metaphysics. (3)
Theories of reality. Prerequisite: 201 or 202 or 256 or permission of instructor.

*355. Cosmology. (3)
Theories of origin and nature of universe.

*356-357. Symbolic Logic. (3, 3)
Methods and techniques of modern logic. Prerequisite: 257. <356-Fall, 357-Spring>

*358. Ethical Theory. (3)
Inquiry concerning goodness, rightness, obligation, justice and freedom. Prerequisite:
one previous Philosophy course.

*365. Philosophy of Religion. (3)
Inquiry into the nature of religion.

*367. Philosophy of Art and Aesthetics. (3)
Concepts and theories about aesthetic experience and judgment; artistic meaning and
evaluation.

*371. Classical Social and Political Philosophy. (3)
From Plato to Hobbes.

*372. Modern Social and Political Philosophy. (3)
From Hobbes to Marcuse.

*375. Philosophy of Life. (3)
Questions concerning the meaning of existence, consciousness, freedom, death, hope,
despair, joy, etc.

*380. Philosophy of Law and Morals. (3)
Nature and function of public law and its relation to moral belief. Prerequisite: one
previous Philosophy course.

*385. Philosophy of Mind. (3)
A study of certain issues connected with the nature and status of minds. Prerequisite:
201 or 202 or 256 or 356 or permission of instructor.

*415. Foundations of Mathematics. (3)
(Also offered as Math 415.) This course will consider the following questions and topics.
What is a number? Do numbers exist? What is a set? Do sets exist? What is an axiom
Godel's theorem, Banach-Tarski paradox. Prerequisite: serious interest in philosophical
and historical aspects of modern mathematics.

*429. Aesthetics Institute Workshop. (1)
A one-week session in Taos, New Mexico, at the Lawrence Ranch and Harwood Founda-
tion, featuring lectures in general aesthetics, discussions. Carries graduate credit when
specifically approved by the Graduate Committee. May be repeated to a maximum of 3
hours. <Summer only>

*441. Philosophical Movements. (3)‡
Topic varies.

*442. Individual Philosophers. (3)‡
Figure varies.

*443. Problems in Space, Time, and Causality. (3)‡
Mainly problems concerning space, time, causality. Selected epistemological problems.
Prerequisite: 253 or 254 or Math 102 or Physics 102.

*445. Philosophy of Language. (3)
Philosophies of meaning with special attention to the relations between language and
thought. Prerequisite: 145 or 201 or 202 or 257 or 356 or permission of instructor.

*450. Philosophical Problems of Physics. (3)
A more advanced treatment of topics from 350.
*455. Philosophy of the Natural Sciences. (3)
Critical examination of methods and concepts of the natural sciences.

*465. Philosophy of the Social Sciences. (3)
Examination of the structure, methods and presuppositions of social sciences.

*470. Philosophy of History. (3)
(Also offered as Hist 470.) Nature, structure and presuppositions of theories of history and historical methods.

*480. Philosophy and Literature. (3)
(Also offered as Eng-Ph 480.) Prerequisites: 6 hours of literature and 3 hours of philosophy from the courses specified as requirements for the program.

*485. Philosophical Foundations of Economic Theory. (3)
(Also offered as Ec-Ph 485.) Prerequisite: Econ 201.

497. Honors Seminar. (3)†
For departmental honors in philosophy. <Offered upon demand>

498. Reading and Research. (1-3)† <Offered upon demand>

499. Senior Thesis. (3)†
For departmental honors. <Offered upon demand>

*501. Interdepartmental Seminar in the Culture of the United States. (3)
(See Am St 501.)

*526. Seminar in Asian Philosophers. (3)‡

*541. Seminar in Philosophical Movements. (3)‡

*542. Seminar in Individual Philosophers. (3)‡

*543. Seminar on the Problems of Space, Time, Causality (3)‡
Prerequisite: 253 or 254 or 354 or 443 or Math 102 or Physcs 102.

*551. M.A. Problems. (1-3 hrs. per semester)‡

*599. M.A. Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*651. Ph.D. Problems. (1-3)‡

*654. Ph.D. Seminar in Metaphysics. (3)

*655. Ph.D. Seminar in Epistemology. (3)

*656. Ph.D. Seminar in Logical Theory. (3)

*658. Ph.D. Seminar in Value Theory. (3)

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

PHILOSOPHY-ECONOMICS
See Economics-Philosophy.

PHILOSOPHY-ENGLISH
See English-Philosophy.

PHYSICAL EDUCATION

PHYSICAL SCIENCE
No major or minor study offered.

261-262. Introduction to Physical Science. (3, 3)
Prerequisite: permission of instructor.
PHYSICS AND ASTRONOMY


Explanation of footnotes not indicated will be found on p. 210.

Prerequisite to major and minor study in Physics and in Astrophysics are the basic courses Physcs 160, 161, 163L§, 262, 264L§, and Math 264, 265. Freshman students planning to major or minor in Physics or Astrophysics and having the necessary mathematics prerequisites usually take Physcs 160 and Math 162 in their first semester and Physcs 161 and Math 163 in their second semester. There is some flexibility in these prerequisites; therefore, advisement is to be arranged through the departmental office early in the student's career of study.

Undergraduate students, especially those anticipating graduate study in physics or astronomy, or interested in research training, are invited to apply to the Department for details of the Undergraduate Honors Program during the second semester of their junior year. Note: Physcs 496, 497, 498L, and 499L.

MAJOR STUDY IN PHYSICS

Physcs 301, 302, 303, 304, 305, 306, 307L, 308L, 491, 492; Math 312, 316, or 361, 362; Chem 101L, 102L, or 121L, 122L.

MINOR STUDY IN PHYSICS

Four courses selected from Physcs 301, 302, 303, 304, 305, 306, 330; Math 316 or 361.

MAJOR STUDY IN ASTROPHYSICS

Physcs 301, 302, 303, 304, 305; Astr 270, 271, nine hours of Astronomy courses numbered above 299; Math 316 or 361.

MINOR STUDY IN ASTROPHYSICS

Physcs 302; Astr 270, 271, three hours of Astronomy courses numbered above 299; Math 316 or 361.

GRADUATE STUDY

Prerequisite for all courses numbered 500 and above: an undergraduate major in Physics equivalent to that outlined above.

GENERAL INTEREST COURSES IN PHYSICS AND ASTRONOMY

Astr 101. Introduction to Astronomy. (3) Hyder, Kieffaber, King, Peterson

An elementary course, primarily for non-science majors, including observations with the telescope. <Fall, Spring>

Physcs 102. Introduction to Physics. (3) Dean, Howarth, Regener, Wolfe

An elementary course, primarily for non-science majors, including demonstrations. <Summer, Fall, Spring>

§ Not required for the minor study in Astrophysics.
Physcs 103. Meteorology. (3) Dean
Introduction to the physics of the atmosphere. Primarily for non-science majors. Weather analysis and forecasting, topics in air pollution. <Fall, Spring>

Physcs 104. Introduction to Environmental Physics. (3) Hyder
An elementary course addressed to the physical aspects of environmental problems. <Offered upon demand>

Physcs 106. Light. (3) Bryant, Dean
Elementary course, primarily for non-science majors, including demonstrations. The nature of light, color, optical systems, photography, lasers, solar energy applications. <Fall, Spring>

Physcs 108. Introduction to Musical Acoustics. (3) Dean
An elementary course on the physics of musical sounds and instruments. Primarily for non-science majors. <Fall, Spring>

PHYSICS

102. Introduction to Physics. (3) Dean, Howarth, Place, Regener, Wolfe
An elementary course, primarily for non-science majors, including demonstrations. <Summer, Fall, Spring>

103. Meteorology. (3) Dean
Introduction to the physics of the atmosphere. Primarily for non-science majors. Weather analysis and forecasting, topics in air pollution. <Fall, Spring>

104. Introduction to Environmental Physics. (3) Hyder
An elementary course addressed to the physical aspects of environmental problems. <Offered upon demand>

106. Light. (3) Bryant, Dean
Elementary course, primarily for non-science majors, including demonstrations. The nature of light, color, optical systems, photography, lasers, solar energy applications. <Fall, Spring>

108. Introduction to Musical Acoustics. (3) Dean
An elementary course on the physics of musical sounds and instruments. Primarily for non-science majors. <Fall, Spring>

151. General Physics. (3)
Mechanics, sound, heat. The sequence 151, 152, 153L, 154L is required of premedical, predental, and preoptometry students, also of NROTC students in A & S and of Pharmacy students. Prerequisite: one of the courses Math 121, 150, 180. <Summer, Fall, Spring>

152. General Physics. (3)
Electricity and magnetism, optics. Prerequisite: 151. <Summer, Fall, Spring>

153L. General Physics Laboratory. (1)
Mechanics, sound, heat. Pre- or corequisite: 151. 3 hrs. lab. <Fall, Spring>

154L. General Physics Laboratory. (1)
Electricity, magnetism, optics. Pre- or corequisite: 152. 3 hrs. lab. <Fall, Spring>

157. Problems in General Physics. (1)
Problem solving and demonstrations related to 151. <Fall, Spring>

158. Problems in General Physics. (1)
Problem solving and demonstrations related to 152. <Fall, Spring>

160. General Physics. (3)
Mechanics, sound. The sequence 160, 161, 163L, 262, 264L is required of students planning to major in certain sciences and in engineering. Pre- or corequisite: Math 162. <Summer, Fall, Spring>

161. General Physics. (3)
Heat, electricity, magnetism. Prerequisite: 160; pre- or corequisite: Math 163. <Summer, Fall, Spring>

163L. General Physics Laboratory. (1)
Mechanics, sound, heat. Pre- or corequisite: 161. 3 hrs. lab. <Fall, Spring>

167. Problems in General Physics. (1)
Problem solving and demonstrations related to 160. <Fall, Spring>

168. Problems in General Physics. (1)
Problem solving and demonstrations related to 161. <Fall, Spring>
262. General Physics. (3)
Optics, modern physics. Prerequisite: 161; pre- or corequisite: Math 264. <Summer, Fall, Spring>

264L. General Physics Laboratory. (1)
Electricity, magnetism, optics. Pre- or corequisite: 262. 3 hrs. lab. <Fall, Spring>

267. Problems in General Physics. (1)
Problem solving and demonstrations related to 262. <Fall, Spring>

**301. Heat and Thermodynamics. (3) Alpert, Bryant, Dean, Green, Howarth, Thomas
Kinetic theory; specific heats; conduction, convection, radiation; change of state; classical thermodynamics. <Fall>

**302. Optics. (3) Alpert, Bryant, Dean, Finley, Green, Howarth, Leavitt, Thomas
Geometrical optics; wave theory of light; Fresnel and Fraunhofer diffraction; polarization; dispersion, absorption and scattering. <Spring>

**303-304. Analytical Mechanics. (3, 3) Alpert, Bryant, Dean, Finley, Green, Leavitt, Thomas
Statics and dynamics of particles and rigid bodies; introduction to Lagrange's method. Pre- or corequisites: Math 316 for 303; Math 312 for 304. <303-Fall, 304-Spring>

**305-306. Electricity and Magnetism. (3, 3) Ahluwalia, Alpert, Beckel, Bryant, Dean, Dieterle, Green, Howarth, Thomas
Electrostatic and electromagnetic field theory. Direct and alternating current circuit theory. Pre- or corequisites: Math 316 for 305; Math 312 for 306. <305-Fall, 306-Spring>

**307L-308L. Junior Laboratory. (2, 2) Alpert, Bryant, Dieterle
Heat, electricity, electronics, optics. 1 lecture, 3 hrs. lab. each semester. <307L-Fall, 308L-Spring>

**330. Atomic and Nuclear Physics. (3) Ahluwalia, Alpert, Bryant, Dean, Dieterle, Green, Leavitt, Place, Swinson
Special relativity, quantum effects, atomic structure, X-rays, nuclear structure and nuclear reactions, instruments of modern physics. Prerequisite: 262 or equivalent. <Fall, Spring>

*400. Seminar. (1 hr. per semester) <Fall, Spring>

*403. Acoustics. (3) Dean
General wave phenomena, studied through applications in acoustics. Topics in radiation, absorption, interference, acoustical holography. <Offered upon demand>

*430. Physics of Matter. (3) Dean, Green, Leavitt
Structural, mechanical, thermal, electrical, and optical properties of various states of matter including gases, weakly ionized gases, plasmas, and especially solids as observed experimentally and as deduced from fundamental laws and principles. Prerequisite: 330 or equivalent. <Fall>

*433. Molecular Biophysics. (3) Beckel
(Also offered as Biol 433 and Chem 433.) Physico-chemical properties and dependence of biological function on these properties for amino acids, proteins, nucleotides, DNA, and RNA. <Offered upon demand>

*434. Radiological Physics. (3) Howarth
Radiation dosimetry, applications to diagnostic and therapeutic radiology, the use of radioactive materials in biology and medicine. <Offered upon demand>

*435. Introduction to Plasma Physics. (3) Ahluwalia
Adiabatic invariants, orbit theory, plasma oscillations, hydromagnetic waves in plasmas, pinch effect, dimensionless parameters, applications. <Offered upon demand>

*436. Atmospheric Optics. (3) Peterson
(Also offered as Astr 436) Transmission, absorption, and scattering in clear air. Color phenomena of celestial objects. Aerosols and aureoles. The rainbow, haloes, glory, and cloud coronae. <Offered upon demand>

*437. Introduction to Space Physics. (3) Ahluwalia, Leavitt, Peterson
(Also offered as Astr 437) Solar activity and the solar wind, interplanetary particles, solar-terrestrial effects, the earth's magnetosphere and radiation belts, lunar and planetary measurements, cosmic radiation in space. <Offered upon demand>

*440. Atmospheric Physics. (3) Dean
Atmospheric gases; cloud physics; the high atmosphere; radiation, atmospheric motions and turbulence; aerosols. <Offered upon demand>
*445. Cosmic Radiation. (3) Ahluwalia, Swinson
(Also offered as Astr 445) Primary cosmic radiation, the production and detection of secondary radiation, time variations, extensive air showers, applications to high-energy physics. <Offered upon demand>

*451-452. Problems. (1, 1)
*453-454. Problems. (2, 2)
*461-462. Research Methods. (1, 1)
*463-464. Research Methods. (2, 2)

*466. Methods of Theoretical Physics. (3)‡ Alpert, Beckel, Dean, Finley, Thomas
(Also offered as Math 466) A selection of mathematical methods applied to physics. <Spring>

*491-492. Contemporary Physics. (3, 3) Bryant, Dean, Dieterle, Green, Leavitt, Regener, Swinson
Introduction to special relativity and quantum mechanics; atomic and nuclear physics, cosmic rays. <491-Fall, 492-Spring>

*493L-494L. Contemporary Physics Laboratory. (2, 2) Bryant, Swinson, Wolfe
Spectrographic methods; lasers; atomic structure; natural and artificial radioactivity; cosmic rays. 6 hrs. lab. <Offered upon demand>

*495. Theory of Special Relativity. (3) Ahluwalia, Finley
Relativistic kinematics and dynamics, relativistic electrodynamics, applications to nuclear physics and astrophysics. <Offered upon demand>

496-497. Contemporary Physics Honors. (3, 3) Bryant, Dean, Dieterle, Green, Leavitt, Regener, Swinson
496-Fall, 497-Spring>

498L-499L. Contemporary Physics Honors Laboratory (2, 2) Bryant, Swinson, Wolfe
<Offered upon demand>

*500-501. Advanced Seminar. (1-3, 1-3) <Fall, Spring>

*503. Classical Mechanics I. (3) Chandler, Finley, Green, Thomas
<Fall 1974 and alternate years>

*504. Classical Mechanics II. (3) Chandler, Finley, Thomas
<Spring 1975 and alternate years>

*505. Statistical Mechanics and Thermodynamics. (3) Thomas
<Spring 1975 and alternate years>

*511. Electrodynamics I. (3) Alpert, Green, Thomas
<Fall 1975 and alternate years>

*512. Electrodynamics II. (3) Green, Thomas
<Spring 1976 and alternate years>

*521. Quantum Mechanics I. (3) Alpert, Finley, Thomas
<Spring>

*522. Quantum Mechanics II. (3) Finley, Thomas
<Fall>

*523. Quantum Mechanics III. (3) Finley, Thomas
<Spring 1976 and alternate years>

*524. Quantum Mechanics IV. (3) Thomas
<Fall 1976 and alternate years>

*530. Selected Topics in Solid State Physics. (3)‡ Dean
Prerequisite: 521. <Offered upon demand>

*531. Atomic Structure. (3) Beckel
Prerequisite: 521. <Offered upon demand>

*532. Molecular Structure. (3) Beckel
Prerequisite: 531. <Offered upon demand>

*534. Selected Topics in Biophysics. (3)‡ Howarth
<Offered upon demand>

*537. Selected Topics in Space Physics. (3)‡ Ahluwalia, Leavitt
(Also offered as Astr 537) <Offered upon demand>

*539. Selected Topics in Laser Physics. (3)‡ Alpert
Prerequisites: 302 and 521. <Offered upon demand>
*540. Introduction to Nuclear Physics. (3) Dieterle, Leavitt
(Offered upon demand)

*542. Selected Topics in Theoretical Nuclear Physics. (3)‡ Chandler, Finley
Prerequisites: 521, 540. (Offered upon demand)

*543. Selected Topics in High-Energy Physics. (3)‡ Chandler, Dieterle, Finley, Leavitt
Prerequisite: 521. (Offered upon demand)

*547. Selected Topics in High Energy Astrophysics. (3)‡ Ahluwalia, Finley, King
(Also offered as Astr 547). (Offered upon demand)

*551-552. Problems. (1-4 hrs. each semester)

*566. Advanced Methods of Theoretical Physics. (3)‡ Beckel, Thomas
(Offered upon demand)

*570. Theory of Relativity. (3) Finley
Prerequisite: 503 (Offered upon demand)

*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

*650. Research. (6-12)

*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

ASTRONOMY

101. Introduction to Astronomy. (3) Hyder, Kieffaber, King, Peterson
An elementary course, primarily for non-science majors, including observations with the
望远镜.<Fall, Spring>

270-271. General Astronomy. (3, 3) King, Peterson
The solar system, stellar astronomy, the galaxy, extra-galactic systems, cosmology. Pre- or
corequisite: Math 150 or 162. <270-Fall, 271-Spring>

272L-273L. General Astronomy Laboratory I and II. (1, 1) King, Peterson, Regener
Observation of the moon, planets, and stars. Pre- or corequisite: 270-271. 3 hrs. lab. <272L-
Fall, 273L-Spring>

*311-312. Research Methods. (1, 1) Hyder, King, Peterson, Regener

**370. The Solar System. (3) King, Peterson
The sun, planets, satellites, comets; the interplanetary medium. Prerequisite: 270-271.
(Fall)

**371. Stars and Galaxies (3) King, Peterson
The structure and evolution of stars, their distribution in space, gaseous nebulae and the
interstellar medium, galaxies and cosmology. Prerequisite: 270-271. <Spring>

*421. Introduction to Astrophysics. (3) King
Observational results, radiation laws, absorption and emission of radiation, simple applica-
tions to a variety of astrophysical problems. <Fall>

*423. Solar Physics. (3) Hyder
The sun as a star, photosphere, chromosphere, corona, solar activity, solar emission of
matter and radiation, experimental techniques. Prerequisite: 421. <Offered upon de-
mand>

*425. Galactic Nebulae and Interstellar Matter. (3) Peterson
Formation and evolution of gaseous nebulae, excitation mechanisms, elemental abund-
ances, absorption, scattering and polarization by interstellar grains and gases. Star
formation. Prerequisite: 421. <Offered upon demand>

*436. Atmospheric Optics. (3) Peterson
(Also offered as Physics 436) Transmission, absorption, and scattering in clear air. Color
phenomena of celestial objects, Aerosols and aureoles. The rainbow, haloes, glory, and
cloud coronae. <Offered upon demand>

*437. Introduction to Space Physics. (3) Ahluwalia, Leavitt, Peterson
(Also offered as Physics 437) Solar activity and the solar wind, interplanetary particles,
solar-terrestrial effects, the earth’s magnetosphere and radiation belts, lunar and planetary
measurements, cosmic radiation in space. <Offered upon demand>

*445. Cosmic Radiation. (3) Ahluwalia, Swinson
(Also offered as Physics 445) Primary cosmic radiation, the production and detection of sec-
ondary radiation, time variations, extensive air showers, applications to high-energy physics.
(Offered upon demand)
POLITICAL SCIENCE


MAJOR STUDY

A total of 33 hours is required for a major in Political Science. A major must include 9 hours of the core courses (200, 220 or 221 [not both], 240, and 260). No more than 12 hours of 100- and 200-level courses may be counted toward a major. The remainder of the 33 hours requirement must come from courses numbered 300 or above.

MINOR STUDY

A total of 21 hours including at least three of the 200-level courses is required for a minor in Political Science.

DISTRIBUTED MINOR FOR POLITICAL SCIENCE MAJORS

With the consent of the Departmental Chairman, a major may offer an American Studies minor as well as a minor in a single department. For requirements, see American Studies.

I. INTRODUCTORY COURSES FOR FRESHMEN

100. The Political World. [Man and Politics] (3)
Treatment of contemporary political issues and behavior at the local, national, and international levels through the use of concepts employed by political scientists. (Students who have already had courses in political science may not count 100 towards a major.) <Fall, Spring>

II. CORE LOWER DIVISION COURSES

200. American Politics. (3)
Survey of American politics including political behavior of the American electorate, the theory of democracy, the structure and function of American political institutions, and contemporary issues. <Fall, Spring>

220. Comparative Politics. (3)
Designed to give students the ability to understand and evaluate political regimes by focusing on the political history, socio-economic structure, and contemporary political institutions and behavior. Includes consideration of European, Communist and developing systems. <Fall, Spring>

221. European Politics. (3)
Political systems of Western European countries. <Fall, Spring>

240. International Politics. (3)
Analyzes significant factors in world politics, including nationalism, "national interest," ideology, international conflict and collaboration, balance of power, deterrence, international law, and international organization. <Fall, Spring>

250. Latin America Through Film. (3)
(Also offered as Soc. and Latin American Studies 250.) Inter-disciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion. <Spring>
II. UNDER DIVISION COURSES

260. Political Ideas. [Political Theory] (3)
Introduces many of the enduring political issues in descriptive, analytical, and normative terms. Will include discussion of both classical and contemporary political ideas and ideologies. <Fall, Spring>

III. UPPER DIVISION COURSES

*300. Political Topics. (3)
Specific topics of political science which relate contemporary issues to the discipline. Precise topics will be noted in appropriate class schedules prepared for registration. May be repeated for credit. <Fall, Spring>

*301. Urban Politics and Policy. [Urban Politics] (3) Lupsha
Introduction to urban politics and policy, including survey of governmental forms, political processes, and the interaction of urban institutions and policies. Prerequisite: 200. <Fall>

*302. Comparative State Politics. (3) Lupsha
Analysis of the similarities and variations of American state politics with emphasis on policy outputs. Prerequisite: 200. <Spring>

*303. U.S. Politics and Education. (3) Garcia
A course for the education student and educator on politics and government, emphasizing the relationships between these and education. Focuses upon the politics of education, political education in the schools, and the effects of education on political systems. (Students may not receive credit for both this course and 200.)

*304. The Government of New Mexico. (3) Lupsha, Hain
Prerequisite: 200.

*305. Public Opinion. (3) Hurley
Public opinion, its content and measurement, and its relation to public policy. <Fall>

*306. Political Parties. (3) Hain
The American party system, national, state, and local. <Fall>

*307. The Politics of Ethnic Groups. (3) Garcia
The ethnic basis of group politics in the U.S.; its historical, sociological and psychological foundations; the role of white ethnics; traditional and non-conventional strategies and tactics; special emphasis on the politics of regional ethnic minorities. <Spring>

*308. Chicano Politics. (3) Garcia
The status, role, and activities of Mexican/Spanish Americans in the American political system. Recommended preparation: 200 or 307.

309. Black Politics. (3)
Focus will be on political actions and thought of Black America. <Fall>

*311. The Legislative Process. (3) Hain
The recruitment, formal and informal procedure, and power structure of legislative bodies; their place in contemporary American Government. Prerequisite: 200. <Spring>

*312. The American Presidency. (3) Sickels
The constitutional base of the office, its roles and responsibilities, and its relations with other political institutions. Prerequisite: 200. <Fall, Spring>

*314. Elections and Voting Behavior. (3) Hurley
Analysis of the electoral process, covering voting behavior, elections as institutions, the impact of electoral laws, and the relationship between elections and public policy. Major emphasis is on U.S., but some comparative material included. Prerequisite: 200 or permission of instructor. <Fall>

*342. American Foreign Policy. (3) Hoyt, Sorenson
Prerequisite: 240. <Fall, Spring>

*350. Public Finance. (3)
(Also offered as Econ 350.) Taxation, government borrowing, financial administration, and public expenditures. Prerequisite: Econ 201.

*351. Comparative Politics: Developing Countries. (3) Remmer <Fall>

352. African Politics. (3)
(Also offered as Ed Fdn 352.) This course examines political development of the new African states, the impact of colonial rule and the problems of building new nation-states. <Spring>
*355. Governments and Politics of Latin America I. (3) Needler
   The political dynamics of the Latin American republics, considered on a country-by-country
   basis. Recommended preparation: Hist 282. <Fall>

*356. Governments and Politics of Latin America II. (3) Remmer
   Selected topics considered cross-nationally. <Spring>

*357. Government and Politics of the Soviet Union I. (3) Gahlen, Sorenson
   A study of the evolution of the Soviet political system with emphasis on dynamics and
   institutional structure. Prerequisite: 220. <Fall>

*361. Classical Political Theory. (3) Ehrenberg, Rhodes
   Prerequisite: 200 or 260 recommended. <Fall>

*362. Modern Political Theory. (3) Ehrenberg, Rhodes
   Prerequisite: 200 or 260 recommended. <Spring>

*363. Latin American Political Theory. (3)
   The development of political philosophy in Latin America with emphasis on contemporary
   thinkers. Knowledge of modern Latin American History is recommended. <Offered upon
   demand>

*368. American Political Thought. (3) Rhodes
   Recommended preparation: 200. <Offered upon demand>

*375. Law and Politics I. (3) Stumpf
   The nature of the judicial process and the role of law and courts in the American
   political system, with emphasis on the United States Supreme Court. Prerequisite: 200
   or consent of instructor. <Fall>

*380. Political Learning and Political Culture. (3) Garcia
   A survey and analysis of orientations of people toward their country, government and
   politics, the development of these attitudes, values, and beliefs from early childhood to
   maturity; the influence of the school, family, peers, media and other agents of political
   socialization. <Spring>

*381. Psychology and Politics. (3) Lupsha
   Examines the relationship of psychological theory and experiments to understanding
   politics and political behavior. Motivation, frustration-aggression, personality, learning
   and development, and stimulus-response theories will be analyzed in relation to
   politics, political personality, and political behavior. <Spring>

*382. Group Politics. (3) Garcia, Hain
   Theories and research on the roles played by interest groups (economic, social and
   ethnic) on different arenas of government (electoral, legislative, judicial, and executive)
   principally in the United States. Prerequisite: 200. <Fall>

*410. Public Policy Analysis. (3)
   Examines the allocative, distributive and regulatory problems common to all governments
   and provides techniques necessary to analyze the policies resulting from these problems.
   Prerequisite: 200. <Spring>

*421. Public Administration. (3)
   (Also offered as Pub Ad 421.) The organization, administration, and operation of
   federal, state, and local agencies with emphasis on the dynamics and problems involved
   in carrying out public policy. <Fall, Spring>

*430. Political Violence. (3) Lupsha
   Examines political violence cross-culturally and cross-temporally. Emphasis is placed on
   theories, models, and explanation of the phenomenon. <Spring>

*440. International Conflict, Arms Control, and Disarmament. (3) Sorenson
   Systematic examination of political, technological, strategic, and economic dimensions
   of arms control and disarmament in a nuclear missile era. Prerequisites: 200 and 240.

*442. International Politics II. (3)
   Selected contemporary problems of international politics. Prerequisite: 240.

*443. International Law and Organization. (3) Hoyt
   Prerequisite: 240. <Spring>

*445. Inter-American Relations. (3) Ray
   Survey of contemporary international politics in Western Hemisphere. Emphasis on con­
   flict resolution of trade and economic assistance problems, territorial disputes, ideological
   issues, and integration. <Spring>

*450. Government and Politics of Communist China. (3) Sorenson
   Examination of problems, policies, postures, and options of Communist China. <Spring>
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*455</td>
<td>Major Powers of Latin America. (3) Needler</td>
<td>3</td>
<td>Politics of Argentina, Brazil, and Mexico (in some years a fourth country may be added). Recommended preparation: 355 or 356. &lt;Spring&gt;</td>
</tr>
<tr>
<td>*459</td>
<td>Soviet Foreign Policies. (3) Gehlen, Sorensen</td>
<td>3</td>
<td>A survey and analysis of goals and methods of Soviet foreign policies toward the West, the uncommitted countries, Communist China and Eastern Europe. Prerequisite: 220 or 357. &lt;Spring&gt;</td>
</tr>
<tr>
<td>*465</td>
<td>City Planning Methods. (3)</td>
<td>3</td>
<td>(Also offered as Econ and Arch 465.) Topics include perceptual form of the city; planning and decision-making theory; national and regional settlement policy; public control over development; direct action techniques. This is a multidiscipline introduction to urban studies, with emphasis on planning and control. &lt;Fall&gt;</td>
</tr>
<tr>
<td>*469</td>
<td>Topics in Comparative Politics. (3)†</td>
<td>3</td>
<td>Topics will be noted in appropriate class schedules. &lt;Offered upon demand&gt;</td>
</tr>
<tr>
<td>*470</td>
<td>Environmental Politics. (3) Hoyt</td>
<td>3</td>
<td>A study of political problems of environmental protection and land use planning. Research paper required.</td>
</tr>
<tr>
<td>*475</td>
<td>Law and Politics II. (3) Stumpf</td>
<td>3</td>
<td>Prerequisite: 375 or permission of instructor. &lt;Spring&gt;</td>
</tr>
<tr>
<td>478</td>
<td>Seminar in International Studies. (3) Slavin</td>
<td>3</td>
<td>(Also offered as Econ 478, Geog 478, M&amp;CL 478, Soc 478.) Designed to provide seniors from any discipline an opportunity to apply an international perspective to their undergraduate training. Each student will present a term project drawing upon his particular background and relating it to international matters. Open only to seniors.</td>
</tr>
<tr>
<td>*479</td>
<td>Civil Liberties. (3) Sickels</td>
<td>3</td>
<td>Analysis of the current meaning and impact of the Bill of Rights. The freedoms of speech, press, religion, the rights of privacy, due process, etc. Prerequisite: 100 or 200. &lt;Fall&gt;</td>
</tr>
<tr>
<td>*480</td>
<td>Intermediate Statistics for Social Research. [Methods of Empirical Political Analysis] (3)</td>
<td>3</td>
<td>(Also offered as Soc 480.) Foundations of statistical inference with emphasis on social science applications; distribution theory, estimation, hypothesis testing, measures of association, multivariate techniques. Prerequisite: Math 102 or equivalent, or permission of instructor.</td>
</tr>
<tr>
<td>*481</td>
<td>Introduction to Empirical Research. (3)</td>
<td>3</td>
<td>Introductory course in research methodology. Does not assume knowledge of mathematics or statistics. Covers the role of empirical analysis in Political Science, the logical foundations of empirical analysis, elementary research techniques, and research design.</td>
</tr>
<tr>
<td>*482</td>
<td>Survey of Political Science as a Discipline and a Profession. (3)</td>
<td>3</td>
<td>Topics include: scope and component fields of political science; relationships with other social sciences; problems of explanation and prediction including theories, models, and approaches. (Required of all graduate students in political science and recommended to undergraduate majors.)</td>
</tr>
<tr>
<td>*499</td>
<td>Independent Study [Senior Thesis]</td>
<td>3</td>
<td>Open to senior majors with 3.3 G.P.A. and permission of department.</td>
</tr>
</tbody>
</table>

IV. GRADUATE COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>*501</td>
<td>Interdepartmental Seminar in the Culture of the United States. (3)</td>
<td>3</td>
<td>Arms, Tedlock, G. W. Smith (See Am St 501.) &lt;Fall, Spring&gt;</td>
</tr>
<tr>
<td>*510</td>
<td>Pro-Seminar in American Government and Politics. (3)</td>
<td>3</td>
<td>&lt;Offered upon demand&gt;</td>
</tr>
<tr>
<td>*511</td>
<td>Research Seminar in American Government and Politics. (3)</td>
<td>3</td>
<td>&lt;Offered upon demand&gt;</td>
</tr>
<tr>
<td>*512</td>
<td>Topics in American Government and Politics. (3)†</td>
<td>3</td>
<td>May be repeated for credit. &lt;Fall&gt;</td>
</tr>
<tr>
<td>*520</td>
<td>Pro-Seminar: Comparative Government and Politics. (3)</td>
<td>3</td>
<td>&lt;Offered upon demand&gt;</td>
</tr>
<tr>
<td>*521</td>
<td>Research Seminar in Comparative Government and Politics. (3)</td>
<td>3</td>
<td>&lt;Offered upon demand&gt;</td>
</tr>
<tr>
<td>*522</td>
<td>The Administrative Process. (3) Connerley, Smithburg</td>
<td>3</td>
<td>(Also offered as Pub Ad 522) Prerequisite: 421, or comparable experience. &lt;Spring&gt;</td>
</tr>
<tr>
<td>*525</td>
<td>Pro-Seminar on Latin American Politics. (3)</td>
<td>3</td>
<td>Previous work in the field is highly desirable, and a reading knowledge of Spanish is required. &lt;Fall&gt;</td>
</tr>
</tbody>
</table>
418  PSYCHOLOGY

*530. Pro-Seminar in International Relations. (3) <Offered upon demand>
*531. Research Seminar in International Relations. (3) <Offered upon demand>
*540. Pro-Seminar in Political Theory. (3) <Offered upon demand>
*541. Research Seminar in Political Theory. (3) <Offered upon demand>
*551-552. Problems. (1-3 hrs. each semester)
*584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen, Merkx, Needler, Schwerin (Also offered as Anth, Econ, Hist, Soc 584.) <Spring>
*585. The Teaching of Political Science. (3) Prerequisite: graduate standing. <Fall>
*599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.
*699. Dissertation. (1-9 hrs. per semester)
See the Graduate School Bulletin for total credit requirements.

PORTUGUESE
See Modern and Classical Languages.

PSYCHOLOGY


The student wanting a complete introduction to Psychology should take both 101 and 102 with their associated laboratories, 103L and 104L. These courses are strongly recommended for all students and are required for major and minor programs and for many upper-level courses. However, credit can be obtained for 101 and/or 102 separately, and they may be taken in either order. Normally, students should take at least one 200-level course before registering for more advanced courses. In arranging his program, the student should be guided by the numbering system. Not only does the first number indicate the approximate level at which the material will be taught, but the second number indicates the area within Psychology with which the course is primarily concerned. The code is as follows: 0—Basic, General Psychology; 1—Applications of Psychology; 2—Child/Developmental Psychology; 3—Clinical Psychology; 4—Comparative/Physiological Psychology; 5—Special Topics in Psychology; 6—Psychology of Learning, Motivation and Perception; 7—Social/Personality Psychology; 9—Individual Topics in Psychology. (The third number has no systematic meaning except, where indicated, year-long courses are numbered sequentially.) Frequently, advanced courses in each of these areas require earlier courses, and such a progression is normally desirable even when not required. However, all prerequisites for any course may be waived by permission of the instructor.

More complete course descriptions are available to any interested student in the Department office or from any member of the Psychology faculty. Acceptance of transferred credits toward a major or minor in Psychology must be approved by the department.
MAJOR STUDY

The Psychology major is encouraged to broaden his or her training in related fields, especially Biology, Mathematics, and the Social Sciences. Toward this end, up to 8 hours credit toward the major requirements (if not used toward the minor requirement) may be counted from courses in other departments when justified by the student in relation to his or her program and approved by an adviser.

The standard major requires 26 hours credit beyond 8 hours General Psychology. Within these, the B.A. degree requires either 200 or 201, a laboratory course numbered above 300, and a minor in or distributed among A & S departments other than Biology, Chemistry, Computer/Computing Science, Mathematics, or Physics. The B.S. degree requires 201, 202, a laboratory course numbered above 300, and a minor in or distributed among Biology, Chemistry, Computer/Computing Science, Mathematics, or Physics. For a distributed minor with a B.A. or B.S. there must be at least one advanced course in each of two or more areas, and a total minimum of 30 hours. The Honors major requires 29 hours beyond 8 hours General Psychology, including 201, 202, 391, 392, 491, 492, and a laboratory course numbered above 300.

MINOR STUDY

12 hours beyond 8 hours General Psychology.

DEPARTMENTAL HONORS

Superior sophomore students, especially those anticipating graduate study in Psychology or interested in research training, are invited to apply for admission to the undergraduate Honors Program beginning in the junior year. Students participating in this program are eligible to graduate with Departmental Honors if recommended by the faculty on the basis of outstanding performance. See page 62 for general requirements.

101. General Psychology I. (3) Ferrara, Gluck
   An introduction to the areas of learning, motivation and comparative-physiological psychology. <Fall, Spring>

102. General Psychology II. (3) Norman, Rhodes, Roll
   An introduction to the areas of human development, perception, language, thinking, intelligence, personality and social psychology. <Fall, Spring>

103L. General Psychology I Laboratory. (1) Feeney
   Laboratory projects relevant to topics covered in 101. Students conduct, analyze, and write about psychological experiments with the goal of developing understanding of the scientific method as applied to basic psychological concepts. Pre- or corequisite: 101. 2 hrs. lab. <Fall, Spring>

104L. General Psychology II Laboratory. (1)
   Laboratory projects relevant to topics covered in 102. Pre- or corequisite: 102. 2 hrs. lab. <Fall, Spring>

107. Introductory Psychology. (3) Staff
   A general introductory course covering the major topics in Psychology. Intended for special summer school students; not acceptable as a substitute for 101 or 102. <Summer only>

200. Statistical Principles. (3) Delaney, Friden, Harris
   Presentation of the basic principles of the description and interpretation of data with a minimum of computational details. Provides an acquaintance with statistical principles appropriate to a liberal education. Students planning graduate study in any field are advised to take 201-202. <Summer, Fall, Spring>

201. Introduction to Probability and Statistics. (3) Staff
   (Also offered as Math 102 and Soc 280.) An introduction to sampling and probability theory, descriptive and inferential statistics, including essential mathematical and
computational details. Prerequisite: knowledge of algebra at high school level, such as provided by Math 020. <Summer, Fall, Spring>

202. Psychological Research Techniques. (2) Staff
Application of the concepts covered in 201. Includes discussion of basic principles of research design and scientific methodology as applied to psychology. Corequisite: 201. <Summer, Fall, Spring>

210. Educational Psychology. (3) Harnick, Parsons, Rosenblum
An overview of the contributions of psychological theory, research and methods to our understanding of the educational process. Prerequisite: 101 or 102. <Fall, Spring>

211. Applied Psychology. (3) Norman
Topics in applications to everyday life, such as personnel selection, consumer psychology, and environmental problems. Prerequisite: 101 and 102. <Spring>

230. Psychology of Adjustment. (3) Benedetti
An introduction to concepts of psychological health, mental illness, adjustment problems and adaptive processes. Prerequisite: 102. <Summer, Fall, Spring>

240. Physiological Psychology. (3) Feeney
A general survey of the biological foundations of behavior. Emphasis is on the central nervous system. Prerequisite: 101 or 102, or Biol 121L. <Fall>

260. Psychology of Learning. (3) Ellis
Survey of the variety of laboratory learning situations, with an emphasis on the applica­tion of principles to practical situations. Topics range from simple processes such as conditioning to complex processes such as transfer, memory and concept formation. Prerequisite: 101. <Fall, Spring>

270. Interpersonal Relations. (3) Harris
Exploration of the relative merits of literature, philosophy, psychoanalytic case studies, observations of real-life interactions and laboratory experiments as sources of understanding of interpersonal relations. Prerequisite: 102. <Spring 1976 and alternate years>

271. Psychology of Sexual Identity. (3) Conrad
Exploration of the ways in which sexual identity influences or fails to influence intellectual, emotional, and social behavior. <Fall>

*300. Intermediate Statistics. (3) Friden, Harris, Johnson
Complex analysis of variance designs (factorial, mixed-model, Latin square, unequal-n) and nonparametric tests. Prerequisite: 200 or 201. <Fall 1975 and alternate years>

*320. Developmental Psychology. (3) Rosenblum
Description of the more salient aspects of the behavior and development of children and adolescents. Particular emphasis is placed on pertinent psychological research and practical applications to life situations. Prerequisite: 102. <Fall, Spring>

*321. Introduction to Child Research. (3) Parsons
The study of the young child with emphasis on research, theory and methodology. Studies using preschool and lower elementary school children are examined in terms of methodology, theoretical basis, results and interpretations. Prerequisites: 101 and 320. <Fall>

*322L. Child Research Laboratory. (2) Parsons
Research projects related to topics in 321. Pre- or corequisite: 321. (Students must have 4 hr. block of time during normal school hours and means of transportation.) 4 hrs. lab. <Fall>

*331. Psychology of Personality. (3)
Survey of theory, research and applications of both classical and contemporary approaches to the study of personality. Emphasis is on the usefulness and limitations of current research when applied to practical problems. Prerequisite: 230 or 260. <Fall>

*332. Abnormal Behavior. (3)
Review of the historical, scientific and ethical issues in the field of psychopathology. Categorization of deviant behavior is regarded as less important than theories of abnormal behavior development, systems of therapy, and relevant research. Prerequisite: 331. <Spring>

*340. Physiological Psychology. (3) Feeney
Students attend the lectures of Psych 240 and meet for additional advanced discussion. Class is limited to 10 students who must have permission of the instructor. Credit cannot be received for both 240 and 340. <Fall>

*361. Human Learning and Memory. (3) Ellis, Johnson
Traditional and contemporary research and theory in human learning, transfer and memory. Focus is on the extent to which various human skills can be understood in terms of basic principles. Prerequisite: 260. <Fall>
*362L. Human Learning and Memory Laboratory. (2) Johnson
Laboratory projects related to topics in 361. Prerequisite: 200 or 201; corequisite: 361.
4 hrs. lab. <Fall>

*363. Psychology of Perception. (3) Friden
Study of the methods organisms use to gain information about objects. The sensory
processes are discussed as a basis for description of more complex perceptual phenomena.
Prerequisite: 260. <Spring>

*364L. Psychology of Perception Laboratory. (2) Friden
Laboratory projects related to topics in 363. Prerequisite: 200 or 201; corequisite: 363.
4 hrs. lab. <Spring>

*365. Learning: Conditioning. (3) Ferraro
Methods, principles and theories of classical, instrumental and operant conditioning.
Prerequisite: 260. <Spring>

*366L. Conditioning Laboratory. (2) Ferraro
Laboratory projects related to topics in 365. Corequisite: 365. 4 hrs. lab. <Spring>

*367. Introduction to Psycholinguistics. (3) Conrad
(Also offered as Ling 367.) Survey of broad range of topics in psycholinguistics, with
special emphasis on language acquisition; speech perception; memories for linguistic
material, language and reasoning. Prerequisites: 101 or 102 and 260. <Fall>

*368. Sensation. (3) Friden
Exploration of sense organ operation with emphasis on both behavioral and physiological
data. Prerequisite: 260. <Fall 1975 and alternate years>

*371. Social Psychology. (3) Harris
Introduction to the behavior of organisms (primarily humans) as affected by the mutual
interdependence among organisms. Emphasis is on mathematically stated hypotheses
about social interaction, including judgment of oneself and others, attitude change,
leadership and conformity. Prerequisite: 230 or 260. <Fall>

*372L. Social Psychology Laboratory. (2) Harris
Laboratory projects relevant to topics in 371. Prerequisite: 200 or 201; corequisite: 371.
4 hrs. lab. <Fall>

*373. Cross-cultural Psychology. (3) Staff
An examination of the relationship of culture to thinking, learning, perception, and
personality. Methods, findings, and theoretical perspectives in cross-cultural research will
be examined. Prerequisites: 102 and at least one upper division course in psychology,
or a course in anthropology. <Fall>

391. Junior Honors Seminar. (3) Gluck
Discussion of the history and systems of psychology and the philosophy of science, particu­
larly as related to current topics in psychology. Prerequisite: 260 and permission of
instructor; pre-ar corequisite: 200 or 201. <Fall>

392. Junior Honors Seminar. (3) Gluck
Continuation of 391. <Spring>

*400. History of Psychology. (3) Benedetti
An introduction to the major developments and systems in the history of psychology, partly
in the context of theoretical and methodological problems of contemporary psychology.
Prerequisite: 101 or 102. <Spring>

*401. Mathematical Psychology. (3) Harris
Survey of mathematical descriptions of behavior. Prerequisite: 200 or 201 <Fall
1975 and alternate years>

*402. Multivariate Statistics. (3) Friden, Harris
(Also offered as Math 447.) Multivariate analysis of variance, factor analysis, and
canonical correlation. Analysis of situations involving more than one dependent variable,
including use of library computer programs. Prerequisite: 200 or 201 or equivalent.
<Spring>

*410. Psychological Testing. (3) Norman
Problems related to mental measurement; review of various types of tests and their
practical applications. Emphasis is on the pragmatic and theoretical issues in the assess­
ment of individual differences among humans. Prerequisite: 200 or 201. <Fall>

*412. Advanced Educational Psychology. (3) Rosenblum
Discussion of the potential contributions of various theories of learning and teaching
to current educational practice at the preschool, elementary and secondary levels.
Relevant social-motivational-emotional variables are explored. Prerequisite: 210 or 260.
<Spring 1976 and alternate years>
*413. Industrial Psychology. (3) Staff
Application of psychological principles to industrial needs. Prerequisite: 102.

*414. Engineering Psychology. (3) Staff
Problems arising from man-machine relationships. Prerequisite: 102.

*417. Programmed Learning. (2) Ellis, Ferraro
Application of principles of learning necessary for the preparation and use of programmed instructional materials, with practice in frame-writing, construction and evaluation of programs. <Summer only>

*424. Learning, Motivation, and Perception in Children. (3) Parsons
Analysis of theoretical and experimental literature on learning, motivation and perception in simple and complex situations with children. Prerequisite: 260. <Spring 1976 and alternate years>

*428. Cognitive Development. (3) Johnson
Research and theory concerning the development of conceptual, intellectual and linguistic behavior in children. Prerequisites: 101, 102, and 320. <Spring 1975 and alternate years>

*431. Psychology of Intellectual Exceptionality. (3) Rosenblum
Theory and research dealing with various aspects of mental retardation, giftedness, and creativity in children and youth. Prerequisite: 320. <Alternate years>

*432. Child Clinical Psychology. (3) Rosenblum
Theories and practices related to an understanding of children and adolescents who deviate from normal development either intellectually, educationally, emotionally, physically or in some combination. Relevant family variables are considered. Prerequisite: 320. <Spring>

433L. Child Clinical Psychology Laboratory. (2) Rosenblum
Supervised practicum experience with children manifesting a variety of learning and developmental disturbances in school and treatment settings. Pre- or corequisite: 432 and permission of instructor. <Spring>

*441. Brain Mechanisms of Information Processing and Storage. (3) Staff
An advanced course in basic electrical and chemical processes of the brain and their relation to information input, coding, storage, and output. Prerequisite: 240 or 340. <Spring>

*442L. Advanced Physiological Psychology Laboratory. (2) Staff
Laboratory projects related to topics in 441. Prerequisite: 200 or 201; corequisite: 441. 4 hrs. lab. <Spring>

*444. Introduction to Clinical Neuropsychology. (3) Rhodes
Application of psychophysiological techniques and principles to clinical problems. Prerequisite: 240 or 340 and permission of instructor. <Fall>

*445. Comparative Psychology. (3) Gluck
Heredity, maturation, learning and the higher mental processes as revealed in various animals. Prerequisite: 260. <Fall 1975 and alternate years>

*446L. Comparative Psychology Laboratory. (2) Gluck
Laboratory projects related to topics in 445. Prerequisite: 200 or 201; corequisite: 445. 4 hrs. lab. <Fall 1975 and alternate years>

*447. Psychochemistry. (3) Staff
Basic chemical principles of neuronal conduction and synaptic transmission. Biochemical bases of memory consolidation and affective disorders. Prerequisites: 102 and permission of instructor. <Fall>

*448. Primate Behavior. (3) Gluck
In-depth survey of primate developmental-social patterns as studied in both field and laboratory contexts. Emphasis also placed on the study of learning abilities in the primate order. Prerequisites: 101, 260. <Fall 1976 and alternate years>

*449L. Primate Behavior Laboratory. (2) Gluck
Research techniques relevant to the study of social behavior and learning abilities of nonhuman primates. Students will conduct and design small research projects. Corequisite: 448. <Fall 1976 and alternate years>

*450. Special Topics in Psychology. (1-3 hrs. each semester) Staff
Study of any psychological topic not otherwise included in the curriculum upon expression of mutual interest by students and faculty. <Offered upon demand>
461. Motivation of Behavior. (3) Feeney
Methods, findings and theories of motivation based on ethology, behavioral psychology and physiological psychology. Emphasis is on the biological bases of instinct, hunger and sexuality. Prerequisite: 240 or 340. <Spring>

462L. Motivation Laboratory. (2) Feeney
Laboratory projects related to topics in 461. Prerequisites: 103L and 200 or 201; corequisite: 461. 4 hrs. lab. <Spring>

463. Cognitive Processes. (3) Johnson
Discussion of methods, research, and theories of thought processes; i.e., what is thinking, how do we study it, and what do we know about it. Prerequisite: 320 or 321. <Spring>

464L. Cognitive Processes Laboratory. (2) Johnson
Laboratory projects related to topics in 463. Prerequisite: 200 or 201; corequisite: 463. 4 hrs. lab. <Spring>

467. Advanced Psycholinguistics. (3) Conrad
(Also offered as Ling 467.) Current theory and research in the psychology of language. Prerequisite: 367 or permission of instructor. <Spring>

468L. Advanced Psycholinguistics Laboratory. (2) Conrad
Laboratory projects related to topics in 467. Prerequisite: 200 or 201; corequisite: 467. <Spring>

491. Senior Honors Seminar. (3) Logan
Experimental methods and laboratory techniques. Senior thesis based on independent research. Prerequisite: 392. <Fall>

492. Senior Honors Seminar. (3) Ellis, Logan
Continuation of 491. Prerequisite: 491. <Spring>

499. Undergraduate Problems. (1-3 hrs. each semester; maximum 6)
Prerequisite: permission of instructor.
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*566. Experimental Analysis of Operant Behavior. (3) Ferraro
*567. Theories of Perception. (3) Friden
*568. Cognitive Processes. (3) Johnson
*569. Seminar in Semantics. (3) Conrad
(Also offered as Ling 569.)
*571. Advanced Social Psychology. (3) Harris
*572. Theories of Personality. (3) Norman
*573. Seminar on Cross-cultural Research in Cognitive Development, Learning, Thinking, and Perception. (3) Staff
*599. Master's Thesis. (1-6)
*601. Methods of Behavioral Research. (3) Grice
*630. Seminar in Psychoanalytic Psychotherapy. (3) Roll
*631. Experimental Psychotherapy I. (3) Staff
*632. Experimental Psychotherapy II. (3) Staff
*633. Case Conference Seminar. (3) Roll
*634. Seminar in Treatment of Disturbed Children and Adolescents. (3) Ruebush
*641. Seminar in Physiological Psychology. (3)† Feeney, Rhodes
*650. Special Topics in Psychology. (3) Staff
*661. Seminar in Discrimination Learning. (3) Logan
*664. Stimulus Control in Operant Conditioning. (3)†† Ferraro
*666. Seminar in Perceptual Learning. (3) Ellis
*699. Dissertation. (1-9 hrs. per semester)

PUBLIC ADMINISTRATION


Courses in this Division are designed to prepare students at the graduate level for careers in the public service. For a description of the curriculum leading to the degree of Master of Arts in Public Administration, see the Graduate School Bulletin.

*421. Introduction to Public Management. [Public Administration] (3) Smithburg, Stitelman
(Also offered as Pol Sc 421) The organization, administration, and operation of federal, state, and local agencies with emphasis on the dynamics and problems involved in carrying out public policy. <Fall, Spring>

*423. Urban Affairs. (3)
Designed for graduate students in Public Administration preparing for careers in local or state government. Includes all aspects of the administration of local government. Prerequisite: 421.

*424. Intergovernmental Administrative Relations. (3) Rosenthal
Examines the history, structure, dynamics, and problems involved in the operation of the federal system, particularly the administrative relationships of federal, state, and local governments. Prerequisite: 421.

429. Workshop for Interns. (1-3 hrs. per semester, to a maximum of 6)
Available only for students concurrently involved in an intern program approved by the Director.

*445. Economics of the Budget Process. (3) Boyle
(Also offered as Econ 445) Relationship of private and public sectors of the economy; allocation theory with respect to public resources; economic, political, and administrative aspects of government budgeting. Prerequisite: Econ 350 or permission of instructor.

*521. Administrative Behavior. (3) <Fall>

*522. The Administrative Process. (3)
(Also offered as Pol Sc 522.) Prerequisite: 421 or comparable experience. <Spring>
*525. Public Personnel Administration. (3)  
Prerequisite: 421. <Spring>

*530. Public Health Administration. (3) Smithburg  
Prerequisite: 421 or approval of instructor. <Spring>

*551-552. Problems. 1-3 hrs. per semester, to a maximum of 6)  

*590. Division Seminar. (1-3) Rosenthal, Smithburg, Stitelman  

*595. Seminar: Public Science Policy and Administration. (3)  
Prerequisite: 421. <Fall>

*596. Seminar: Public Science Policy and Administration. (3)  
Continuation of 595. <Spring>

*597. Research Methodology. (3)  
Prerequisite: 421.

*599. Thesis. (1-6 hrs. per semester)  
See the Graduate School Bulletin for total credit requirements.

RECREATION  

RELIGIOUS STUDIES

RELIGIOUS STUDIES MINOR  
A minor in Religious Studies is administered by the Philosophy Department. Students interested in this program should consult Professor Matthieu Casalis, who is the adviser for students in the program. The purpose of this minor is to encourage an interdisciplinary approach to religious phenomena (philosophical, historical, sociological, linguistic, etc.). Students shall complete 18 hours, 9 of which must be in Philosophy and 9 hours distributed among three other departments. Courses that will satisfy the minor are: Philosophy 231, 232, 263, 264, 304, 334, 336, 365, 441 (when topic is appropriate), 442 (when topic is appropriate); Anthropology 398, 399; Architecture 261; Art History 270, 351-352; English 341; History 311, 325, 326, 337; Greek 101-102; Music 476; Sociology 422.

(Chinese, Sanskrit and Hebrew will also satisfy when they are available at UNM.) Additional courses may be considered, provided they have a clear bearing upon the study of religion.

RUSSIAN  
See Modern and Classical Languages.

RUSSIAN STUDIES  
COMMITTEE IN CHARGE: ASSOCIATE PROFESSOR R. Robbins, Ph.D. (History), Chairman; PROFESSORS P. Chung, Ph.D. (Economics); R. Murphy, Ph.D. (Geography); J. Sorenson, Ph.D. (Political Science); ASSISTANT PROFESSOR B. Lindsey, Ph.D. (Modern Languages).

The combined major in Russian Studies is administered by the interdepartmental committee listed above. The object of the program is to provide the student with a broad knowledge of modern Russia through study of the social sciences, humanities, and language. Study of the Russian language beyond a reading knowledge is required. The major requires no minor field for graduation. The program also offers a minor.

Major in Russian Studies
FOREIGN LANGUAGE, 18 hours  
Russ 101, 102, 201, 202, 301, 302
ECONOMICS, GEOGRAPHY, AND POLITICAL SCIENCE, 18 hours
Econ 200, 201, 450 or 455
Geog 333
Pol Sc 357, 459

HISTORY, 9 hours
Hist 102, 348, 349

ADDITIONAL REQUIREMENTS, 18 hours to be selected following consultation with the adviser.

Minor in Russian Studies, 21 hours
FOREIGN LANGUAGE
Russ 101, 102, 251, 252

9 ADDITIONAL HOURS CHOSEN FROM:
Econ 450, 455
Geog 333
Pol Sc 357, 459
Hist 303, 348, 349
Russ 301, 302, 303, 338

SOCIOLOGY


CURRICULUM INFORMATION
In this catalog, effective Semester I, 1975-76, the Department of Sociology is instituting an expanded introductory curriculum to which a reorganized system of course prerequisites is keyed. All students having already completed 101 (Introduction to Sociology) under the provisions of a previous catalog may be admitted to other courses in the sociology curriculum on the basis of prerequisites as listed in the 1974-75 catalog (101 was the prerequisite listed for most courses). All students taking their first course in sociology as of Semester I, 1975-76, are bound by the provisions of this catalog.

The student interested in the discipline of sociology should take both 101 and 102, as well as the associated laboratory courses 110L and 120L. These courses are strongly recommended for all students and are included in the requirements for major and minor programs. Furthermore, most higher level courses specify one or both of the introductory courses and, in some cases, one or both laboratories as prerequisites. Students having already completed 101 under a previous catalog are strongly encouraged to take one or both of the laboratory courses as preparation for work in advanced courses.

Credit may be obtained for 101 and 102 separately and may be taken in any order. Either laboratory course, 110L or 120L, may be taken in conjunction with (or subsequent to) either 101 or 102. Normally, students should also take at least one or two 200-level courses before taking more advanced courses. In some areas there is a progression from less to more advanced courses, and following the progression is normally desirable even when the lower-level course is not explicitly stated as a prerequisite for the higher-level course, e.g., 213 (Deviant Behavior) should be taken before taking 313 (Criminology).
Acceptance of transfer credits toward a major or minor in sociology must be approved by the department. Evaluation of transferred introductory courses for the purpose of satisfying prerequisites must also be approved by the department. In specific cases, when deemed appropriate by the course instructor or department chairman, prerequisites for a course may be waived.

MAJOR STUDY
At least 35 hours of course work in Sociology, including the following courses beyond the introductory sequence: 280, 281, 371, 471, and 481L.

MINOR STUDY
At least 19 hours course work in Sociology, including 101, 102, 110L or 120L, and 371 or 471.

DISTRIBUTED MINOR FOR SOCIOLOGY MAJORS
Sociology majors may pursue a distributed minor consisting of courses in related disciplines provided the minor program of courses is approved by the chairman of the department.

101. Introduction to Micro-Sociology. (3) Gehlen, McNamara
Basic survey of micro-social structures, including role structures, groups, organizations, and institutionally patterned interaction systems. <Fall, Spring>

102. Introduction to Macro-Sociology. (3) Tomasson, Merkx
Basic survey of macro social structures of societal and trans-societal systems, including structural differentiation, stratification, demography, ecology, and comparative patterns of development and change. <Fall, Spring>

110L. Sociological Inquiry Laboratory. (1) Bogart, Staff
Exercises in the utilization of existing sources of sociological data, including literature search systems, use of data banks and archives, elementary uses of statistics, and report writing. 2 hour lab. Pre- or corequisite: 101 or 102. Recommended for all beginning students and a prerequisite for some advanced courses. <Fall, Spring>

120L. Sociological Data Laboratory. (1) Bogart
Exercises in empirical data collection and processing, including elements of research design, sampling, survey techniques, data coding and tabulation, statistical treatment, and report writing. 2 hour lab. Pre- or corequisite: 101 or 102. Recommended for all beginning students and a prerequisite for some advanced courses. <Fall, Spring>

200. Social Foundations of Public Welfare. (3) McKelvy
The structure and functions of social welfare institutions for meeting changing human needs and social conditions. Not applicable to a major in Sociology but applicable to a minor in Sociology or to a distributed minor for Sociology major. Prerequisite: 101.

211. Social Problems: Selected Topics. (3) Tomasson
Sociological approaches to selected social problems. Prerequisite: 101 or 102. May not be repeated for credit toward a major or minor. <Fall, Spring>

213. [411] Deviant Behavior. (3) McKelvy, Winfree
Theory and research on deviant behavior; types of individual and subcultural deviance. Prerequisite: 101. <Fall, Spring>

215. Social Stratification. (3) Gehlen, Meier
Structure and dynamics of class, status, and power in society; social consequences of stratification. Prerequisite: 102. <Fall, Spring>

216. Race and Cultural Relations. (3) McNamara
Historical, comparative, and social psychological study of race and ethnic relations in the United States and elsewhere. Prerequisite: 101 or 102. <Fall, Spring>

221. Sociology of Rich and Poor Nations. (3) Merkx
Patterns of development and change in nation-states; relationships between Third World and industrial nations; the impact of class conflict, war, revolution, reform, and colonialism on national development. Prerequisite: 102 <Fall, Spring>

225. Structure and Functions of the Family. (3) Meier
Functional analysis of marriage and family institutions in varying societal contexts; alternative patterns of family role organization and interconnections with social structures of wider social systems. Prerequisite: 101 or 102. <Spring>
226. Sociology of the Barrio. (3) Lopez
Historical development of the Mexican-American urban Barrio; its class structure and social conditions in relation to major sociocultural institutions of U.S. society. Prerequisite: 101 or 102.

230. Society and Personality. (3) Bogart, McNamara
Social psychological processes involved in the development of personality characteristics and problems; problems of individual and group identity. Prerequisite: 101. <Spring>

250. Latin America Through Film. (3) Merkx, Remmer
(Also offered as Pol Sci and Lat Amer Stu 250.) Inter-disciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion. Prerequisite: 102. <Spring>

251. Environment and Man. (3) Wolfe
Functioning of natural ecosystems as applied to human populations; energy flows, biogeochemical cycles, the ecology of population growth and succession. Prerequisite: 102. <Fall, Spring>

280. Introduction to Probability and Statistics. (3)
(Also offered as Math 102.) Pre- or corequisite for 281; prerequisite for 481L. Introduction to basic principles of statistical treatment of numerical data; basic ideas of probability, sampling, and statistical inference. Prerequisite: knowledge of algebra. <Fall, Spring>

281. Elementary Sociological Applications of Statistics. [Sociological Applications of Statistics]
(2) Meier, Wolfe
Prerequisite for 481L. Problems involving elementary applications of statistical methods to sociological problems and data. Prerequisite: 120L; pre- or corequisite: 280. <Fall, Spring>

300. Principles of Social Work. (3) McKelvy
Organization and practice of social work in community welfare agencies; social work as a career. Not applicable to a major in sociology, but applicable to a minor in Sociology or to a distributed minor for sociology majors. Pre- or corequisite: 200.

301. Principles of Social Casework. (3) McKelvy
The role of the social caseworker and principles of problem resolution in human situations of distress and need. Contributions of psychology, sociology, biology, and the social work profession to the practice of casework in community welfare agencies. Not applicable to a major in sociology, but applicable to a minor in sociology and to a distributed minor for sociology majors. Pre- or corequisite: 300.

303. Sociology of Political Behavior. (3) Gehlen, Bartell
Analysis of social factors associated with various types of political participation; effects of major social economic, and demographic changes on political forms; impact of classical theorists. Emphasis on empirical research literature. Prerequisite: 101 or 102 and 110L or 120L.

308. Sociology of Sex Roles. (3) St. George, Meier
Cross-cultural analysis of sex roles; sex role differentiation, socialization, and stereotyping. Prerequisite: 101.

*312. Juvenile Delinquency. (3) McKelvy
The causes and nature of juvenile delinquency; its prediction, prevention, and control. Prerequisite: 101; recommended additional preparation: 213.

*313. Criminology. (3) David, Winfree
The sociological dimensions of crime, types of criminal behavior, explanations of crime. Prerequisite: 101 and 110L; recommended: 213. <Fall, Spring>

316. [310] Black Family in America. (3)
Changes in the structure of the Black family from its historical roots in Africa through slavery and reconstruction up to the contemporary setting in the U.S. Effects of social and economic conditions on Black family life. Prerequisite: 101 or 102.

*321. Sociology of Medical Practice. (3)
Analysis of medical care settings with special attention to professional roles of medical practitioners and the role of the patient. Prerequisite: 101.

325. Social Psychology of Marriage and the Family. (3) St. George
Interpersonal dynamics of marital and family relationships; conflict and solidarity in families; appraisal of research, education, counseling, and the treatment and prevention of family problems. Prerequisite: 101; recommended: 225 or 230.

*331. Collective Behavior. (3) Bartell, Gehlen
Theoretical analysis of the spontaneous emergence of collective activity in response to social stresses; social behavior in the forms of panics, crazes, hostile outbursts, and social movements. Prerequisite: 101. <Fall, Spring>
335. Sociology of Mass Communication. (3) St. George
Analysis of mass communication in society with emphasis on their role in western industrial societies; impact of mass communication on social movements and on sectors of the social structure; social psychology of mass communications. Prerequisites: 101 or 102 and 110L or 120L.

338. The City in History. (3) Roebuck
(Also offered as Arch 338 and Hist 338.) Overview of the development of urban forms through history, with special emphasis on the modern era; causes of urban growth and change; impact of cities on the development of western society. Prerequisite: 102.

345. Sociology of Youth. (3) McNamara, Meier
An analysis of youth in varying social contexts. Intergenerational problems, role transitions, youth subcultures, and the relationships of youth to major social institutions. Prerequisites: 101 and 110L. <Fall, Spring>

351. The Urban Community. (3) McNamara, Wolfe
The forms and development of urban community; demographic, spatial, functional, and temporal patterns; metropolitan development and city hinterland relations. Prerequisite: 102. <Spring>

361. Social Implications of Technological Change. (3)
(Also offered as Anth 361.) The impact of technological change on societal institutions with special attention to underdeveloped societies. Prerequisite: 102. <Fall>

365. Urbanization in Latin America. (3)
(Also offered as Anth 365.) Analysis of processes of urbanization in Latin America; comparative studies of the impact of industrialization and rural-urban migration; emphasis on social and cultural changes accompanying rural-urban migration. Prerequisite: 102. <Spring>

371. History of Social Thought. (3) Huaco, Woodhouse
The rise of sociology as a scientific discipline, principally during the 19th century; special attention to the contributions of Comte, Marx, Durkheim, Tönnies, Simmel, and Weber. Prerequisites: 101 and 102. <Fall, Spring>

381. [305] Nature of Social Inquiry. (3) Bartell, St. George
Philosophy and methodology of sociological inquiry; basic problems of sociological explanation. Prerequisites: 101 or 102 and 120L.

414. [314] Sociology of Corrections. (3) David
The police, courts, prisons, probation and parole, and recent developments in the control of crime. Prerequisite: 312 or 313. <Fall>

421. Sociology of Education. (3) Bachelor, Gehlen
(Also offered as Ed Fdn 421.) Comparative study of the structure and functioning of educational institutions in the United States and other societies. Prerequisite: 101. <Fall>

422. Sociology of Religion. (3) Bogart, McNamara
The development, structure, and functioning of religious institutions in western and non-western societies. Prerequisite: 101 or 102. <Fall, Spring>

425. Latin American Institutions (3) Merkx
Studies of selected institutional arrangements in Latin American societies. Prerequisites: 101 or 102 and 110L or 120L. <Spring>

430. Sociology of Knowledge. (3) Huaco
The social bases of ideology; ideological phenomena as distortions of social reality; isomorphism in social and cultural patterns; social causation of ideology. Prerequisite: 101 or 102. <Spring>

435. Small Group Analysis. (3) Bogart
Behavioral dynamics and emergent social structures in small groups and interpersonal networks; the interplay of informal and institutionalized patterns of social relationships. Prerequisites: 101 and 110L or 120L. <Fall>

441. Formal Organizations. (3) Bogart
Structure and functional dynamics of formal organizations; the role of bureaucracy in modern social organization. Prerequisites: 101 and 110L or 120L. <Spring>

445. Occupations and Professions. (3) Woodhouse
Comparative studies of occupational subcultures; patterns of interaction and social norms in relations among colleagues and with clients; recruitment, mobility, and the process of professionalization. Prerequisites: 101 and 110L. <Fall>
The composition of populations; fertility, mortality, migration; sources and evaluation of
demographic data. Prerequisites: 102 and 110L or 120L. <Fall, Spring>

*461. Social Change. (3) Meier, Woodhouse
Conditions and processes producing new social structures; emergence of new values and
norms; reform movements, political revolution, and cultural diffusion; theories of social
change. Prerequisites: 102 and 110L. <Spring>

471. Contemporary Sociological Theory. (3) Huaco, Merkx
Comparative analysis of major contributions to sociological theory since 1900, considering
their continuity with older theoretical positions and applications in contemporary re­
search. Prerequisites: 101 and 102. <Fall, Spring>

*478. Seminar in International Studies. (3) Slavin
(Also offered as Econ, Geog, M & CL, and Pol Sc 478.) Designed to provide seniors from
several disciplines an opportunity to apply an international perspective to their under­
graduate training. Each student presents a term project drawing upon his major disciplin­
ary background and related to international concerns. Prerequisites: 102 and Senior
standing. <Fall>

(Also offered as Pol Sc 480.) Prerequisite for 581. Foundations of statistical inference with
emphasis on social science applications; distribution theory, estimation; hypothesis testing,
measures of association, multivariate techniques. Prerequisite: 280 (Math 102) or equiv­
alent, or permission of instructor. <Fall, Spring>

**481L. Research Methods in Sociology. (4) Bartell, St. George
Use of the computer as a tool of social research; utilization of data archives; problems of
research design, instrumentation, and analysis of empirical data. Prerequisite: 280 (Math
102) or equivalent; 281 for sociology majors. <Fall, Spring>

*485. Seminario de Investigación sobre la Sociedad Mejicano-Americana. (3) Merkx
El análisis de investigaciones empíricas sobre la organización cultura, y ecología de la
sociedad mejicano-americana en el suroeste. El curso comprendera tambien la formulación
de proyectos de investigación empíricos. Cada estudiante llevara a cabo un trabajo de
investigación en el campo. La lengua de instruccion del curso sera español. Se requiere:
dominio de español, nueve horas de sociologia incluyendo 481L, o permiso del
instructor.

490. Directed Study. (1-3, to a maximum of 6)
Tutorial arrangement with a member of the Sociology faculty. Restricted to students with
substantial background in sociology. Prerequisites: 101 or 102 and 110L or 120L.

*500. Seminar: Social Organization. (3) Meier, Woodhouse

*502. Seminar: Social Systems Analysis. (3) Bogart, Meier

*503. Seminar: Political Sociology. (3) Bartell, Gehlen, Woodhouse

*504. Seminar: The Control of Deviance. (3) David
Prerequisite: 312, 313 or 414.

*505. Seminar: Theory of Complex Organizations. (3) Bogart

*506. Seminar: Comparing Nations. (3) Merkx, Tomasson

*507. Sociological Theory: Selected Topics. (3) Abel, Huaco

*508. Seminar: Comparative Latin American Social Systems. (3) David, Merkx
Prerequisite: 425 or permission of instructor.

*509. Seminar: Sociology of Science. (3)

*510. Seminar: Social Movements. (3) Gehlen

*511. Proseminar in Sociology. (3) Meier
Required of all Sociology graduate students and normally taken in the first semester of
graduate work. <Fall>

*512. Seminar in the Sociology of Literature. (3) Huaco

*513. Survey of Contemporary Schools of Sociological Theory I. (1) Huaco
<Fall>

*514. Survey of Contemporary Schools of Sociological Theory II. (3) Huaco
<Spring>

*521. Seminar: Sociology of Education. (3) Bachelor, Gehlen
(Also offered as Ed Fdn 581.)
*531. Sociology Teaching Practicum. (1) Bogart
   For teaching assistants only. <Fall, Spring>

*551-552. Problems. (2-3, each semester)
   Tutorial arrangement with member of the graduate faculty. <Fall, Spring>

*580. Methods of Social Research I. (3) Bartell, St. George
   Prerequisite: 481L or equivalent. <Spring>

*581. Methods of Social Research II. (3) St. George
   Prerequisite: 480 or equivalent, or permission of instructor. <By arrangement>

*584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen,
   Merkx, Needler, Schwerin
   (Also offered as Anth, Econ, Hist, and Pol Sc 584.) <Spring>

*590. Research Practicum. (1-4) Bartell, St. George
   <Fall, Spring>

*599. Master's Thesis. (1-6 hrs. per semester)
   See Graduate School Bulletin for total credit requirements. <Fall, Spring>

SPEECH COMMUNICATION

PROFESSOR R. Wayne Pace, Ph.D. (Chairman); ASSOCIATE PROFESSORS L. B. Rosenfeld, Ph.D.;
E. M. Zannes, Ph.D.; ASSISTANT PROFESSORS J. M. Civikly, Ph.D.; Paul C. Feingold, Ph.D.;

MAJOR STUDY

36 hours in Speech Communication, including 101; 18 hours must be 300-level or above courses. The Department recommends that students take a course from each of the following areas: Interpersonal, Organizational, Rhetorical, and Telemediated Communication.

Courses in complementary departments are advised; consult the Chairman of Speech Communication for details.

Majors should minor in other departments of the College of Arts and Sciences or departments of other colleges in the University, such as Fine Arts, Business and Administrative Sciences, or Education. For advice on specific course patterns, consult the Chairman of Speech Communication.

MINOR STUDY

18 hours in Speech Communication courses, including 101; 9 hours must be 300-level or above courses. A distributed minor is also available; consult the department.

DEPARTMENTAL HONORS PROGRAM

Guidelines for completing an honors sequence to graduate with departmental honors are available from the department.

101-102. Introduction to Speech Communication. (3, 3)
   Principles and concepts of communicative behavior. <Fall, Spring>

200. Forensics. (1 per semester to a maximum of 4)
   Participation in intercollegiate, campus, and community activities. <Fall, Spring>

201. Interpersonal Communication. (3)
   Interaction with others through symbols and nonverbal messages; designed to develop competencies in interpersonal relations. <Summer, Fall, Spring>

212. Communication in Organizations. (3)
   Review of current literature concerning the relationships among interpersonal communication, organizational behavior, organizational communication networks, and human resources.

215. Problems of Interpersonal Communication. (3)
   Application of transactional analysis as a model of dyadic and small group relationships in the family, church, and community. <Fall, Spring>
240. Intercultural Communication. (3)
Problems and practices of communication across cultural and national boundaries, but especially Chicano-Anglo, Black-White, Native American-Anglo relationships. <Fall, Spring>

250. Parliamentary Procedure. (1)
Study and practice of the rules governing the proceedings of groups and deliberating assemblies. <Fall, Spring>

251. Telecommunication. (3)
Survey of theoretical approaches to the processes and effects of the telecommunication media. History, ethics, regulation, and evaluation. <Fall>

255. Public Discourse. (3)
Principles of rhetorical theory applied in public speaking situations. <Summer, Fall, Spring>

256. Communication for Teachers. (3)
Theory and practice of communication principles and strategies adapted to the special needs of classroom teachers. <Summer, Fall, Spring>

260. Oral Interpretation. (3)
Analysis and oral presentation of written materials. <Fall, Spring>

265. Telecommunication Production. (3)
Survey of the various approaches to media production. Contributions of radio, television, motion picture and still photography, theatre, and multi-media-concepts to contemporary media production. 2 hrs. lecture, 2 hrs. video lab. <Summer, Fall, Spring>

277. Problem Solving, Creativity, and Communication. (3)
Analysis and application of creative and communicative abilities to solving problems in groups. <Fall, Spring>

278. Argumentation. (3)
Theory and practice of principles of argumentative speaking aimed at training the student to be a more effective advocate in the public forum. <Fall, Spring>

280. Scientific Bases of Speech. (3)
(Also offered as Com Ds 280.) The basis of the speech process as presented in the scientific materials of such related fields as physics, physiology, psychology, and linguistics. <Fall, Spring>

292. Introduction to the Study of Language. (3 or 4)
(See Ling 292.)

300. Advanced Forensics. (1 per semester to a maximum of 4)
Intensive study and participation in campus, community, and intercollegiate activities. <Fall, Spring>

303. Phonetics. (3)
(Also offered as Com Ds 303 and Ling 303.) English phonetics as applied to the problems of articulation, pronunciation, rhythm, dialects, and to the teaching of speech, English, and to speech correction. <Fall, Spring>

305. Advanced Public Speaking. (3)
Analysis, preparation, and presentation of specialized forms of public speeches. <Fall, Spring>

306. Rhetoric of Dissent, Agitation and Revolution. (3)
A study of vital issues as reflected in the voices of a wide variety of communicators—including the agitator, the demagogue, and the protestor as well as the more traditional representatives of the establishment. Provides the student with critical and analytical tools for examining and evaluating discourse on controversial issues. <Spring>

307. Rhetorical Strategies in Movements and Campaigns. (3)
Study of rhetorical tactics used by speakers and groups in political campaigns and social movements. <Fall>

312. Communication Audit (3)
Philosophy, methods, and designs for studying the communication system of and practices in a complex organization. <Spring>

320. Nonverbal Communication. (3)
Body motion, paralanguage, proxemic, and other non-language codes and modes of communicating. <Fall, Spring>
341. Telecommunication Evaluation. (3)
Methods in analysis of telecommunication media; cross-national evaluation, assessment
of social responsibility, criticism of electronic mass media fare and of telecommunication
economics and policy. <Fall>

346. Empirical Research. (3)
Basic principles, methods and techniques of conducting empirical research in speech
communication. <Fall>

347. Rhetorical Criticism. (3)
Nature, forms, and functions of rhetorical criticism. <Spring>

350. General Semantics. (3)
Influence of perceptions and language habits on evaluations, decisions, and interpersonal
relations. <Spring>

351. Television Drama Production. (3)
(See TA 351.)

352. Advanced Television Drama Production. (3)
(See TA 352.)

354. The Nature of Language. (3)
(See Anth 354.)

359. Language and Culture. (3)
(See Anth 359.)

360. Advanced Oral Interpretation. (3)
Theory and techniques involved in the interpretation of prose and drama. Prerequisite:
260 or permission of instructor. <Spring>

365. Tele-media Film Production. [Television Film Production] (3)
Film production focusing on forms and formats suitable for presentation on television,
including but not limited to commercials, news and documentary. Two lectures, one lab.
Prerequisite: 265. <Spring>

366. Telecommunication Methods. (3)
Video, film and audio production methods for telecommunication application. Emphasis
placed upon formulation of criteria for evaluation and experience in group media pro­
duction activities. Prerequisite: 265. <Fall>

*411. Theories of Communication. (3)
Critical analysis of contemporary theories, concepts, models, and empirical research
relevant to communicative process. <Fall>

*412. Strategies of Organizational Communication. (3)
Consulting for planning and implementing a program for improving communication in
a complex organization. <Fall>

*413. Internship in Speech Communication. (1-6 per semester)
Student placement in field assignments for application of speech communication principles
and practices in telemediated, instructional, and organizational settings.

*414. Communication Practices in Professions (3)
Oral reporting, interviewing, and group discussions in business, industry, and profes­
ional organizations. <Spring>

*415. Interviewing. (3)
Theory and practice of dyadic communication in informational, employment, and de­
cision-making situations. <Fall>

*420. Small Group Communication. (3)
(Also offered as Ed Fdn 420.) Theory and practice of human interaction in small groups,
including role behavior, conflict resolution, nonverbal communication, and phases in
group development; special application to the classroom. <Fall>

440. Undergraduate Problems. (1-3 per semester to a maximum of 6)
Prerequisite: permission of departmental chairman. <Summer, Fall, Spring>

*445. History of the English Language. (3)
(See Engl 445.)

*451. Telecommunication Strategies. (3)
Group and individual projects to explore strategies in media use; television in political
campaigns, mass media and minorities; organizational implications of the telemedia.
<Spring>
*460. Oral Interpretation: Theory and Performance. (3)
A study of interpretative theory and the oral tradition of literature as they relate to program-building and performance.

*466. Writing for the Telecommunication Media. (3)
Theory, analysis and practice in writing for radio, television, and television film. Prerequisite: 265. <Fall, Spring>

*470. Speech Communication in the Secondary Schools. (3)
Course content, instructional objectives, and teaching materials for speech communication as an academic subject. <Fall>

*471. Current Developments in Speech Communication Education. (3)
Review of recent developments in course content, teaching materials, and instructional strategies; simulated classroom experience with analysis of teaching behavior using media. <Summer>

*475. Tele-Mediated Instruction. (3)
Analysis of the values and use of video materials in instructional applications. <Fall>

*485. Advanced Telecommunication Methods. (3)
Non-print media communication emphasizing purposive integration of media. Application of theories of media effectiveness in individual and team projects. <Spring>

*490. Administration of the Forensic Program. (3)
Problems and methods of directing forensics, managing tournaments, and coaching competitive and non-competitive activities. <Spring>

*491. Forensic Practicum. (3)
Companion course to 490. Students will apply theory in a practicum setting. Upper division and graduate students will actually direct high school students in preparation for forensic participation. <Summer>

*492. Introduction to Linguistics. (3)
(See Engl 440.)

493. Reading and Research in Honors. (3)
<Summer, Fall, Spring>

494. Senior Thesis. (3)
<Summer, Fall, Spring>

*495. Rhetoric on American Issues. (3 per semester to a maximum of 6)
Study of speechmaking as a force in political and intellectual history; selected speeches in relation to social, political, and economic issues. <Fall>

*497. Topics in Minority Rhetoric. (3 per semester to a maximum of 6)
Issues and spokesmen in Afro-Chicano and Native American intellectual history studied from the perspective of rhetorical influence. <Spring>

*498. Persuasion. (3)
Application of principles of attitude change in practical persuasion. <Spring>

*499. Rhetorical Theory. (3 per semester to a maximum of 6)
Historical survey of major contributors and contributions to the development of contemporary rhetorical theory. <Spring>

*500. Introduction to Graduate Study. (3)
Required of all graduate students. <Fall>

*501. Teaching the Basic Course. (1)

*520. Seminar: Telecommunication Processes and Effects. (3)

*524. Seminar: Telecommunication Policy and Regulations. (3)

*529. Seminar: Persuasion. (3)

*540. Seminar: Reasoned Discourse. (3)

*541. Contemporary Rhetoric. (3)

*543. Seminar: Interpersonal Communication. (3)

*544. Seminar: Organizational Communication. (3)

*545. Seminar: Public Address. (3)

*546. Communication Research. (3)

*547. Seminar: Rhetorical Criticism. (3)

*550. Seminar: Language Behavior. (3)

*551-552. Problems. (1-3 hrs. each semester) <Summer, Fall, Spring>
*555. Seminar in Linguistics and Language Pedagogy (1-3)
   (See Ling 555.)

*570. Seminar: Communication Education. (3)
   <Spring>

*580. Seminar: Intercultural Communication. (3)
   <Fall>

*599. Master's Thesis. (1-6 hrs. per semester)
   <Summer, Fall, Spring>

STATISTICS
See Mathematics & Statistics.

THEATRE ARTS


MAJOR STUDY
College of Fine Arts: see pp. 163-164.
For Teacher Education and Certification: see p. 165.

MINOR STUDY
24 hours including 101, 102, 115, 116 and 12 hours selected from either acting-directing or technical courses.

Students are reminded that charges for classroom supplies and services for certain theatre arts courses must be paid at the Fine Arts box office during the first three weeks of each semester. Refunds will be given according to the refund schedule in the student expense section of this catalog, page 34.

101. Voice and Diction. (3)
   Training in effective use of the speaking voice; principles of voice production, diction and phonetics. Non-majors only. <Fall, Spring>

102. Voice and Diction. (3)
   Training in use of the voice for oral interpretation with emphasis on regional speech. Prerequisite: 101 or equivalent. <Spring>

115. Theatre Appreciation. (3)
   Introduction to theatre in terms of the rewarding experience and personal pleasure it provides. Non-majors only. <Summer, Fall>

116. Theatre Appreciation. (3)
   Continuation of 115. <Spring, Summer>

125. Introduction to Theatre. (3)
   Background and working knowledge of theatre. Required of all TA majors. <Fall>

126. Introduction to Theatre. (3)
   Prerequisite: 125. <Spring>

129. Stage Craft. (3)
   Materials and techniques of stage carpentry. Scenic crews on departmental productions required. <Fall, Spring>

130. Stage Craft. (3)
   Prerequisite: 129. <Fall, Spring>

159. Stage Movement for the Actor. (3)
   Movement training for the actor. Basic exercises to effect alertness and responsiveness on stage and to induce relaxation and sensory awareness. TA majors only. <Offered upon demand>

165. Voice Technique for the Actor. [Voice Technique for Theatre] (3)
   Training in all aspects of voice production. TA majors only. <Fall>
166. Voice Technique for the Actor. [Voice Technique for Theatre] (3)  
Prerequisite: 165. <Spring>

185. Costume Craft. (3)  
Materials and techniques of costuming. Costume crews on departmental productions  
required. <Fall, Spring>

186. Costume Craft. (3)  
Prerequisite: 185. <Spring>

235. Theatre History. (3)  
Development of dramatic writings and production techniques of theatre, beginning with  
the Greeks. <Fall>

236. Theatre History. (3)  
Continuation of 235 to present day. <Spring>

240. Makeup. (3)  
The art of makeup for stage and television. Makeup crews on departmental productions  
required. <Fall, Spring>

255. Fundamentals of Stage Lighting. [Stage Lighting] (3)  
Theory and practice of lighting for the stage. Lighting crews on departmental productions  
required. Prerequisite: 126 or equivalent. <Fall>

256. Fundamentals of Stage Lighting. [Stage Lighting] (3)  
Prerequisite: 255. <Spring>

260. Oral Interpretation. (3)  
(See Sp Com 260.) Prerequisite: TA 101. <Fall, Spring>

265. Fundamentals of Acting. [Acting Technique] (3)  
Basic methods of acting for theatre. Prerequisites: 126 and 166. <Fall>

266. Fundamentals of Acting. [Acting Technique] (3)  
Prerequisite: 265. <Spring>

275. Technical Production. (3)  
Analysis, planning and construction of stage scenery and properties; study of the  
theatre plant. Scenic crews on departmental productions required. Prerequisites: 126 and  
and 129. <Fall>

276. Technical Production. (3)  
Prerequisite: 275. <Spring>

284. Costume History. (3)  
The history and psychology of dress and its relation to the role of the actor and to  
theatrical costume design. Prerequisite: 185. <Offered upon demand>

290. Professional Theatre Tour. (1-3)†  
Comprehensive tour of New York or London theatre. Post-trip critique required. Offered  
upon demand. <January, Summer>

299. Theatre Workshop. (1-3)‡  
For Theatre Arts majors who participate in a prearranged series of departmental pro­ 
ductions. Cannot exceed 6 hours without permission of the Committee on Studies. <Fall,  
Spring, Summer>

305. Fundamentals of Directing. [Rehearsal and Performance] (3)  
Techniques for the director in rehearsal and performance. Prerequisite: 266. <Fall>

306. Fundamentals of Directing. [Rehearsal and Performance] (3)  
Prerequisite: 305. <Spring>

350. Theatre Management. (3)  
Principles of production, organization, programming, house management, budgets, ad­ 
vertising and box office. Participation in departmental productions required. Prerequisite:  
126 and upper-division standing. <Fall>

351. Television Drama. [Television Drama Production] (3)  
Basic techniques for the dramatic television program. Prerequisites: 104, 126 and Sp  
Com 265. <Offered upon demand>

352. Advanced Television Drama Production. (3)  
Prerequisite: 351. <Offered upon demand>

360. Advanced Oral Interpretation. (3)  
(See Sp Com 360.) Prerequisite: Sp Com 260. <Spring>

† Open to graduate students and to undergraduates enrolled in the pre-professional cur­
ricula of the College of Fine Arts. Exceptions may be made with permission of the department  
chairman. Graduate credit allowed only when asterisk appears.
365. The Actor and the Role. [Advanced Acting] (3)  
Advanced acting techniques and styles as related to periods of theatre history. Prerequisite: 266. <Fall>

366. The Actor and the Role. [Advanced Acting] (3)  
Prerequisite: 365. <Spring>

375. Fundamentals of Scene Design. [Scene Design] (3)  
Techniques and methods of design and painting. Scenic crews on departmental productions required. Prerequisite: 276 or equivalent. <Fall>

376. Fundamentals of Scene Design. [Scene Design] (3)  
Prerequisite: 375 <Spring>

385. Fundamentals of Costume Design. [Costume Design] (3)  
Techniques and methods of design for theatre. Costume crews on departmental productions required. Prerequisites: 185, 285 and upper-division standing. <Fall>

386. Fundamentals of Costume Design. [Costume Design] (3)  
Prerequisite: 385. <Spring>

405. Advanced Directing and Performance. [Advanced Rehearsal and Performance] (3)  
Advanced study of directing techniques, analysis of scripts and methods of interpretation in production. Prerequisite: 305. <Fall>

Prerequisite: 405. <Spring>

414. Experimental Music Theatre. (1-4)†  
The content and form of this course will vary each time offered, normally culminating in a public performance involving both departments of music and theatre arts. <Offered upon demand>

415. Educational Theatre. (3)  
Organization and teaching of drama in the schools with emphasis on educational theatre as an integral part of the school curriculum and the student activities program. <Fall>

416. Theatre Production for Teachers. (3)  
Acting, directing and technical production; rehearsal methods and production organization. May not be taken by Theatre Arts majors for credit. Prerequisite: 415. <Spring>

417. Educational Theatre Workshop. (3-6)  
Participation in prearranged workshop productions. Prerequisite: 415 or equivalent. Not to exceed 9 hours without permission of the Committee on Studies. <Offered upon demand>

455. Playwriting. (3)  
Writing techniques of the theatre. Analysis of student plays. Prerequisites: 126, 236 or equivalent. Alternate years. <Fall>

456. Playwriting. (3)  
Prerequisite: 455. Alternate years <Spring>

491. Professional Apprenticeship. (1-6)†  
Qualified students accepted by a professional company, (e.g., The Santa Fe Opera), may register for credit in technical production or in acting apprenticeship. Prerequisite: average of 3.0 or better in Theatre Arts courses. <Summer, Fall, Spring>

499. Thesis. (1-6)†  
Directed study in any major field of Theatre Arts. Prerequisite: accumulative average of 3.0 or better in Theatre Arts courses, and permission of the departmental Thesis Committee. May not be repeated for more than 9 hrs. credit. <Summer, Fall; Spring>

DANCE

109. Introduction to Dance. [Modern Dance 1] (1-3)  
(Also offered as PE 126.) Techniques and practice of basic motor skills and their application to aesthetic communication. <Fall, Spring>

* Open to graduate students and to undergraduates enrolled in the pre-professional curricula of the College of Fine Arts. Exceptions may be made with permission of the department chairman. Graduate credit allowed only when asterisk appears.

† Students in the College of Arts and Sciences are limited to a maximum of 8 hours in Dance. These hours may be substituted for 4 hours of activity PE and 4 hours of Ensemble Music.
110. Modern Dance I. (3)
Beginning modern techniques. Basic technique of modern dance, including barre work, center work, floor work, isolation falls and recoveries, contraction and release, resisting and yielding and awareness of personal and environmental space. Audition required. <Fall, Spring>

φ210. [259] Modern Dance II. (3)‡‡
Various techniques in modern dance in America; (e.g. Graham, Humphrey, Weidman, and Limon.) Prerequisite: 110, or equivalent. Audition required. <Fall, Spring>

φ211. Choreography I. (3)
Developing the skills of editing and selecting dance materials for individual and group compositions. Exploration of pre-classic and modern dance forms. Audition required. <Offered upon demand>

φ249. Ballet. (3)
Introduction to basic ballet techniques emphasizing Russian and Cechetti approaches. Audition required. <Fall, Spring>

262. History of Dance I. (2)
Cultural influences on dance throughout western civilization; primitive, ancient, and medieval. 2 lectures, 1 hr. lab. <Fall>

263. History of Dance II. (2)
Renaissance to the present day. 2 lectures, 1 hr. lab. Prerequisite: 262. <Spring>

φ310. [309] Modern Dance III. (3)‡‡
Prerequisite: 210 or equivalent. Audition required. <Fall, Spring>

φ311. Choreography II. (3)
Further development of individual choreographic skills and concepts. Prerequisite: 211 or equivalent. Audition required. <Offered upon demand>

φ312. Improvisation and Composition. (3)
Audition required. <Offered upon demand>

φ313. Movement and Rhythmic Structure. (3)
The understanding of the basic underlying movement rhythm. Audition required. <Offered upon demand>

φ314. Anatomy for Dancers. (3)
Structural analysis of movement. Basic understanding of the skeleton and neuromuscular systems of the human body as applied to dance movement. Audition required. <Offered upon demand>

¶366. Theory and Practice of Teaching Dance. [Teaching of Modern Dance] (3)
(Also offered as PE 366.) Methods and materials for teaching modern dance. Supervised practice teaching in local elementary, junior, and high schools. <Fall, Spring>

¶368. Ethnic Dance. (2)‡‡
Movement experiences in various ethnic dance forms. Film viewing and analysis of dance works. <Fall, Spring>

φ410. Modern Dance IV. (3)
Prerequisite: 310 or equivalent. Audition required. <Offered upon demand>

φ499. Thesis. (1-6)
Directed study in dance. Prerequisite: accumulative average of 3.0 or better in Dance courses, and permission of the Theatre Arts Thesis Committee. May not be repeated for more than 9 hrs. credit. <Offered upon demand>

FILM

Students are reminded that charges for classroom supplies and services for certain film courses must be paid at the Fine Arts box office during the first three weeks of each semester. Refunds will be given according to the refund schedule in the student expense section of this catalog, page 34.

φ Open to graduate students and to undergraduates enrolled in the pre-professional curricula of the College of Fine Arts. Exceptions may be made with permission of the department chairman. Graduate credit allowed only when asterisk appears.

‡‡ May be taken three times for credit. Instructor and the Committee on Studies must approve additional repetition of this course.
210. Introduction to Film. (3)
   Historical and critical survey, with examples, of major tendencies in the development of
   the motion picture as an art form. <Fall, Spring>

*327. History of the Film. (3)
   History of the motion picture from its beginning up to the era of sound. Prerequisite: 210
   or equivalent. <Fall>

*328. History of the Film. (3)
   Continuation of 327 to the present day. Prerequisite: 210 or equivalent. <Spring>

388. Cinematic Photography. (3)††
   (See Art St 388.) <Fall, Spring>

*427. Topics in Film History. (3)††
   <Fall, Spring>

488. Advanced Cinematic Photography. (3)††
   (See Art St 488.) <Fall, Spring>

WOMEN STUDIES

COMMITTEE IN CHARGE: to be selected. ASSISTANT PROFESSOR G. Baker, Ph.D. (American
   Studies), Coordinator.

Women Studies is an interdisciplinary program whose focus is feminism and
   women. It is concerned with women’s contributions in the past, their present
   situation, their future possibilities. Major or minor study in Women Studies is not
   yet available. Students wishing to concentrate in this field are advised to earn
   a Bachelor of University Studies Degree, and to consult with the Coordinator
   concerning their program. The following courses are representative of Women
   Studies offerings; additional courses on special topics are frequently scheduled.
   A complete listing is available each semester at the Women Studies office.

   Am. St. 231. Women’s Experience in the United States. (3)
   Am. St. 312. The Black Woman. (3)
   Am. St. 331. Classics of Feminism in the United States. (3)
   Am. St. 342. La Mujer Chicana. (3)
   Econ. 239. Economics of Feminism. (3) Prerequisite: 201 or consent of instructor.
   Eng. 102. Writing with Readings in Literature. (3) Each semester some sections focus on
   feminist literature or women writers.
   Eng. 280. Readings in Literature. (3)† The Fallen Woman in Literature.
   *Hist. 315. History of Women from Ancient Times to the Enlightenment. (3)
   *Hist. 316. Women in the Modern World. (3)

†† May be taken three times for credit. Instructor and the Committee on Studies must
   approve additional repetition of this course.
Central Campus Legend of Buildings
(Numerical Listing)
- First number listed matches map numbering, the ten-number combination designates location by map
- first number
- list of buildings:
  1. Art Department Crafts Annex E-3
  2. Parson Hall E-3
  3. Carlsile Gym E-4
  4. Lecture Hall E-2
  5. Bandelier East (Departmental Offices) D-3
  6. Merron Hall (Departmental Offices) F-3
  7. Administration (Schles Hall) D-2
  8. Anthropology
  9. Police and Parking Services (1821 Ramo NE) C-4
  10. Bandelier East (Departmental Offices) D-2
  11. Speech Communications C-3
  12. Biology (Carter Hall) F-4
  13. Chemistry (Clark Hall) E-3
  14. Mitchell Hall (Classrooms) D-3
  15. Biology (Nordost Hall) E-4
  16. Anthropology C-2
  17. Bandelier East (Departmental Offices) D-3
  18. Psychology F-3
  19. Physics labs and lecture Hall F-2
  20. Mori Hall (Dormitory) E-6
  21. Meso Vista Hall (Departmental Offices) E-6
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  23. 1805 Ramo NE C-3
  24. 1812 Las Lomas NE C-4
  25. 1820 Las Lomas NE C-4
  26. 1806 Las Lomas NE C-3
  27. 1804 Las Lomas NE C-3
  28. 1815 Ramo NE C-4
  29. 1824 Los Lomas NE C-4
  30. 1702 Mesa Vista A-2
  31. 1700 Las Lomas NE C-3
  32. 1712 Las Lomas NE C-3
  33. 1709 Meso Vista C-3
  34. 1715 Meso Vista C-3
  35. 1702 Meso Vista C-3
  36. 1700 Meso Vista C-3
  37. 1712 Meso Vista C-3
  38. 1709 Meso Vista C-3
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