

THE UNIVERSITY OF NEW MEXICO BULLETIN



**CATALOG
1983-85**

EQUAL EDUCATIONAL OPPORTUNITY POLICY

The University of New Mexico is committed to providing equal educational and employment opportunity regardless of sex, marital or parental status, race, color, religion, age, national origin, or physical handicap. Title IX of the Educational Amendments of 1972, prohibits discrimination on the basis of sex in any educational program or activity receiving federal financial assistance by way of grant, contract, or loan. Title VI of the Civil Rights Act of 1964, is similar in its prohibition of discrimination on the basis of race, color, or national origin and section 504 of the Rehabilitation Act of 1973 prohibits discrimination against qualified handicapped persons. Equal educational opportunity includes: admission, recruitment, extracurricular programs and activities, housing, facilities, access to course offerings, counseling and testing, financial assistance, employment, health and insurance services, and athletics.

Responsibility for equal employment and educational opportunity throughout the University rests with the President. The President has appointed Bernie Sanchez, Affirmative Action Director, and Karen Glaser, Title VI and Title IX Officer, and has assigned responsibility to them for promoting and encouraging progress in meeting the University's equal opportunity goals. All grievances, questions or requests for information relating to student concerns should be referred to Dean Karen Glaser, Mesa Vista Hall 1176, 277-6448. All grievances, questions or requests for information relating to employee concerns should be referred to 1700 Las Lomas NE, 277-5251.

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.

It is the policy of the University that "no person . . . shall, on the ground of race, color, national origin, sex, marital status, age or religion be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity . . ."

If, after reading this catalog, you require any additional information, please write to the Office of Dean of Admissions and Records, The University of New Mexico, Albuquerque, New Mexico 87131, or telephone Admissions Office, Area Code 505, 277-2446.



The University of New Mexico Bulletin

Catalog 1983–85

DIRECTIONS FOR CORRESPONDENCE

All departments of the University receive mail through a central post office. Please address any correspondence to a specific department or individual as follows:

Department and/or name of individual
The University of New Mexico
Albuquerque, New Mexico 87131

For prospective student information please write to the Director of School Relations at the above address. For other general information please write to the Dean of Admission and Records at the above address.

University office hours are, in general, 8:00 to 12:00 and 1:00 to 5:00 Monday through Friday. Office hours of the University Cashier are 8:30 to 4:00 Monday through Friday. Administrative offices are open during most of the days of the official student recess periods.

This volume was produced by the University of New Mexico Office of Admissions and Records. Editing was done by Laura Grissom and Valerie Vigil. Steve Rhodes, Publication Office, was responsible for cover design and art work. Photography was done by University Photo Services; image enhancement by Dave Gold; design/production by Jason Grammer. The type face used throughout the publication is Helvetica.

CONTENTS

Academic Calendar	4
The Regents of the University	7
Administrative Officers	7
GENERAL INFORMATION	
Introduction	9
History and Location	11
Facilities	13
THE UNDERGRADUATE PROGRAM	
Admission	17
Records	25
Registration	28
General Academic Regulations	29
Student Expenses	37
Student Housing	40
Financial Aid	41
Student Services	44
COLLEGES, SCHOOLS, DIVISIONS	
Robert O. Anderson School of Management	47
School of Architecture and Planning	59
College of Arts and Sciences	64
Departments of American Studies, Anthropology, Biology, Chemistry, Communicative Disorders, Economics, English, Geography, Geology, History, Ibero American Studies, International Studies, Journalism, Latin American Studies, Linguistics, Mathematics and Statistics, Modern and Classical Languages, Natural Science, Paleocology, Philosophy, Physics and Astronomy, Political Science, Psychology, Religious Studies, Sociology, Speech Communication	
Division of Dental Programs	156
College of Education	160
Departments of Art Education, Educational Administration, Educational Foundations, Educational Media, Elementary Education, Counselor Education, Health, Physical Education, and Recreation, Home Economics, Secondary and Adult Teacher Education; Business Education, Industrial Education, Library Media, Music Education, Special Education, Vocational Education	
College of Engineering	205
Departments of Chemical-Nuclear Engineering, Civil Engineering, Computer Science, Electrical Engineering and Computer Engineering, Mechanical Engineering	
College of Fine Arts	240
Departments of Art, Music, Music Education, Theatre Arts, Dance, Film	
General College	263
School of Law	266
School of Medicine	269
College of Nursing	287
College of Pharmacy	293
Division of Public Administration	301
University College	302
Interdisciplinary Studies and Special Programs	305
Ethnic Programs; General Studies; Reserve Officers Training Corps; Women Studies	
Division of Community Service	312
Continuing Education	312
Branch Campuses	313
Residence Centers	313
Graduate Programs	315
Key to Symbols used in Course Descriptions	316
Campus Maps	318
Index	325

1983-84 ACADEMIC CALENDAR UNIVERSITY OF NEW MEXICO

1983 Summer Session

1983

Undergraduate Applications and Credentials due in the Admissions Office

not later than	May 27, 1983, Fri
Instruction begins	
8-Week Term	June 6, Mon
First 4-Week Term	June 6, Mon
Second 4-Week Term	July 5, Mon
Late Registration closes; last day to add courses or to change sections	
8-Week Term	June 10, Fri
First 4-Week Term	June 7, Tues
Second 4-Week Term	July 6, Wed
Last day to change grading options	
8-Week Term	June 17, Fri
First 4-Week Term	June 10, Fri
Second 4-Week Term	July 8, Fri
Last day to drop course without a grade	
8-Week Term	June 24, Fri
First 4-Week Term	June 15, Wed
Second 4-Week Term	July 13, Wed
Independence Day, holiday	July 4, Mon
Session ends	
8-Week Term	July 29, Fri
First 4-Week Term	July 1, Fri
Second 4-Week Term	July 29, Fri

1983 Fall Semester

1983

Undergraduate Applications and Credentials due in the Admissions Office

not later than	July 29, 1983, Fri.
Instruction begins	Aug. 22, Mon.
Late Registration closes	Aug. 26, Fri.
End of Second Week; last day to add courses or change sections	Sept. 2, Fri.
Labor Day, holiday	Sept. 5, Mon.
End of Fourth Week; last day to change grading options	Sept. 16, Fri.
End of Sixth Week; last day to drop a course without a grade	Sept. 30, Fri.
Midsemester	Oct. 14, Fri.
Homecoming, holiday	Nov. 5, Sat.
Thanksgiving, holiday	Nov. 24–Nov. 26, Thurs.–Sat.
Withdrawal Deadline; last day to withdraw from a course with approval of College Dean	Dec. 9, Fri.
*Closed Period	Dec. 5, Mon.–Dec. 17, Sat.
*Pre-examination Week	Dec. 5, Mon.–Dec. 9, Fri.
*Semester Final Examinations	Dec. 10, Sat.–Dec. 17, Sat.
Last Day for report of removal of Incomplete grade	Dec. 16, Fri.
Semester ends	Dec. 17, Sat., 12:30 p.m.

1984 Spring Semester

1984

Undergraduate Applications and Credentials due in the Admissions Office

not later than	Dec. 23, 1983, Fri.
Instruction begins	Jan. 16, Mon
Late Registration closes	Jan. 20, Fri
End of Second Week; last day to add courses or change sections	Jan. 27, Fri

nd of Fourth Week; last day to change grading options	Feb. 10, Fri.
nd of Sixth Week; last day to drop a course without a grade	Feb. 24, Fri.
ldsemester	Mar. 9, Fri.
pring Recess	Mar. 12–17, Mon.–Sat.
Withdrawal Deadline; last day to withdraw from a course with approval of College Dean	May 4, Fri.
Closed Period	April 30, Mon.–May 12, Sat.
Pre-examination Week	April 30, Mon.–May 4, Sat.
Semester Final Examinations	May 5, Sat.–May 12, Sat.
ast day for removal of Incomplete grade	May 11, Fri.
emester Ends	May 12, Sat.
ommencement (subject to change)	May 13, Sun.
Pre-examination week and final examination week are closed to extracurricular and social activities.	

1984–85 ACADEMIC CALENDAR

1984 Summer Session

1984

Undergraduate Applications and Credentials due in the Admissions Office

ot later than May 25, 1983, Fri.

struction begins.

Week Term	June 4, Mon.
irst 4-Week Term	June 4, Mon.
econd 4-Week Term	July 2, Mon.

ate Registration closes; last day to add courses or to change sections.

Week Term	June 8, Fri.
irst 4-Week Term	June 5, Tues.
econd 4-Week Term	July 3, Tues.

ast day to change grading options.

Week Term	June 15, Fri.
irst 4-Week Term	June 8, Fri.
econd 4-Week Term	July 6, Fri.

ast day to drop a course without a grade.

Week Term	June 22, Fri.
irst 4-Week Term	June 13, Wed.
econd 4-Week Term	July 11, Wed.

ndependence Day, holiday July 4, Wed.

ession Ends.

Week Term	July 27, Fri.
irst 4-Week Term	June 29, Fri.
econd 4-Week Term	July 27, Fri.

1984 Fall Semester

1984

Undergraduate Applications and Credentials due in the Admissions Office

ot later than July 27, 1984, Fri.

struction begins Aug. 20, Mon.

ate Registration closes Aug. 24, Fri.

nd of Second Week; last day to add courses or change sections Aug. 31, Fri.

abor Day, holiday Sept. 3, Mon.

nd of Fourth Week; last day to change grading options Sept. 14, Fri.

nd of Sixth Week; last day to drop a course without a grade Sept. 28, Fri.

ldsemester Oct. 12, Fri.

lomecoming, holiday Oct. 13, Sat.

hanksgiving, holiday Nov. 22–Nov. 24, Thurs.–Sat.

Withdrawal Deadline; last day to withdraw from a course with approval of College Dean Dec. 7, Fri.

6 ACADEMIC CALENDAR

*Closed Period	Dec. 3, Mon.–Dec. 15, Sat
*Pre-examination Week	Dec. 3, Mon.–Dec. 7, Fri
*Semester Final Examinations	Dec. 8, Mon.–Dec. 15, Sat
Last Day for report of removal of Incomplete grade	Dec. 14, Fri
Semester ends	Dec. 15, Sat., 12:30 p.m

1985 Spring Semester

1985

Undergraduate Applications and Credentials due in the Admissions Office not later than	Dec. 21, 1984, Fri
Instruction begins	Jan. 14, Mon
Late Registration closes	Jan. 18, Fri
End of Second Week; last day to add courses or change sections	Jan. 25, Fri
End of Fourth Week; last day to change grading options	Feb. 8, Fri
End of Sixth Week; last day to drop a course without a grade	Feb. 22, Fri
Midsemester	Mar. 8, Fri
Spring Recess	Mar. 11–16, Mon.–Sat
Withdrawal Deadline; last day to withdraw from a course with approval of College Dean	May 3, Fri
*Closed Period	April 29, Mon.–May 11, Sat
*Pre-examination Week	April 29, Mon.–May 3, Fri
*Semester Final Examinations	May 4, Sat.–May 11, Sat
Last day for report of removal of Incomplete grade	May 10, Fri
Semester ends	May 11, Sat., 12:30 p.m
Commencement (subject to change)	May 12, Sun
*Pre-examination week and semester final examination week are closed to extracurricular and social activities.	
1985 Summer tentative classes begin (subject to change)	June 10, 1985
Fall tentative classes begin (subject to change)	August 26



LAI-Gul Merky

201

Market

29/6

THE REGENTS OF THE UNIVERSITY

THE HONORABLE TONEY ANAYA, Governor of New Mexico, ex officio Santa Fe

LEONARD J. DELAYO, State Superintendent of Public Instruction, ex officio Santa Fe

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Anne J. Brown, M.A.P.A. Secretary of the University

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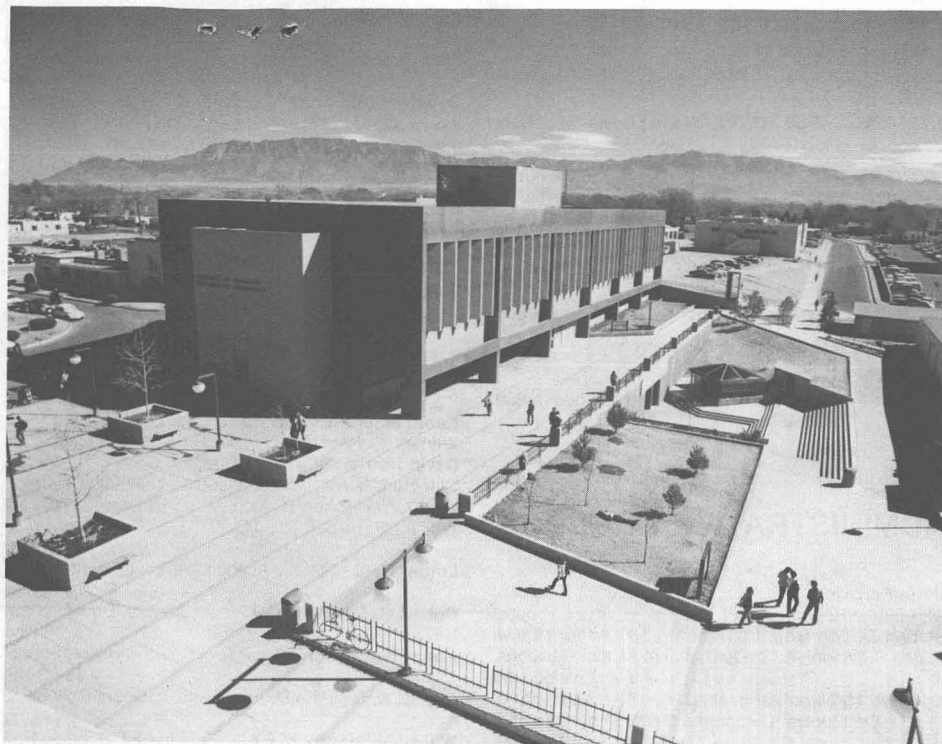
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INTRODUCTION

About This Bulletin

THE BULLETIN is the student's guide to the program and regulations of the University. The student is expected to be familiar with university regulations and to assume responsibility for complying with them.

The University of New Mexico Bulletin is intended to provide a summary of the undergraduate programs, courses of instruction, and academic regulations of the University, as well as a guide to policies and services affecting undergraduate students.

The first section of this Bulletin describes the physical and academic environment at the University. This includes a directory of University offices, the academic calendar, administrative offices of the University, and general information about the University—its past, its present programs and services, and its goals. The undergraduate program section include University policies regarding admission and registration, academic rights and responsibilities of students, expenses, housing, financial aid, where to go for information about student services, and academic regulations.

The last section of the **Bulletin** provides detailed information about the admissions policies, degree requirements, programs, and curricula of the schools and colleges of the University. Following each college is a listing of the courses offered by that college, arranged alphabetically by department. Refer to the index for a particular course listing.

While providing information to students about the curricula and policies of the University of New Mexico, the provisions of this **Bulletin** are not intended to be regarded as a contract between the student and the University, and the University reserves the right to withdraw or change any provisions or requirements at any time within the student's term of residence.

For information about University programs and policies not included in this **Bulletin**, please contact individual departments or administrative offices.

GENERAL INFORMATION

Missions and Goals

Mission

It is the mission of the University to serve the citizens of the State of New Mexico and, commensurate with its resources, those of the nation and the world. This service takes three principal directions.

1. The University develops and offers selected instructional programs at the

10 GENERAL INFORMATION

associate, baccalaureate, master's and doctoral levels in a wide spectrum of academic, professional, and occupational fields. Offerings are designed and modified to provide broad and balanced opportunity for study of the intellectual and cultural endeavors that form the basis of civilization. The University thus helps its students to acquire needed information and skills as well as develop critical judgment and a capacity for discovery.

2. The University conducts research, scholarly studies, and other creative activities in support of both graduate and undergraduate educational programs and as additions to the store of human knowledge.
3. The University provides direct service to the public by applying its capabilities to the resolution of social problems. Generally such public service activities stem from its research and teaching programs and contribute to them.

Goals

It is the goal of the University to make the greatest possible contribution in its teaching, research, and service by

- maintaining and improving the quality of its programs;
- recruiting, admitting, and retaining students from elements of the State's populations now under-represented in its programs, especially at the graduate level;
- responding wisely to the internal needs for intellectual balance and the external need for currency in determining which programs to offer;
- increasing mutual support among its programs in order to conserve academic resources for other developments;
- correcting deficiencies in the physical plant and the equipment that supports programs;
- improving its library collections to the level of quality and breadth required to support the programs and research needs of the University;
- developing the collections of its museums to meet the needs of the University and the interests of the public;
- improving its computing and information-processing capabilities in order to prepare adequately its students to use advanced technology, to support research effectively, and to assist in the management, record keeping, and reporting functions of University administration.
- taking advantage of the unique opportunities offered by the state's rich history, multi-

cultural society, geographic setting, and natural resources to shape its programs;

- supporting and encouraging its long-standing traditions of excellence in the arts;
- acting affirmatively in the selection of faculty and staff in order to move toward an ethnic and sex balance in the University community which is representative of the balance in society overall;
- providing offerings at non-traditional hours to reach out to citizens whose needs cannot be met by traditional educational scheduling.

In summary, the primary goal of the University is to develop an integrated and balanced group of educational programs of excellence for the postsecondary student, with multiple levels of entry and exit. Additionally, it develops and maintains programs of research, scholarship and cultural innovation that enhance these educational programs and the disciplines within them. Finally, it develops and maintains programs of direct public service which derive from its educational and research efforts.

Retention of Students

Approximately two-thirds of a UNM beginning freshman class continues into a sophomore year, one-half into a junior year, and more than one-third into a senior year.

Approximately one-third of the beginning freshman class eventually graduates, given a six- or seven-year period of time. Students transferring to UNM from other institutions likely have higher retention rates and do comprise one-half of our baccalaureate graduates.

Accreditation

North Central Association of Colleges and Secondary Schools, National University Extension Association, Association of American Universities, American Association of University Women, Engineers' Council for Professional Development, American Council on Pharmaceutical Education, American Association of Colleges of Pharmacy, American Bar Association, Association of American Law Schools, American Association of Colleges for Teacher Education, National Council for Accreditation of Teacher Education, National Association of Schools of Music, American Council on Education for Journalism, National League for Nursing, Association of American Medical Colleges, Liaison Committee of the Council on Medical Education of the American Medical Association, Association of American Medical

Colleges, National Architectural Accrediting Board, American Boards of Examiners in Speech Pathology and Audiology, American Assembly of Collegiate Schools of Business.

HISTORY AND LOCATION

Historical Sketch

The University of New Mexico was born in 1889, 23 years before New Mexico was to become a state. Albuquerque at that time was a dusty little village on the banks of the Rio Grande, and in the entire Territory there was not a single public high school.

Opposition to creating a university was intense; the Territory was poor, and many persons felt education was best left to the churches, whose responsibility it traditionally had been. But largely through the efforts and vision of a young Albuquerque lawyer, Bernard Shandon Rodey, the New Mexico legislature in the final days of its session authorized the creation of New Mexico's first institution of higher learning.

But authorizing a university was one thing; actually creating one was another. Twenty acres located on a mesa two miles east of Albuquerque were donated to the University, and on this isolated site was built a red-brick schoolhouse with sandstone trim. On June 15, 1892, 75 summer school students enrolled as the University's first class, but the University itself didn't open until September—as a "normal school," intended to train teachers.

The school also accepted preparatory students, because existing schools in the Territory were inadequate to prepare high school students for college. In 1894 the University bestowed upon members of its first graduating class the degree of bachelor of pedagogy.

Other firsts soon were to follow. In 1896 the first matriculation fee, \$3, was charged, the money to go for library materials.

In 1898 the College Department became the College of Literature and Arts, later the College of Arts and Sciences, and the school's first student organizations were formed—the Ben Hur and Estrella literary societies and the Camera Club. The first issue of the yearbook, the *Mirage*, appeared in 1898. Also that year, the school appointed its first physical director "in charge of gym and exercise."

In 1901, George William Tight became the University's third president. A man of inexhaustible energy and a geyser-like imagination, President Tight's eight-year

administration left an indelible impression on the new institution. He personally planted trees, constructed buildings, dug a well, built irrigation ditches, compiled the first UNM songbook, taught chemistry and geology, and cajoled and inspired his colleagues and students to join him in his efforts.

But probably President Tight's greatest achievement was putting into practice his conviction that the University should reflect its southwestern environment, and he set about creating a campus whose architecture was inspired by that of the pueblo Indian peoples of the region. A new power plant was the first pueblo-style building, followed by new men's and women's dormitories. The next project was the Estufa (still on the UNM campus), a replica of a kiva at Santo Domingo Pueblo. Hodgkin Hall, the former red-brick schoolhouse, was remodeled into its present pueblo style in 1909.

Other changes occurred during President Tight's administration. The first fraternity—Alpha Alpha Alpha—was organized in 1903, as was the first sorority, Sigma Sigma. In 1906 the Engineering School was created. In 1908 the Associated Student Body was organized, though the first student council didn't exist until 10 years later.

In 1912 New Mexico became the 47th state, and Dr. David Ross Boyd became the University's fifth president, a position he was to hold until 1919. As president, Dr. Boyd dedicated himself to expanding the University's acreage and physical plant and to publicizing and promoting the University. Within four years the enrollment increased from 78 students to 227. In 1915 the requirements for a master's degree first were stated, and Pi Kappa Alpha and Sigma Chi became the first nationally affiliated fraternities on campus. In 1916 a committee on graduate study was appointed, and the first honorary society—Pi Kappa Phi—was organized. The next year the first master's degrees were awarded, in Latin and chemistry.

By the time World War I had ended, UNM had ceased to be merely an academy and had become a real university. In 1919 there were only 4 preparatory students out of an enrollment of 348. Also that year the University for the first time charged tuition—\$5.

The University continued to grow in the 1920s. By 1925 enrollment had reached 610 students. In 1927 Dr. James Fulton Zimmerman became president of the University, and also that year the Regents formally adopted the pueblo-style for the University's architecture. In 1928 the College of Education was created, as was the Extension Division (although the University

12 GENERAL INFORMATION

had been involved in extension work since 1913). Albuquerque's population then was 25,000.

The Great Depression of the 1930s did not halt the University's accelerating growth. In 1930 El Palacio Press of Santa Fe moved to the University, eventually becoming the University of New Mexico Press. In 1933 John Gaw Meem became the University's architect, and that same year the University received formal approval by the American Association of Universities.

General College, later University College, was created in 1935, followed in 1936 by the College of Fine Arts. Zimmerman Library, designed by Meem, opened in 1938. And when the decade ended in 1939, the University had 2,569 students enrolled.

World War II dominated national life in the early 1940s, and in 1944 Congress passed legislation that was to have a profound impact on all U.S. institutions of higher learning—the G.I. Bill. In a very few years, a college education became accessible to persons of all economic classes instead of just a wealthy elite.

Much of the University's growth came during the 20 years of the administration of President Tom L. Popejoy—1948-68—whose strong leadership eased the post-World War II transition of UNM from a small school into a major, comprehensive university. The Schools of Law and Medicine both were inaugurated by the Popejoy administration. President Popejoy was the first native New Mexican and first alumnus to head the University.

Expansion of the University continued following the war. In 1947 the College of Business Administration and the School of Law were created. Also that year the first doctoral candidates received their degrees. In 1949 the Air Force ROTC program came to campus, joining the Naval ROTC program, which arrived in 1941. Other important changes were to take place in the 1950s and 1960s. Mitchell Hall was built in 1951, while 1955 saw the creation of the College of Nursing. Hokona Hall was completed in 1956.

In 1960, continuing a long tradition of supporting the arts, UNM became the first university in the Rocky Mountains to offer a Ph.D. in art history.

The School of Medicine was created in 1961, although its first class, of 24 students, wasn't enrolled until 1964. In 1968 the University's Gallup Branch opened, as did the Andean Study and Research Center in Quito, Ecuador. (Andean center was deactivated in 1980.) The University had long had a history of supporting programs dealing with Latin America, and the language and Area Center for Latin America

had earlier been created in 1965. Dr. Ferrel Heady became president of the University in 1968.

The late 1960s and early 1970s were a time of sometimes violent protests against America's involvement in Vietnam, but throughout this period other important events occurred. In 1969 the Bachelor of University Studies degree was approved. In 1970 the University's three ethnic cultural centers—Afro-American, Chicano, and Native American—were created, and by the 1972-73 school year 1,200 Native Americans were enrolled at UNM, helping to make the University a national leader in minority student education.

In 1974 the School of Business and Administrative Sciences became the Robert O. Anderson School of Business and Administrative Sciences. That also was the year that UNM alumna Francine Neff became Treasurer of the U.S.

In 1975 Dr. William E. "Bud" Davis succeeded Dr. Heady as president of the University, and two years later President Davis summarized some of the progress the University had made during its nearly 100 years of existence. During 1975-76 50,000 persons took advantage of courses made available through UNM. In 1976 more than 780,000 persons were spectators at UNM athletic events. That same year 2 million persons attended cultural events at the University's Popejoy Hall. By 1982 enrollment at the University, not counting its branches or extension programs, had reached nearly 23,000 students. Graduate student enrollment was 3,563, and 772 master's and 110 doctor's degrees were awarded. The University consisted of 13 schools and colleges, and it offered more than 4,000 courses in 98 fields of study through 58 instructional departments or divisions. Its campus in 1979 covered more than 600 acres and included 120 buildings. In 90 years, the University had come a long way since its inception as a red-brick schoolhouse on a lonely mesa.

The Environment

Albuquerque, situated on the banks of the historic Rio Grande, is the home of the University of New Mexico. The city is bordered on the east by the majestic Sandia Mountains and on the west by a high volcanic mesa. With a population of nearly five hundred thousand persons, the city is the geographic and demographic center of the state.

The campus of the University of New Mexico lies a mile above sea level. Albuquerque receives abundant sunshine and annual rainfall of nine inches. While summers are

warm, the city's high elevation and low humidity moderate the temperatures. Winter storms are brief, and snow does not linger in the city, yet snow accumulations in the nearby Sandia Mountains make it possible to play tennis or golf on a winter morning and ski in the afternoon.

The distinctive architectural style of the campus, contemporary in treatment but strongly influenced by the Hispanic and pueblo Indian cultures, is characterized by vigas, patios, balconies, portals, and earth-colored, slightly inclined walls in the style of ancient adobe houses. Surrounded by giant cottonwoods, elms, and mountain evergreens, the campus embodies the lifestyle fostered by the mild, sunny, climate.

Albuquerque is one of the major cultural centers of the Southwest, offering museums, art galleries, theatre and musical groups, symphony orchestras, and shops displaying both traditional and contemporary arts and crafts. Native American ceremonial dances are held each year in nearby pueblos and often are open to the public.

University administrators for many years have realized that the location of the University of New Mexico provides it with a wealth of historical source material and that its proximity to the Native American, Hispanic, and Mexican cultures makes it a natural place for the study and appreciation of these cultures. The administrators, therefore, have encouraged the development of southwestern and Latin American programs 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 creation of the Latin American Institute and the Latin American Programs in Education (LAPE), as well as the many paintings, carvings, and weavings found throughout the campus.

FACILITIES

Computing Center

The Computing Center, located at 2701 Campus Boulevard N.E., provides general purpose computing facilities to meet the academic, administrative and medical needs of the University of New Mexico. Services are provided also to government agencies, hospitals and educational institutions.

Batch and interactive services are supported on both IBM and DEC systems. IBM 3032 and IBM 4341 computers, running the MVS/SP1 operating system, provide an extensive range of software products, utilities and applications.

DEC computers offer instructional and research capabilities under the UNIX and VMS operating systems. Identification (user) numbers are necessary to use the computing facilities and are available by application. Major terminal areas are located at the Computing Center, Anderson School of Management and Engineering Annex. Consultants are available to assist users at these pods. Hours are posted and any changes announced in advance.

The User Support Group provides a monthly newsletter, a pocket guide to the Computing Center, general consulting, documentation, short courses on a variety of topics, special seminars, tours, a Faculty Guide, training videotapes and "How to" flyers.

Full systems analysis, programming, and word processing services are available from the Center on a billable basis.

For more information on computer services at the University, please contact User Services at (505) 277-5844.

Libraries

In the fall of 1980 the University of New Mexico General Library acquired its one-millionth volume, an important milestone for a library system that only 10 years ago had half that many items. Included among the materials received by the General Library last year were approximately 10,000 current scholarly and general interest newspapers, journals, and magazines, with over a million microforms also available.

Located at the north end of Smith Plaza on the central campus is **Zimmerman Library**, the main library of the General Library system, housed in a building frequently cited as the best example of the modified pueblo style of southwestern architecture unique to the University. In addition to its general research materials, Zimmerman Library is especially strong in its collections dealing with the Southwest. These include collections in the Anderson Room and the Coronado Room containing many valuable New Mexican and Southwestern materials; the Bell Room containing rare books, maps, and photographs; and the Southwest Wing, containing materials dealing with the architecture of the Southwest. The Government Publication Department is a Regional Depository for federal publications as well as a depository for State of New Mexico publications. The Map Collection's 90,000 items are augmented by serving as a depository for such agencies as the U.S. Geological Survey and the Defense Mapping Agency. The University Skills Center, also located at the Zimmerman Building provides

free academic tutoring and support services to students and faculty. Online bibliographic searches are available to students and faculty for a modest charge.

The General Library offers a number of special services to its patrons. Included among these is an extensive program of instruction in the use of the library, provided either as a basic orientation for new students or as support for courses in a variety of subjects. Special services for disabled students who need them include paging of books, a limited amount of free photocopying, free online search service, special study areas, and the use of tape recorders, a Braille writer, a Visualtek reader, a TTY terminal and a Kurzweil Reading Machine.

The Fine Arts Library is located in the Fine Arts Center and encompasses materials from the areas of architecture, art, music, and photography. It includes a listening center for the use of sound recordings. In addition to books, the collection includes scores, sound recordings and art exhibition catalogs. Affiliated with the library is the John Donald Robb Archive of Southwestern Music, containing hundreds of hours of recordings of folk music from all the cultures of the Southwest.

The Tireman Learning Materials Library, located in the College of Education, contains a collection of book and non-book materials for classroom use, as well as the children's literature collection, the Anita Osuna Carr Bicultural Bilingual Collection, and a regional evaluation center of the newest textbooks to be considered for evaluation and adoption.

The William J. Parish Memorial Library is located on the ground floor of the Anderson Graduate Schools of Management. It contains a collection of current materials relating to the subject areas within the school. A collection of about 40,000 books and periodicals, reserve books for the School's courses, and audio-visual and microform materials are available to support the management curriculum. Parish Library has the most extensive reference collection for business/management in the State of New Mexico, including corporate annual and 10-K reports for some 3,000 domestic and foreign corporations.

The Medical Center Library on the North Campus contains more than 80,000 volumes, two thousand periodicals, and 3,000 media center items. Borrowing privileges are available to North Campus students, faculty, and staff, as well as to central campus faculty and graduate students.

The Law Library in Bratton Hall on the North Campus contains more than 150,000 volumes and includes comprehensive collections of British, federal, and state court reports.

Special collections are being developed in American Indian Law and in Land Grant Law. Persons not connected with the Law School may borrow library materials upon proper registration and with permission of the desk attendant.

Museums

Museums, like classrooms, are an important part of the teaching-learning process, and UNM has on its campus museums housing significant anthropological, art, biological, and geological collections.

The Maxwell Museum of Anthropology, located at the south end of the Anthropology Building, houses both permanent and temporary exhibits illustrating the story of human development, with special emphasis on southwestern anthropology and archaeology. The Maxwell Museum is open to the public, as well as to students and faculty members, on a daily basis.

The University Art Museum, located in the Fine Arts Center, 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 members and students of the Department of Art. It is open to the public on a regular basis.

Jonson Gallery at 1909 Las Lomas NE features monthly one-person or group shows by New Mexico artists, with emphasis on contemporary painting. The gallery is open to the public daily, except Mondays, from noon to 6:00 p.m.

In addition to these art museums on campus, UNM also 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.

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

Minerals, rocks, fossils, and map displays are among the exhibits featured in the **Geology Museum**, located 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 at the museum rotating exhibits of specimens, including gems and precious stones. The Geology Museum is open to the public.

The Institute of Meteoritics is a division of the Department of Geology and maintains on display a large collection of meteorites, including the world's largest stone meteorite, recovered in Nebraska in 1948. This museum is open to the public.

Popejoy Hall/Fine Arts Center

UNM's Popejoy Hall, in the Fine Arts Center, is one of the Southwest's major cultural and entertainment facilities. Built in 1966, Popejoy Hall includes a modern 2,094-seat theatre, a large stage, dressing rooms, lobbies and lounges, meeting rooms, and offices.

As many as 170 professional and local performances are made available in Popejoy Hall each year. These include performances presented by the Cultural Entertainment Series, the University Music Department, the New Mexico Symphony, the Civic Light Opera, the Classics Theatre Company, the Children's Theatre, the Opera Theatre, the Youth Symphonies, the Kiwanis Travel Film Series, and many other groups.

Special University student discounts are offered for all events in Popejoy Hall upon presentation of a current University ID card. Schedules of upcoming performances may be obtained from the box office or from listings in the New Mexico Daily Lobo.

The Fine Arts Center complex also includes Rodey Theatre, the Experimental Theatre, Keller Recital Hall, the Fine Arts Library, and the Fine Arts Museum, as well as the Departments of Art, Music, Theatre Arts/Dance, and the administrative offices of the College of Fine Arts.

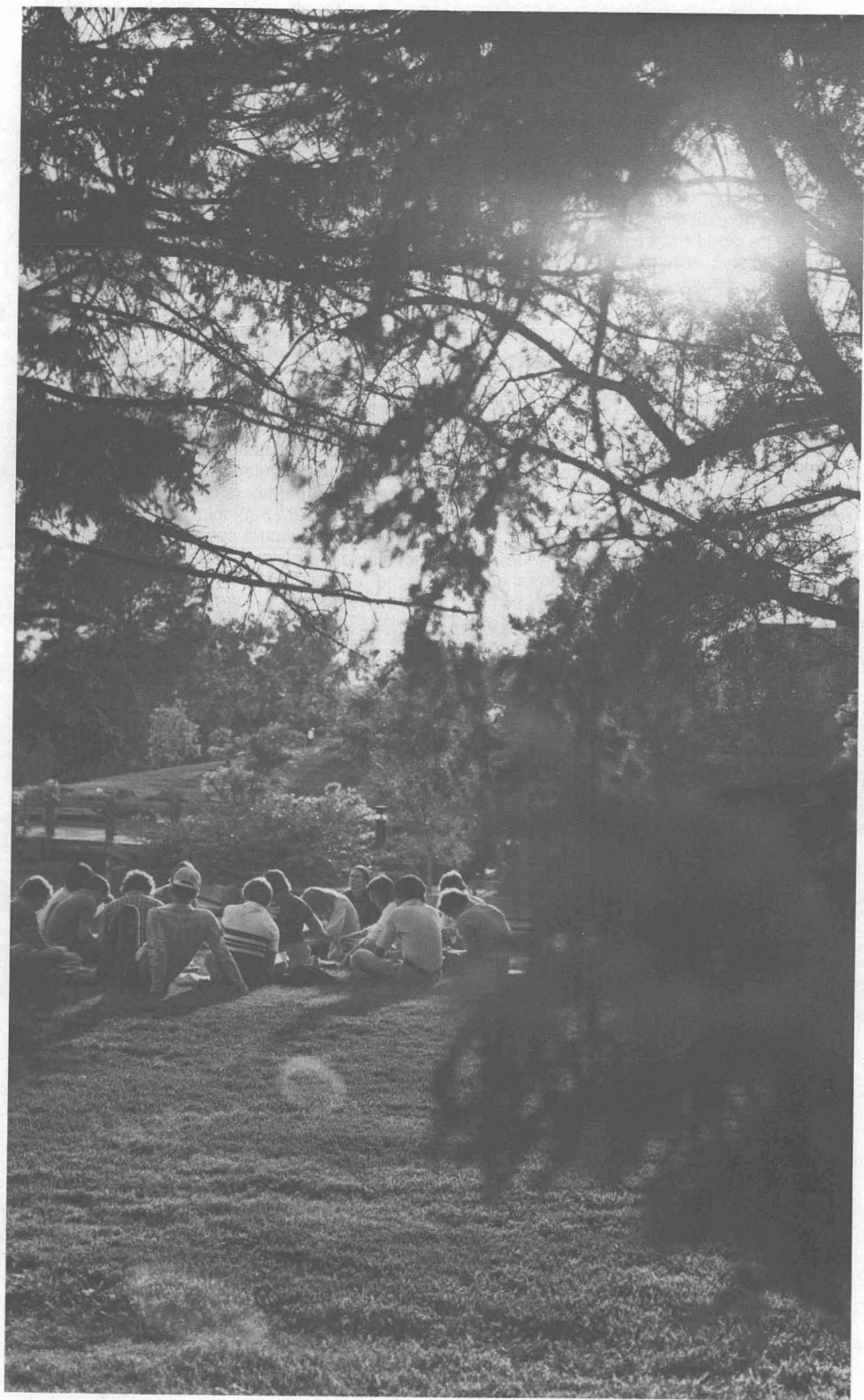
Ethnic, Minority Centers/Programs

To provide equal educational opportunity for persons from all cultures and to preserve and study the cultural diversity of the state, the University of New Mexico has fostered the creation of numerous special programs.

Afro-American, Chicano, and Native American cultural centers on the University's main campus offer courses and seminars in the history and development of these cultures. In addition, these centers provide counseling to students and members of the community. The Office of Student Financial Aid and Career Services administers special financial aid and scholarship programs intended to ensure that higher education is accessible to low-income students from all cultures.

Also on campus are numerous other programs to promote equal opportunity among New Mexico's minority students. These include: the All Indian Pueblo Council Teacher Education Program; the American Indian Bilingual Education Center; the American Indian Law Center; Chicano Student Services; the Cultural Awareness Bilingual Assistance Center; special engineering programs for Hispanics, Native Americans, and women; the Multicultural Education Center; and the Navajo Teacher Education Development Project.





ADMISSION

THE UNIVERSITY OF NEW MEXICO admits all qualified New Mexico applicants. Within the limits of its resources, it also accepts qualified students from other states and from foreign countries. Because of the great diversity of UNM's students, special application and admission procedures have been created to meet the needs of the different populations UNM serves, including recent high school graduates, transfer students, non-degree students, and returning and nontraditional students.

Beginning Freshmen

How to Apply

1. Complete and return an application for admission and a \$15.00 nonrefundable application fee to the Office of Admissions.
2. Request that your official American College Test (ACT) or Scholastic Aptitude Test (SAT) scores be mailed to the Office of Admissions. (See additional information below.)
3. Request that your high school send an official transcript directly to the Office of Admissions. If you have not yet graduated from high school, your transcript should include all courses completed, as well as those in progress and your *high school rank in class*. In most cases admissibility can be based upon such a partial transcript, subject only to your high school graduation.

THE UNDERGRADUATE PROGRAM

When to Apply

We strongly encourage you to apply as early as possible. The deadlines for receipt of all application materials in the Admissions Office for fall and spring semesters are three weeks before the first day of classes and for summer one week. (See the academic calendar for specific dates.) Students are accepted for admission to the undergraduate colleges of the University for the fall, spring, and summer sessions. A number of colleges and specialized programs with limited enrollments have deadlines and requirements differing from those above. Applicants for such programs should see the appropriate sections of this catalog for specific deadlines and requirements.

American College Tests (ACT)

ACT results must be filed by freshman applicants, including transfers with fewer than 26 semester hours of transferable credit (UNM code 2650). Although students may be notified of admissibility on the basis of Scholastic

Aptitude Test (SAT) (UNM code 4845) scores, the ACT is still required for advisement and placement purposes. 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 be sent to the Admissions Office directly from ACT Records. Scores on transcripts or student copies do not satisfy this requirement. The address for ACT Records is P. O. Box 451, Iowa City, Iowa, 52243. The University of New Mexico's test code number is 2650.

Requirements for Admission

Freshmen applicants must be graduates of a high school accredited by a regional accrediting association or by the state department of education or state university of the state in which the high school is located. Graduates of unaccredited high schools who meet all other admission requirements except high school accreditation may validate the unaccredited work by earning appropriate qualifying scores on the American College Test (ACT) or Scholastic Aptitude Test (SAT).

The minimum requirement for admission to bachelor degree programs at UNM is a grade of C (2.0 on a 4.0 scale) in previous academic work from an accredited high school. Grades in all courses allowed toward high school graduation are computed in the average.

In addition to the above requirement, the student must satisfy one of the following three sets of criteria:

1. Have completed with a C average or better 13 specific high school college preparatory courses which include:*

4 units of English with at least one of the units earned in the 11th or 12th grade being in composition,**

2 units of a single language other than English,***

3 units of mathematics (includes Algebra I, Algebra II, Geometry, Trigonometry, or higher mathematics).

2 units of Natural Science (one of which must be a laboratory science in Biology, Chemistry or Physics), and

2 units of Social Science (one of which must be U.S. History).

*Students may also meet a subject requirement by scoring 20 or higher on the ACT in the specific subject areas. For example, an ACT score of 20 in English meets the unit requirement.

**Any English course taken during the junior or senior year of high school in which 50% or more of the curriculum emphasized

correct and clear composition will be accepted.

***Exemption from the freshman admission requirement for two years of a language other than English will be approved under these conditions:

Speakers of Spanish or another language offered by UNM will have the opportunity to test out on the basis of performance on a native speakers examination administered on campus by the UNM language department. This examination will be available on an ongoing basis during pre-registration periods to accommodate the University's continuous admission policy.

Speakers of one of the Native American languages will be eligible for exemption on the basis of certification by an appropriate tribal official of their being fluent in their native language.

Students must request consideration on the basis of testing or in the case of Native American applicants, by arranging to have certification of proficiency sent directly to the Admissions Office.

OR,

2. Meet specified standards based on high school academic performance (high school class rank) and performance on standardized college entrance examinations (ACT or SAT).

The following table provides the standard for the Fall 1983 Freshmen class. This standard will become progressively more stringent in subsequent years.

ACT Composite in Combination With High School Class Rank

5-9	Top 25% of Class
10-13	Top 50% of Class
14-18	Top 75% of Class
19 or higher	No Rank Requirement

OR,

SAT Total (V + M) in Combination with High School Rank

Local equivalent unavailable	Top 25% of Class
Local equivalent unavailable	Top 50% of Class
700-839	Top 75% of Class
840 or higher	No Rank Requirement

OR,

3. Special Admissions: Applicants who fail to qualify for admission under 1., or 2., as stated above, may be admitted upon review and approval by a subcommittee of the Committee on Admissions and Registration. The subcommittee will consider circumstances which might justify admission including the needs of students

in fields which lie outside of the specified subject matter areas, returning students, students with disabilities, and students without high school diplomas. The total number of such admissions cannot exceed 5% of the previous year's freshman class.

The special admissions subcommittee is chaired by the Dean of Admissions and Records, and its membership consists of faculty and student members drawn from the full committee.

University Skills Courses. Even though a student is qualified for admission to the University under 1., 2., or 3., he or she may be required to take one or more University Skills course. These courses are designed to strengthen a student's preparation for university-level work in areas of demonstrated weakness. Required enrollment in University Skills courses is based upon established minimum standards of performance on individual tests of the American College Test. Students required to take these courses must do so before they are eligible to proceed to other courses in those areas or to enroll in a degree granting college.

University College. All new freshmen who meet one of the three sets of admission criteria listed above are enrolled in University College when they enter the University. When they have satisfactorily completed a minimum of 26 semester hours and have met prerequisites of the college they wish to enter, they may transfer to one of the degree-granting programs of the University (see also *University College*).

General College. This unit serves as the open admissions college of the University of New Mexico. The General College offers a diversified curriculum of supplemental education and occupational courses, a strong counseling program and support services for those who need help with reading, writing, and mathematics.

Admission is open to any high school graduate or individual with a GED equivalency diploma (General Education Development) exam. All applicants to General College must present ACT (American College Test) scores which will be used for course placement purposes only.

Special Admission Options

Early Admission. The University of New Mexico will admit on a full-time basis a limited number of highly qualified applicants after completion of their junior year of high school. To be considered for early admission, the student must: 1) have achieved an exceptional record on a minimum of 15 units, in a strong college preparatory program, in an accredited high school; 2) have the unqualified

recommendation of the principal or headmaster; and 3) have achieved a score on the ACT satisfactory to the University. In most cases a personal interview with the Director of Admissions is required before a decision is made.

Concurrent Enrollment. This "honors" program permits highly qualified high school seniors to take UNM courses while simultaneously attending high school or during the summer between the junior and senior years. This is a part-time status and is not to be confused with Early Admission (above), which is full-time admission to degree status.

Meeting the criteria listed below does not mean that the student will be automatically admissible to the Concurrent Enrollment Program. In all cases the final admission determination will be made by the Dean of Admissions and Records.

1. The student must be a high school senior with an expected graduation date within one calendar year (twelve months).
2. The student must have the certification and unconditional recommendation of the high school principal prior to the student's participation.
3. The high school must furnish the Office of Admissions with an official high school transcript.
4. Minimum qualitative requirement (one or more of the requirements listed below):
 - a. Class rank in top 25% in grade point average or
 - b. Cumulative grade point average of 3.0 or better on a 4.0 scale for 9th, 10th, and 11th grades in subjects counted toward graduation or
 - c. An ACT composite score of 22 or a SAT total score of 1000.

Admission by Examination

An applicant 18 years or older who has not 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 (GED) tests or standard scores averaging 19 or above on the ACT. Students admitted on GED scores must also present ACT scores and high school transcripts or other credentials verifying that the student has completed the University's high school level subject matter requirements, either with work in high school or by one of the methods for removal of deficiencies (see *Requirements for Admission*).

Associate Degree Programs

Although associate degree programs may have special admission requirements, applicants for most of these programs, except

those at the Gallup branch, must first meet the general admissions requirements for admission to bachelor degree programs. Associate degree students also are subject to the same requirements regarding initial course placement and removal of deficiencies as are baccalaureate degree students. (See sections on *individual associate degree programs and Requirements for Admission*.)

CEEB Advanced Placement Program

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

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

Art Studio. Credit granted for scores of 3 or better upon review of portfolio by the departmental faculty.

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 biology department.

Chemistry. Credit for Chemistry 121L and 122L granted for scores of 3. Credit for 131L and 132L granted only for a score 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 acceptable upon review by departmental faculty.

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

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

Mathematics. Credit for Math 162 granted for scores of 3 or better in Calculus AB. Credit for Math 162 and 163 granted for scores of 3 or better in Calculus BC.

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

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

Physics. Credit granted for a score of 3 or better upon approval of departmental faculty and a personal interview.

UNM College Credit for ACT or CLEP General Scores

ACT Credit. For eligible beginning or transferring freshmen who graduated from high school after February 1979, the University will grant up to 30 semester hours of general credit for qualifying ACT standard scores earned prior to the student's first enrollment in any college or university. Students who graduated earlier than February 1979 and who have not earned college credit at UNM or any other college or university may petition for an exception. Credit as shown below will be granted in each area in which the indicated minimum standard score is earned:

Area	Score	Semester Hours of Credit
English	25	3 (equiv Engl 101*)
English	27	6 (incl. 3 for Engl 101*)
Mathematics	29	6
Social Science	30	6
Natural Science	32	6
Humanities (combined English and social science)	58	6

Following their admission, UNM freshmen eligible for ACT credit will be sent confirmation of the credit that will be placed on their permanent records during their first semester.

CLEP General Credit. The University also grants general credit for qualifying scores on the College Level Examination Program (CLEP) provided the student takes the examination prior to earning 26 semester hours of acceptable college credit. Six semester hours are allowed for each of the CLEP general examinations on which a grade of 500 or better is earned, except English which requires a score of 610. The English credit includes 3 semester hours for English 101. Students interested in taking the CLEP General Examinations are urged to do so before entering the University. In any event, the tests must be taken before 26 semester hours of credit are earned at any college or university, including UNM.

ACT/CLEP General Credit Policies. Policies vary for application of ACT or CLEP General credit toward a degree in the individual colleges of the University. In the Colleges of Arts and Sciences, Education, Fine Arts, and in the Bachelor of University Studies program, the full 30 hours may be applied toward a degree. The College of Arts and Sciences accepts the hours only as elective hours toward the total of 128 required for graduation. The College of Education accepts the hours as elective credit; credit toward general education requirements is subject to approval of the department. The College of Fine Arts applies the credit toward the Arts and

*Effective for freshmen admitted 1981 Fall.

Sciences requirement or for additional hours outside the major requirements. The Bachelor of University Studies Program accepts the full 30 hours toward the 128 required for graduation. In the other colleges of the University, the number of hours earned through ACT or CLEP General that may be applied toward a degree may be considerably reduced; degree programs in these colleges are quite structured, with a limited allowance for electives. In all cases, students should work closely with their degree college and major department offices. All students eligible for the full 30 semester hours of credit will be classified as sophomores during their first semester of enrollment in UNM.

CLEP Subject Examinations. In addition to the CLEP General Examinations described above, the University of New Mexico also grants credit for CLEP Subject Examinations as administered by the College Entrance Examination Board. Other than for Introduction to Business Law and English courses, UNM credit is granted to newly admitted and regularly enrolled students who achieve scores of 45 or better on the CLEP Subject Examinations listed below, as approved by the appropriate UNM academic department. (Credit is not granted for subject examinations not listed below.)

CLEP Subject Exam	Equivalent UNM Course	Cr. Granted (sem. hours)
Biology	Biol 110-111	6
Intro to Bus Law (min. score of 60 required)	Mgt 310 or 359	3*
General Chemistry	Chem 121L-122L	8
Intro Micro-Macroeconomics	Econ 200-201	6
Intro Macroeconomics	Econ 200	3
Intro Microeconomics	Econ 201	3
Money and Banking	Econ 315	3*
College Composition (min. score of 55 required)	Engl 101	3**
Anal. and Interpret. of Lit. (min score of 55 required)	Engl 102	3**
American Literature (min score of 55 required)	Engl 296	3**
English Literature (min score of 55 required)	Engl 294-295	3**
Afro-American History	Hist 284	3*
Western Civilization I	Hist 101	3
Western Civilization II	Hist 102	3
American Government	Pol Sci 200	3
General Psychology	Psych 107	3
Tests and Measurements	Psych 410	3*
Human Growth and Development	Psych 220	3
Educational Psychology	Psych 210	3**

UNM requires original transcripts of test results sent from CLEP, Box 1821, Princeton, N.J. 08543. Credit for these examinations appearing on transcripts from other colleges will not suffice.

Transferring Students

How to Apply

1. Complete and return an application for admission and a \$15.00 nonrefundable application fee to the Office of Admissions.
2. Request that each college you have attended send an official transcript directly to the Office of Admissions. A summary on one transcript of work at several colleges is not sufficient. If you are applying for the next academic session at UNM while still enrolled at another institution, the official transcript must include a listing of courses in progress, as well as all completed work. (See note below.)
3. If you are transferring to UNM with fewer than 26 semester hours of acceptable college work, you are considered a freshman transfer and the following materials must also be sent to the Office of Admissions:
 - Official scores on the American College Test (ACT) sent directly from ACT Records, P.O. Box 451, Iowa City, Iowa, 52243.
 - A complete official transcript of high school work.

Applications will not be processed until all the above required items are on file with the Admissions Office.

To allow students at other institutions to make definite plans for transfer, a determination of admission status may be made before courses in progress are completed, subject only to receipt of the final transcript. Students permitted to register prior to receipt of their final transcripts may be disenrolled if their transcripts do not reach the Admissions Office within three weeks after the beginning of classes.

Note: The student must indicate on the application all previous college attendance. Applicants may not ignore previous college attendance, even though they may prefer to repeat all previous courses. Students found guilty of nondisclosure or misrepresentation in filling out admission application forms, or who find after admission or enrollment that for academic or other reasons they are ineligible

*Credit is granted for previously completed exams; test no longer available.

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

to return to their last institution but fail to report this immediately to the Admissions Office, are subject to disciplinary action, including possible dismissal from the University.

When to Apply.

We strongly encourage you to apply as early as possible. The deadline for receipt of the application, required transcripts and ACT results (when applicable) in the Admissions Office is three weeks before the first day of classes for the fall and spring semesters and one week for summer. (See the academic calendar for specific dates.) Students are accepted for admission to the undergraduate colleges of the University for the fall, spring, and summer sessions. A number of colleges and specialized programs with limited enrollment have deadlines differing from those above. Applicants for such programs should see the appropriate sections of this catalog for specific deadlines and requirements.

Requirements for Admission

Freshman transfers are required to meet one of the three sets of freshman admission criteria. (See Beginning Freshmen; Requirements for Admission)

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.)

Admissible students with more than 26 but fewer than 64 semester hours of acceptable college credit may be required to enroll in the University College until they meet the special requirements for transfer to the UNM degree-granting college of their choice. (See appropriate sections of this catalog for these 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.

Grades and Suspension. 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 (see appropriate sections of this catalog for these requirements).

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, the student is eligible to request consideration by UNM.

In general, students under disciplinary suspension are not admitted to the University of New Mexico, but since the causes for disciplinary suspension vary from institution to institution, a student may be suspended from one school for reasons that would not be actionable at another. Therefore, UNM reviews individually admissions applications from students under disciplinary suspension from other institutions and, when justified, makes exceptions.

Transfer of Credit. A student transferring to UNM ordinarily will be given full credit for course work completed with a grade of C or better at a fully accredited institution, if the courses taken are the same or equivalent to courses in the UNM college in which the student is enrolling.

Applicants from recognized collegiate institutions not fully accredited must have the equivalent of a 2.5 UNM index to be eligible for admission by transfer. Credit earned in such institutions usually is 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 or her first 30 semester hours of residence study at UNM. Where it seems proper, examinations for the validation of credit may be required.

Independent study or 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 UNM has the privilege of establishing credit here by examination (see *Examination to Establish or Validate Credit* below).

Only credit earned in nontechnical subjects is initially accepted from technical institutes which are accredited by a regional collegiate accrediting association. Normally no credit is 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 this transcript by the Admissions Office to the division of the University having supervision of his/her particular program. The division will determine whether any 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.

Credits transferred from an accredited junior college will be accepted up to a maximum determined by the UNM college in which the student enrolls. No junior college course credits will be considered as above a sophomore level.

Course credits in religion may be allowed if the content can be considered literary, philosophical, or historical.

A tentative 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.

Unclassified Students. Students transferring from unaccredited or partially accredited institutions are unclassified until they have validated credit in accordance with University regulations. This designation also is used temporarily when the evaluation of work from accredited institutions has not been made and definite classification therefore cannot be determined.

Concurrent College Enrollments. In order to enroll concurrently in residence or by extension or correspondence in another collegiate institution, a student enrolled in UNM must have prior written approval from the dean of his or her college.

Readmitted Students

A UNM degree student who stops attending for one or more regular semesters must file an application for readmission, although the application fee is not required. Students applying for readmission must meet the regular application deadlines.

A degree student who has attended another institution while away from UNM or has taken college-level correspondence or extension courses, must arrange for receipt by the Admissions Office of official transcripts of such credit. This transcript should also list courses in progress if the student is taking non-UNM courses at the time of application. Although this transcript would not show final grades, the UNM Admissions Office will let the student

know his/her admission status so plans can be made, subject only to the final transcript being received by the Admissions Office not later than three weeks after classes begin.

Although credit earned during suspension from UNM 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 must be furnished.

University College

All readmitted 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.)

Admissible students with more than 26 but fewer than 64 semester hours of acceptable college credit may be required to enroll in the University College until they meet the special requirements for transfer to one of UNM's degree-granting colleges (see appropriate sections of this catalog for these requirements).

The University College will not accept students who have attempted 72 or more academic semester hours, including hours with grades of incomplete, or who have earned 64 or more academic semester hours.

Non-Degree Students

Non-degree status is for applicants who wish to enroll for undergraduate University courses without entering regular status in one of the undergraduate colleges. Non-degree status is recommended for visiting students from other institutions. A student desiring non-degree status must file an admission application with the UNM Admissions Office.

To be a non-degree student in undergraduate courses at UNM, the applicant must meet one of the following requirements: 1) be at least 21 years old, or 2) have graduated from an accredited high school or its equivalent and been out of high school at least one year.

The following students are **not eligible** for non-degree status:

1. A student who is under disciplinary or academic suspension from UNM or any other collegiate institution.
2. A student who has exhausted his or her eligibility in the University College and who is not academically eligible to enter a degree-granting college at UNM.
3. A student previously enrolled in regular status in an undergraduate college at UNM and who has not completed a degree.

24 UNDERGRADUATE PROGRAM

4. A student from another country who is in the United States on a student visa.
5. A student who has been refused admission to regular status.

NOTE: Veterans planning to attend the University under one of the public laws governing veterans' educational benefits and who are seeking admissions to non-degree status are required to have special approval from the Veterans Affairs Office.

Students applying for non-degree status do not need previous academic records, but if they are planning to enroll in advanced courses with prerequisites, they should bring to registration evidence that the prerequisites have been fulfilled.

Applicants for non-degree status are required to certify that they are not under suspension from any college or university. Students found guilty of nondisclosure or misrepresentation in filling out the admission application form, or who find after admission or enrollment at UNM that they are ineligible for academic or other reasons to return to the last institution attended and who fail to report this immediately to the Admissions Office, will be subject to disciplinary action, including possible dismissal from the University.

A non-degree student is subject to all University regulations governing registration, attendance, and academic standing. Credit earned in non-degree status is recorded on the student's permanent record and may be applied in an undergraduate program when the student has satisfactorily established degree status by meeting UNM's entrance requirements and those of the student's degree-granting college. Non-degree students applying for regular status must follow admission procedures and provide all items required of transfer students (see *Transferring Students*).

Non-Degree Status Limitations. Students may earn no more than 30 semester credit hours in non-degree status except for those who have previously completed a baccalaureate degree. No undergraduate college of the University will accept in a degree program more than 30 semester hours earned while the student is in non-degree status, nor is a college obligated to accept any hours earned in non-degree status that do not fulfill college degree requirements. If regular status is not attained prior to earning 30 semester hours, the student will be allowed to register in courses in non-degree status as an auditor only, receiving no credit.

Normally a non-degree student may not enroll for more than 7 semester hours during a regular session. **This limitation does not apply to a student who has earned a baccalaureate or higher degree nor to a**

visiting student. Students who do not have a degree and who wish to enroll full time may not remain in non-degree status more than one semester. During that semester they must qualify for transfer to regular status. The senior residence requirement cannot be met by enrolling in non-degree status. This may be accomplished only by enrolling in a degree-granting college of the University.

A non-degree student who does not have a bachelor's or equivalent degree may not enroll in 500-600 level courses. Non-degree students normally may enroll only in undergraduate credit offerings. A maximum of 12 hours of graduate credit may be granted for non-degree work, under specific provisions. (See *Graduate Programs Bulletin*.)

Credits for Teacher Certification

A non-degree student desiring to take education courses leading to teacher certification must successfully complete the College of Education screening examination. A student who has an earned degree may take such education courses during the first semester of enrollment provided he or she completes screening concurrently. A student without an earned degree is not eligible to enroll in most education courses until screening is completed. All non-degree students planning to take education courses should consult the Office of the Dean, College of Education, before enrollment.

National Student Exchange

The University of New Mexico is a member of the National Student Exchange (NSE) and welcomes to this campus the state college and university students who qualify for participation in the program. NSE gives students an opportunity to study at an educational institution in a new setting and to become better acquainted with the varied social, educational, and cultural patterns in the different geographical areas of the United States. It also allows students to take advantage of specialized courses or unique programs perhaps not available on the home campus.

Participation in the program is limited to one year. Under it New Mexico residents pay resident tuition while attending one of the 56 participating state colleges or universities throughout the nation. An applicant must be a full-time student, a sophomore or junior at the time of exchange, and have a minimum grade-point average of 2.5. Details and applications are available in the Office of Admissions and Records.

International Students

The University admits a limited number of well qualified students who are citizens of other countries. For visa purposes these students are required to enter in regular status. Therefore, the Admissions Office requires, in addition to the admission application, the following materials:

- American College Tests (ACT) scores, if applicable (see *American College Tests*).
- Official certified transcripts from each secondary school attended.
- 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 the examination is administered. In other areas the student may arrange to take the American Language Georgetown University Test (ALIGU) given by contacting the nearest U.S. Consulate Office.
- A certified bank statement showing 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 Office of Admissions and Records. TOEFL and ACT results are sent directly to the University by the testing offices. Applications for graduate-level students (beyond the Bachelor's degree) and all the credentials listed above (except secondary school credentials) should be mailed to the Office of Graduate Studies.

Students transferring from within the United States must have completed a minimum of 26 transferable semester hours with a grade point average of 2.5 before being considered for admission.

All credentials must be submitted by May 1 for the fall semester or by October 1 for the spring semester. The deadline may be earlier depending upon the department.

Veterans

The Veterans Readjustment Benefits Act of 1966, amended, provides university-level educational benefits for veterans and current servicemen whose active duty totals more than 180 days, any part of which occurred after January 31, 1955. These benefits are allowed for veterans and servicemen who 1) were released under conditions other than dishonorable, 2) were discharged for a service-connected disability, or 3) continue on active duty.

In seeking admission to UNM, the veteran student should follow the same application procedures as non-veterans. To certify

eligibility for educational benefits under one of the public laws regarding veterans, the student may make application for V.A. benefits through the Veterans Affairs Office in Mesa Vista Hall, Room 2122. This also is the office to obtain special veterans' services at UNM and to certify UNM enrollment, a step required each term to initiate veterans 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. A veteran student who is eligible for educational benefits under one of the public laws or who has served on active duty at least one calendar year after July 26, 1946, should apply for such credit in the Office of Admissions and Records during the first semester of enrollment in regular status. Any credit tentatively allowed will become part of the student's permanent record after completion of a minimum of 12 semester hours at UNM.

Total semester hours of military credit to be accepted in a specific degree program will be at the discretion of the UNM degree-granting college in which the student is registered.

RECORDS

THE OFFICE OF ADMISSIONS AND RECORDS is responsible for the maintenance of the educational records at the University of New Mexico. This includes but is not limited to student transcripts, academic folders, and faculty grade reports. The following information regards some of the policies and procedures for educational records.

Use of Social Security Numbers

The University of New Mexico uses the individual student's social security number as the student's identification at the University. This number is used for record-keeping purposes only. The authority to use the social security number as the student's number comes from the Board of Regents and was adopted March 24, 1967. It is, therefore, mandatory that students disclose their social security number to the University for identification purposes.

Access to and Confidentiality of Records

Family Educational Rights and Privacy Act

Under the provisions of this AMENDMENT the following policies apply:

1. Currently enrolled students, or any who have previously attended UNM, may inspect their educational records upon making official request and obtaining an appointment to do so.
2. A student may challenge inaccuracies or misleading items. However, the fairness of a grade may not be challenged under this provision.
3. A student's record is not released without written consent except to UNM faculty and staff who demonstrate a need to know. Other exceptions are to comply with a judicial order, or in an emergency involving the health or safety of a student or other person.
4. When a record is released, the recipient is notified by UNM that the record may not be released to any other person.
5. Directory information, as outlined below, may be released without the student's written consent unless the student has requested that directory information be withheld.

STUDENT'S NAME, ADDRESS, TELEPHONE LISTING, DATE AND PLACE OF BIRTH, MAJOR FIELD OF STUDY, PARTICIPATION IN OFFICIALLY RECOGNIZED ACTIVITIES AND SPORTS, WEIGHT AND HEIGHT OF MEMBERS OF ATHLETIC TEAMS, DATES OF ATTENDANCE, DEGREES AND AWARDS RECEIVED, AND MOST RECENT PREVIOUS EDUCATIONAL AGENCY OR INSTITUTIONS ATTENDED BY STUDENT.

6. A record is kept of all persons (except UNM faculty and staff) who are given access to a student's records.
7. Students may sign waivers releasing their records to prospective employers or other parties. Such waivers are retained in the record until the student notifies the University to withdraw it.
8. Information about the AMENDMENT is posted in all recordkeeping offices on the UNM campus, giving full details concerning the student's rights and privileges under the act.

Transcripts of Record

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. The University reserves the right to determine a "reasonable" number of transcript requests per student. Requests exceeding that number will be assessed a fee. A student may be issued one transcript without charge for personal use each year during enrollment. *Transcripts of record may not be issued until all financial obligations to the University have been satisfied.*

Transcript Holds

No student's transcript or other record at the University will be released to the student or to any other person or institution until all the student's outstanding obligations to the University have been paid or until satisfactory arrangements have been made. These obligations include, but are not limited to, loans, such as the New Mexico Student Loan Program, library fines, tuition and fees, and other charges. Transcripts may also be held for non-financial reasons such as incomplete admission status.

Change of College.

All undergraduate students are enrolled in a college or program upon admission to the University. Students who desire to change their enrollment from one college to another within the University must petition the dean or director of both the college in which they are currently enrolled and the college in which they wish to enroll. The petition must be approved by both colleges and is then filed in the Office of Admissions and Records. A change in college after the third week of the semester is effective for the next semester.

Change of Name.

Students who find it necessary to process a change of name for their academic records must bring appropriate documentation to the Records Office. Examples of such documentation would be marriage certificate, birth certificate, or court order for legal name change.

Change of Address.

The student is expected to keep the University informed as to his or her current address. Any change of address should be reported immediately to the Office of Admissions and Records.

Misrepresentation

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

New Mexico Residency for Tuition Purposes

A student who enters and remains in New Mexico principally to obtain an education is presumed to be a non-resident for tuition purposes.

A student is classified as a resident or non-resident for tuition purposes based on information supplied on the application at the time of admission. The residence classification is only changed upon re-application for admission or submission of a petition for New Mexico residency. Non-resident students who believe they have satisfied requirements for establishing New Mexico residency must file a petition in Room 108, Scholes Hall. Residency petitions will be accepted for each semester until 21 days after the start of classes. No petitions will be accepted after that date. Residency requirements for tuition purposes are established by state law. Each person must meet the requirements individually. Marriage is not a factor in deciding residency.

A. The Twelve Month Consecutive Requirement. To become a legal resident of New Mexico, four basic requirements must be satisfied. A student must physically reside in the state for the twelve consecutive months immediately preceding the term for which the petition is submitted. NOTE: A student cannot begin to complete the twelve month requirement until his/her eighteenth birthday.

B. The Financial Independence Requirement. A student cannot be approved for residency who is financially dependent upon his/her parents or legal guardian who are non-residents of New Mexico. At the time the student applies for residency (if under 23 years of age), a copy of his/her parents' or guardians' 1040 or 1040A U.S. income tax form for the previous year must be submitted with the application. If the student is shown to be a dependent on this tax form, he/she will not be eligible for residency.

C. The Written Declaration of "Intent"
Requirement. The student must sign a written declaration of intent to relinquish residency in another state and to establish it in New Mexico.

D. The Overt Act Requirement. Residency regulations require the completion of several "overt" acts which support the student's

declaration of "intent" to become a permanent resident. Examples of such acts are:

- 1) Securing a New Mexico driver's license.
- 2) Securing a New Mexico automobile registration.
- 3) Registering to vote in New Mexico.
- 4) Filing a New Mexico state tax return for the previous year.
- 5) Securing employment in the state.
- 6) Purchasing residential or business property in the state.
- 7) Having a long established bank account.

Other relevant factors may be considered along with those itemized above.

Other Residency Regulations

The following are general policy statements under the regulations for New Mexico Residence.

- All students are charged resident tuition rates during summer sessions.
- All students enrolled for six semester hours or less (part-time students) during fall and spring semesters are charged resident tuition rates.
- Active duty members of the armed forces stationed in New Mexico and their dependents are eligible to enroll at the University and pay tuition at the resident rate.
- Non-Residents are eligible to apply for residency status after living in New Mexico for 12 consecutive months and satisfying other requirements for establishing residency.
- Students under 18 years of age and students financially dependent upon parents or guardian will be considered to have the same residency as the parents or guardians.
- Persons and their dependents who move to New Mexico to work full-time, practice a profession or conduct a business full-time (and can provide appropriate evidence) are not required to complete the 12 month residence requirement before applying for resident status.
- Students between the ages of 19 and 23 must submit a copy of their parents' or guardians' 1040 or 1040A U.S. income tax form for the previous year with their application for residency.

Procedures and a brochure explaining all requirements for establishing New Mexico Residency for tuition purposes are available from the Office of Admissions and Records at the University of New Mexico, Scholes Hall 108 or call 277-2125.

REGISTRATION

General Information

Advisement

All freshmen and new transfers are required to consult an adviser before actually registering for classes. The Colleges of Engineering, Law, and Education require advisement every semester prior to registration. There are advisement centers in each of the degree-granting colleges. A special center in the University College exists to advise those students uncertain about the specific field in which they wish to earn a degree. Students previously enrolled in the University also are urged to take advantage of this service.

Schedule of Classes.

The *Schedule of Classes* is the official publication of the Registrar's Office each semester and is distributed without charge. The schedule lists the semester's course offerings, dates, times, place, and procedures for registration along with other important information relating to the semester. Please refer to the *schedule of classes* for up-to-date information each semester.

Registration Procedure.

Details of the registration procedure are contained in the *Schedule of Classes*. Registration materials are prepared 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 to complete registration. Instructions for payment and payment deadline dates are published in the *Schedule of Classes*. For specific information about tuition and fees, refer to the *Student Expenses* section of this catalog.

Concurrent Enrollment

A student enrolled in this University must have prior written approval from the dean of his/her college to enroll concurrently for credit in residence or by extension or correspondence at another Post-Secondary institution.

Enrollment Limit

Except with special college approval, undergraduates may not take more than 20 semester hours during regular sessions and 10 semester hours during summer session. Students in non-degree status who have not

earned at least a baccalaureate-level degree must obtain permission from the Dean of Continuing Education and Community Services to take more than 7 semester hours.

Changes in Enrollment

Once registered, students may process schedule changes through the drop/add procedures during appropriate periods. Procedures for schedule changes and deadlines are published in the *Schedule of Classes*.

ADD. Students may add courses or change sections only through the second week of the semester or the first week of the summer session (see the *Academic Calendar*).

DROP. A student may drop a course or courses without a grade during the first six weeks of the semester or the first three weeks of the summer session.

WITHDRAWAL. Course withdrawals after the "drop" deadlines must have approval from the dean or director of the student's college. This approval is limited to hardship cases involving circumstances beyond the student's control. Course withdrawals are subject to grades of W/P or W/F to be determined by the instructor at the time of withdrawal. The WF will be computed in the student's grade point average. Course withdrawals may be processed through the end of closed week.

Change in Grading Option. No change in grading option (including audit, credit option, and letter grade) in any course may be made after the fourth week of the semester or the second week of the summer session.

After registration has been completed, any change in grading option requires a Program Change Request (Drop/add forms).

It is the student's responsibility to make certain that he or she is registered in any course for the proper grading option. (Graduate students see *Graduate Programs 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 or her program to be over the maximum load allowed and only after approval has been given by the dean or director of his or her college.

Completion of Student Courses. Students are responsible for completion of all courses in which they are enrolled at the University. Changes in enrollment, drops or withdrawals must be officially recorded on university records. A student not following proper course or University withdrawal procedures will receive a failing grade.

Withdrawal from the University

- Students who wish to withdraw from all of their courses on or after the first day of classes may do so at the Dean of Students Office.
- Students withdrawing during the first six weeks of classes will not have course or grade notations on their academic records. The notation on a student's record will be "withdrew" and the date.
- University withdrawals initiated after the sixth week of classes—third week of the summer session—will be subject to grades of W/P or W/F. The grade of W/F will be calculated as a failing grade in the student's grade point average. All withdrawal grades will be assigned by the instructor upon completion of the University withdrawal process.
- When students leave the University during a semester and do not withdraw according to this regulation, they become liable for grades of F in their classes, even though they may be passing their courses at the time of leaving.

- 100 to 199 courses, lower division, normally are open to freshmen.
- 200 to 299 courses, lower division, normally are open to sophomores.
- 300 to 499 courses, upper division, normally are open to juniors and seniors, fifth year undergraduates, and graduates.
- 500 to 799, graduate and professional, normally are open only to students enrolled in the graduate schools, the School of Law, or the School of Medicine.

A course suffix T indicates a technical, vocational or special course only applicable for baccalaureate credit upon petition to and approval from the UNM degree granting unit.

Freshmen may in some instances qualify for courses numbered in the 200s. Courses numbered 300 and 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. When appropriate, an instructor may disenroll freshmen from courses numbered 200 and above and sophomores from courses numbered 300 and above. See the individual college sections of this catalog for specific regulations.

GENERAL ACADEMIC REGULATIONS

STUDENTS are responsible for complying with all regulations of the University, their respective colleges, and the departments from which they take courses, as well as for fulfilling all degree requirements. Therefore, students are advised to familiarize themselves with the academic regulations of the University.

Class Hours and Credit Hours

A class hour consists of 50 minutes. One class hour per week of recitation or lecture throughout a semester earns a maximum of one credit hour. One class hour per 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 offered at the University are numbered from 001 through 799:

- 001 to 099 courses may or may not carry credit, but they are not applicable toward a baccalaureate degree and are not calculated in scholarship index.

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. 0 grade point per credit hour.
- 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 doctoral dissertation. (See the following pages for specific information concerning CR/NC option grading.) CR, credit is the equivalent of at least a grade of C but is not computed in scholarship index.
- 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 Admission and Registration Committee.

- 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 student's control have prevented completion of the work of a course within the official dates of a session. (See the policy on Removal of Incomplete)
- AUDIT, Audit is recorded for completion of enrollment in an audited course. No credit is earned for audit grade option.
- WP, Withdrawal Passing. All approved course withdrawals after the sixth week of classes are subject to the grade of WP, if passing the course at the time of withdrawal.
- WF, Withdrawal Failing. All approved course withdrawals after the sixth week of classes are subject to the grade of WF, if failing the course at the time of withdrawal. The grade of WF will be calculated as a failing grade in the student's grade-point average.
- WNC, Withdrawal, No Credit. Not computed in the scholarship index. WNC indicates officially withdrew with unsatisfactory (D or F) performance in CR/NC option enrollment or course approved for CR/NC by the Committee on Admission and Registration.

Change of Grade.

The instructor of a course has the sole and final responsibility for any grade reported for that course. Once a grade has been reported to the Registrar's Office, it may be changed only after the reasons for such a change have been submitted in writing by the instructor who issued the original grade. The change of grade must also be approved by the college dean or department chairperson. *Any change in grade must be requested within 12 months after the original grade was issued.* Grade changes may be referred to the faculty committee on Admissions and Registration for approval.

Removal of Incomplete (I) Grade.

No grade except I can be raised by completion of other extra work or by a special examination. Incomplete grades must be removed by the published ending date of the next semester in residence or within the next four semesters if the student does not reenroll in residence. The student is responsible for making arrangements with the instructor. The incomplete may be changed to a passing

grade by satisfactorily performing the work prescribed by the instructor in a manner determined by the instructor with the approval of the dean or director of the student's college.

After completion of the required work to remove the incomplete the student obtains from his/her College Dean's office, a permit card to remove an incomplete. A two dollar fee is paid to the Cashier and the card is submitted to the instructor. The instructor completes the card and returns it to the Office of Admissions and Records where the official entry on the student's record is made. The removal of incomplete form or a request for an extension must be filed in the Office of Admissions and Records by the last day of the appropriate semester. *All incomplete grades not removed during the periods and by the procedure described above automatically are converted to F (failure).*

Students should not reenroll or reregister in a course for which an incomplete has been received in order to remove the incomplete.

Grade Options

Credit/No Credit Grade Option

1. This grading option is open only to undergraduate and non-degree students enrolling in non-major courses.
2. Only one CR/NC option course per semester will be allowed.
3. CR (credit) is the equivalent of at least a grade of C. Students who do not satisfactorily complete a course under CR/NC grading will receive "NC" (no credit).
4. A course may be changed from a traditional grade to CR/NC grade option through the fourth week of classes. A change from CR/NC to a traditional grading system may also be made prior to the end of the fourth week of classes. **NO CHANGES MAY BE MADE AFTER THE FOURTH WEEK OF CLASSES.**
5. A maximum of 24 credit hours graded CR/NC will be allowed toward a baccalaureate degree.
6. Hours earned under which grading is specifically approved for CR/NC are not included in the 24-hour maximum allowed toward degree requirements under the CR/NC grade option.
7. The following may not be taken under CR/NC option:
 - A. Courses in the General Honors Program and the Undergraduate Seminar Program.
 - B. Courses that are part of the student's major (as defined by the major department) with the exception of those courses especially approved for use of

CR/NC grading (such as Guid 492, Workshop in Counseling.).

- C. In some departments and colleges, courses that are part of the student's minor (see specific college and departmental requirements).
- D. Examination to establish credit.
- E. Correspondence courses.
- F. Courses the student is repeating after first having taken the course under the regular grading systems.

Note: Students may not be penalized by a department if, when selecting or changing a major field, they have taken a course in their major on a CR option basis.

WARNING: Certain consequences may result from exercising the CR/NC option. Some schools, scholarship committees, and honorary societies do not accept this grading system and convert grades of "Credit" to C and "No Credit" to F when computing grade point averages or otherwise penalize students who use this option.

CR/NC Option for Graduate Students

A graduate student has the option of enrolling in 100- or 200-level courses on a CR/NC basis. In no case will such an enrollment count toward graduate degree requirements or be computed in the graduate GPA. If a graduate student with undergraduate deficiencies is required by the major department to take a lower-division course, the CR/NC option is not available to the student.

Audit

1. A student may register in a course for audit, provided permission of the instructor 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. Audit enrollment receives no credit.
2. Instructor permission will be required prior to registering in a course for audit through the first two weeks of classes. No permission from the instructor is required to change to audit status during the third and fourth week of classes. **NO CHANGES IN AUDIT STATUS MAY BE MADE AFTER THE FOURTH WEEK OF CLASSES BY UNDERGRADUATE, GRADUATE OR NON-DEGREE STUDENTS.**
3. Courses taken for Audit may be repeated for credit.

Repetition of a Course

A student may repeat any course without special permission but will receive credit only once. (This does not apply to courses noted

"May be repeated more than once".) ALL attempts and ALL grades will be computed in the student's scholarship index. When any course is not completed and a grade of I (Incomplete) is assigned, reregistration in the course cannot be used to complete the course and remove the I.

A student who fails a course at UNM 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 Scholarship Index.

Attendance.

Students are required to attend all meetings of their classes, unless excused by the instructor. No extensions of vacations may be given. Nonattendance at classes due to late registration is considered the same as absence after registration.

A student with excessive absences may be dropped from a course with a grade of WF, upon recommendation of the instructor. Instructors requested drops are submitted to the Registration Center.

Classroom Conduct

- The instructor is responsible for all classroom conduct, behavior, and discipline. Any action that would disrupt or obstruct an academic activity is prohibited.
- Use of classrooms or other facilities during scheduled activities is limited to enrolled students and University personnel. Use of these facilities during nonscheduled periods should be arranged with the appropriate department or other division of the University.
- Smoking, eating, and drinking are prohibited in all classrooms and teaching laboratories, including seminars.

Dishonesty in Academic Matters.

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

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

Scholastic Regulations

Scholarship Index. A student's academic standing is referred to in terms of a scholarship index calculated by dividing the total number of grade points (see *Grades*) earned at the University by the total number of hours attempted. These hours must be attempted in courses with letter grades and the courses must be numbered 100 or above. Hours given a grade of WP, CR, NC, or I are excluded in calculating the scholarship index. Honors and prizes depending on academic achievements are determined by ranking students according to the scholarship index.

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.

General College. The minimum scholarship index to remain in good academic standing in General College is 1.60. Students are placed on academic probation at the end of any semester or summer session in General College if their scholarship index falls below this minimum.

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 record shows 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 meet these minimums set out above. Final determination is decided by the degree-granting college.

Suspension

University College. Students are subject to suspension at the end of any semester or summer session in which they are 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, General College and Non-Degree Status. Students in degree-granting colleges, General College or in non-degree status are subject to suspension at the end of any semester in which they were on academic probation unless they have succeeded in removing themselves from such probation by that time. Students are encouraged to familiarize themselves with the academic regulations of their specific school or college.

Students who have been suspended are not eligible to reenter the University 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 dean or director of the college to which the student is seeking admission or readmission. Students suspended for poor scholarship or who, after having been placed on probation, fail to reregister 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 made 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 what seems beyond his or her ability.

Regulations on probation and suspension as described above apply only at the end of a semester or summer session.

Dismissal

Students are subject to dismissal from a college or a degree program based on minimum requirements set by that college or program. Please refer to each college section in this catalog for specific requirements. Dismissal from a college or degree program is not the same as suspension, but may preclude the student from enrolling at the University.

Examinations

Regular Examinations. Examinations other than final examinations are to be given during each undergraduate course at the discretion of the instructor. Final examinations are to be given at the end of each undergraduate course as scheduled during the final exam period.

Examination to Establish or Validate Credit (Challenge a Course). Students admitted to or enrolled in regular status in undergraduate colleges of the University may, with appropriate written approval, take an examination to establish or validate credit in courses appearing in the University's general catalog. Students may not have been previously enrolled in the course 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.

Credit cannot be earned by examination to establish credit in nonprofessional physical education activity courses and in some professional physical education courses. A check with the department will be necessary to determine which professional physical education courses can be challenged.

Upon authorization, the dean or director of the college offering the course will issue a permit for the examination. This permit must be approved by the department concerned and the dean or director of the student's college. The student must then pay the fee of \$10 per credit hour and submit the permit to the person who will administer the examination. Once the examination has been administered and graded the instructor will complete the form and send it to the Records Office for recording on the students record.

Examination to establish credit can be taken only during the period of the week before classes start through the ending date of the semester or summer session. Credit will be allowed and placed on the student's permanent record as of the semester in which the examination is completed and will not count in the student's grade point average prior to the completion of that semester. Only grades of C or better will be recorded. If the student does not earn a grade of C or better, a second examination for that course will not be permitted. The grade of CR may not be assigned. Credits earned by examination at the University of New Mexico count toward graduation and residence requirements.

Other Special Examinations. For information concerning the Advanced Placement Program and the College Level Examination Program of the College Entrance Examination Board, see "Admissions Section of this Bulletin."

Graduation Requirements

Bachelor's Degrees.

Candidates for any undergraduate bachelor's degree offered by any of UNM's colleges must meet the following University minimum degree requirements and are subject to the following University limitations:

1. A minimum of 128 semester hours of earned credit is required.
2. Residence credit requirement: A minimum of 30 semester hours of credit, exclusive of extension and correspondence (independent study) credit, must be earned at UNM. Of these 30 semester hours in residence, 15 semester hours must be earned after the candidate has accumulated 92 hours of earned semester hour credit; these 15 hours, however, do not necessarily have to be the last hours of a degree program. A student may fulfill all or part of this residence requirement by attending summer session.
3. The student must have a minimum cumulative scholarship index of 2.0 or a 2.0 grade point average on the last 128 semester hours of degree work.
4. The student must demonstrate a minimum competence in English writing by passing Engl 102 or attaining a suitable score on an authorized proficiency test prior to graduation. (This is a new graduation requirement effective Fall 1983.)
5. A maximum of 24 semester hours of CR/NC credit grading option courses may be applied toward a bachelor's degree.
6. A maximum of 40 semester hours of extension and correspondence (independent study) credit may be applied toward a bachelor's degree and no more than 30 of these hours may be correspondence credit.
7. Major and minor residence requirements: At least one-half of the minimum number of credit hours required for major study and one-fourth of the minimum for minor study must be class or laboratory work earned in residence at UNM. The major department or the director of an interdepartmental major may modify this ruling when a senior transfer student plans to complete a major by presenting credit hours earned in residence at another institution. Any modification, however, may not be below one-fourth of the total minimum hours required for the major.
8. Students should be reminded of the fact that most colleges will not accept University skills courses to satisfy any of these requirements.

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

Associate Degrees.

Candidates for any associate degree offered by any of UNM's colleges must meet the following University minimum degree requirements, and are subject to the following University limitations:

1. A minimum of 60 acceptable semester hours must be earned. Technical-vocational work (up to the limit specified below) may be included in these 60 hours, upon approval of the appropriate degree-granting college.
2. A minimum of 15 semester hours must be earned in residence at UNM, exclusive of extension and correspondence credits. The remainder may be acceptable transfer credits earned at fully accredited institutions of higher learning and/or at regionally accredited technical-vocational institutions (see also *Transfer Students* for transfer credit regulations).
3. Of the 60 hours minimum, no more than 9 semester hours may be earned by extension or correspondence.
4. The student must have a cumulative scholarship index of at least 2.0.
5. For associate of arts or associate of science degrees, the program must include a minimum of 18 semester hours in the following:
 - A. At least 6 semester hours in communication skills (English, speech).
 - B. At least 6 semester hours in arts/humanities/ social sciences.
 - C. At least 6 semester hours in mathematics/natural sciences/behavioral sciences.
6. For associate of professional studies/ associate of applied science degrees, the program must include a minimum of 30 semester hours in the following:
 - A. At least 6 semester hours in communication skills (English, speech).
 - B. At least 6 semester hours in arts/humanities/ social sciences.
 - C. At least 6 semester hours in mathematics/natural sciences/behavioral sciences.
 - D. At least 12 semester hours in other courses offered either by the degree-granting college or by other UNM colleges.
7. University Skills 100 courses may not be used to satisfy any of the above requirements.

Two Undergraduate Degrees.

The student seeking a second bachelor's degree must meet admission criteria for that degree. To obtain a second bachelor's degree the student must successfully complete a minimum of 30 additional hours beyond the

requirements for the first degree and must meet all degree requirements of the second degree, including residence requirements.

A transferring graduate should notify the Office of Admissions and Records when applying for admission if he/she plans to work toward 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 as a second major. A second degree is not awarded.

The student who has completed a baccalaureate degree and who is seeking a second undergraduate degree will be evaluated by the new degree college in accordance with the hours and requirements completed toward the new degree. Residence credit requirements for the second degree will be determined on the same basis as those for the first degree.

A second associate degree will not be granted until a student has earned a minimum of 15 semester hours above the requirements for the first degree and fulfilled all requirements for the second degree including residence requirements.

Extension and Independent Study.

UNM allows credit for independent study, correspondence and extension courses at UNM or through other fully accredited colleges and universities toward degree requirements.

Credit for extension and independent study courses completed in institutions not accredited by regional accrediting associations is not accepted for transfer, although a student who has completed such correspondence or extension work in a course comparable to one at UNM may establish credit here by special examination (see *Examinations*).

The hours earned by independent study or extension from accredited institutions other than UNM may be counted toward degree requirements, but the grades will not be included in the student's grade point average (see *Scholarship Index*). Courses taken from other institutions must correspond to those offered at UNM.

Any graduating senior not in residence who expects to offer credits earned by independent study toward fulfillment of degree requirements must have prior approval of his or her college's dean. The student is responsible for complying with all regulations stated in the current Independent Study Bulletin.

Catalog Requirements.

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 the student interrupts attendance or transfers from one degree-granting college to another within the University, he/she must graduate under the catalog in effect at the time of his/her readmission or transfer. **THE STUDENT IS RESPONSIBLE FOR KNOWING THE RULES AND REGULATIONS CONCERNING GRADUATION REQUIREMENTS AND FOR REGISTERING IN THE COURSES NECESSARY TO MEET REQUIREMENTS.**

Commencement.

Commencement exercises are held once a year at the end of the spring semester. Attendance is optional. 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.

Honors Work/Graduation With Honors

Students may graduate with General Honors (Honors in General Studies), or Departmental Honors, or both. The level of General Honors attained is determined by the General Honors Council and may be **cum laude**, **magna cum laude**, or **summa cum laude**. Students must apply to the General Honors Program for candidacy for graduation with General Honors.

The levels of Departmental Honors awarded are also **cum laude**, **magna cum laude**, and **summa cum laude**. Students must also apply for candidacy to their departments (or in colleges without departments to the college).

Graduation with General or Departmental Honors is not automatic; application for candidacy is required.

The General Honors program

The General Honors Program is housed in the Humanities Building, Room 112, in the Honors Center. Participation in this program, leading to graduation with Honors in General Studies, is by application only; however, all undergraduates interested in a challenging intellectual program with emphasis on interdisciplinary study are encouraged to apply. Students are selected on the basis

primarily of their academic potential (ACT scores), record in college level work, and intellectual motivation. Most General Honors courses are taught in the format of the small seminar (limited to approximately 15 students) where emphasis is on discussion, student participation, and self expression. The program also provides opportunities for independent study under the direction of a faculty member.

Core courses, Honors seminars, are offered at the 100, 200, 300, and 400 levels; the lower division courses offer an introduction to the history of ideas while upper division courses deal more specifically with the history of ideas or culture. Lower division students are not necessarily restricted to 100 and 200 level courses but may take other Honors courses with permission. (See p. 307 for course descriptions.)

Students are encouraged to join the General Honors Program in the first semester of their freshman year and to continue taking Honors courses as group requirements in various colleges and as electives. However, second semester freshmen, and sophomores, and first semester juniors may join the program.

Formal requirements for graduation with Honors in General Studies are:

1. Completion of 9 credit hours at the 300 level or above, usually including 403 or 404, unless waived by Director (or permission of the Director to count 100 or 200 level courses as a part of this requirement).
2. Completion of 6 additional credit hours selected from any General Honors courses or from courses offered in the Undergraduate Seminar Program.
3. A 3.2 overall scholarship index.
4. Recommendation by the Director and Certification by the General Honors Council.

Performance in Honors courses is not judged by mechanical, quantitative standards, nor are students graded on a curve. Honors faculty make detailed evaluations of a student's progress on confidential forms. Students are encouraged to read the evaluations made by the faculty, and should they disagree have the privilege of writing their own rebuttal.

Grades in Honors courses are A/Credit/No Credit/Incomplete (although sometimes an instructor may elect to grade students on the Credit/No Credit basis only). The grading system for each course is listed in the Course Description Brochure furnished students at the time of preregistration. Under this system students may be rewarded for superior performance (A) but not penalized for ordinary, satisfactory performance (CR) or for failure to complete the course, etc.

The program is designed to offer intellectual challenge, and students are expected to achieve at their highest levels; at the same time competition for high grades is minimized. Taking Honors courses under this grading system does NOT cancel the right of students to elect one course per semester on a Credit/No Credit basis.

Special advising and counseling are available by staff and faculty for participants in the General Honors Program. Information on this and other aspects of the General Honors Program may be obtained at the Honors Center.

Students working towards Honors in General Studies are encouraged to undertake Departmental Honors as well.

The Undergraduate Seminar Program.

Each semester the General Studies Program offers a number of one-credit-hour seminars of general interest usually running one-half of the semester. These seminars, which do not duplicate departmental offerings, are selected by the General Honors Council from proposals submitted by faculty members and on some occasions by persons outside the University who have special expertise. They are selected for their academic value, general interest, and to enlarge upon ordinary curricular offerings. They are usually interdisciplinary. Classes are limited to no more than 18 students, and emphasis is on discussions and student participation.

Undergraduate Seminars are *open to all undergraduate students*. There are no prerequisites, and while these seminars are not Honors Courses they may be used to fill hour requirements for graduation with Honors in General Studies.

Grading in Undergraduate Seminars is on the A/Credit/No credit or simply Credit/No Credit basis at the discretion of the instructor.

A list of Undergraduate Seminars for the following semester may be obtained at the Honors Center at the beginning of the preregistration period.

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 chairperson of their major department (or the dean of the college in colleges which are not departmentalized) as to the availability of a program.

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' specializations; (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 chairperson 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 overall 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 chairperson 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 candidates will be graduated are both at the discretion of the department.

Graduation With Honors

Graduation with honors, either general or departmental, is not automatic, and students are required to apply for candidacy. Information regarding application is available from the Honors Center in the Humanities Building or from individual departments.

STUDENT EXPENSES

hours for purpose of Tuition are defined as hours for credit, credit/no credit, and/or audit. **All tuition and fee charges are subject to change without notice.**

Registration Fees (Rates in effect 1982-83)

Undergraduate

	Semester Hours	Resident Fees	Nonresident Fees
Part-time enrollment	1	\$ 32.00	\$ 32.00
(6 hours and under, \$32	2	64.00	64.00
per semester hour, all	3	96.00	96.00
students)	4	128.00	128.00
	5	160.00	160.00
	6	192.00	192.00
Enrollment from 7 to 11 hours	7	\$224.00	\$ 714.00
(Residents @ \$32/hour)	8	256.00	816.00
(Nonresidents @ \$102/	9	288.00	918.00
hour)	10	320.00	1020.00
	11	352.00	1122.00
Full-time enrollment	12-18	384.00	1224.00
There is a nonrefundable	19	\$416.00	\$1326.00
surcharge per hour in	20	448.00	1428.00
excess of 18	21	480.00	1530.00
(Residents @ \$32/hour)			
(Nonresidents @ \$102/			
hour)			

Graduate and Law

	Semester Hours	Resident Fees ¹	Nonresident Fees ¹
Part-time enrollment	1	\$ 43.00	\$ 43.00
(6 hours and under, \$32	2	75.00	75.00
per semester hour, all	3	107.00	107.00
students)	4	139.00	139.00
	5	171.00	171.00
	6	203.00	203.00
Enrollment from 7 to 11 hours	7	\$235.00	\$ 725.00
(Residents @ \$32/hour)	8	267.00	827.00
(Nonresidents @ \$102/	9	299.00	929.00
hour)	10	331.00	1031.00
	11	363.00	1133.00
Full-time enrollment	12-18	381.00	1221.00
There is a nonrefundable	19	\$413.00	\$1323.00
surcharge per hour in	20	445.00	1425.00
excess of 18	21	477.00	1527.00

Tuition on hours in excess of 18 are not refundable after semester classes begin.

Graduate students who enroll for master's thesis pay regular tuition and fee rates.

Graduate students who enroll for Doctoral Dissertation pay a standard fee of \$85.00 for each semester or summer session of 699 enrollment, whatever the number of hours of 699 or whether the student is resident or nonresident.

¹Includes \$11.00 Graduate Student Fee assessed in Fall and Spring semesters.

Medical School

	N.M. Residents	Per Semester Nonresident:
Tuition and Fees	\$600.00	\$1552.00

Student Group Health and Accident Insurance

The group health and accident insurance is available only to students attending the University of New Mexico and carrying 6 or more semester hours during a regular semester. Participation is at the student's option, except that foreign students are required to have this coverage for themselves and dependents.

1982/83 Student Rates
(subject to change)

Full year	\$95.00
Fall semester	38.00
Spring and summer	57.00
Summer only	23.00

Student group health and accident insurance for Medical Students is arranged by Medical School.

Special Course Fees (Non-refundable)

Charges are made for classroom supplies and special services provided in many courses. Fees are determined prior to the beginning of a given semester and are listed in the Schedule of Classes.

- *1. The following departments assess fees to students enrolled in the respective courses at the end of the fourth week during Fall and Spring semesters, at the end of the second week during the Summer session.
 - a. Architecture
 - b. English Creative Writing
 - c. ESL Writing Programs
 - d. Art Education
 - e. Education Foundations
 - f. Elementary Education
 - g. Industrial Education
 - h. Special Education
 - i. Home Economics
 - j. Nursing Labs
 - k. Fine Arts Departments
- *2. The Health, Physical Education and Recreation Department assesses fees to students enrolled in the following courses at the end of the fourth week: during Fall, Spring and Summer session.
 - a. Canoeing
 - b. Horseback Riding
 - c. Kayaking
 - d. Racketball
 - e. Skiing
 - f. Skin and Scuba Diving
 - g. Sailing
 - h. Wind Surfing
3. If the course begins at some time other than the beginning of the semester, a student is responsible for the fees if he/she is still enrolled at the second class meeting.
4. There will be no refunds on special course fees after they have been assessed.
5. Applied music fees of \$32.00 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.

*Note: These listings are not comprehensive. See Schedule of Classes.

ees**Charges for Special Services**

- Admission: (Non-refundable)
 - a. Air Force ROTC Activity Fee (per semester) \$ 8.00
 - b. Application Fee (UNM) 15.00
 - c. Graduate School Application 15.00
 - d. Engineering Co-op Fee 20.00
 - e. Law student's dues of N.M. Bar Association (per year) 10.00
 - f. Post Masters Certificate Program 50.00
- Administrative Charges (Non-refundable)
 - a. Dishonored Check \$ 7.00
 - b. Check Verification Fee
 - In State50
 - Out of State 2.50
 - c. Graduation Fee 10.00
 - d. Masters Thesis Binding 15.00
 - e. Dissertation Binding 15.00
 - f. Charges for examination to establish or validate credit (per credit hour) 10.00
 - g. Removal of Incomplete Grade (per course) 2.00
- Testing Fees
 - a. Residual ACT Testing \$12.00
 - b. Miller Analogies 14.00
 - c. College Preparation Testing 5.00
 - d. Graduate School Foreign Language Test 8.00
- Deposits
 - a. Chemistry Laboratory Breakage Deposit Card
 - b. Pharmacy Laboratory Purchase Card

Tuition provides for a nominal amount of breakage in laboratory or other courses. Excessive breakage will be charged separately to the student responsible for the breakage.
- Student Association Fees
 - a. Associated Student 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 (ASUNM), and the University collects this fee as an accommodation to ASUNM. The amount of the fee is determined by vote of the ASUNM members and is subject to change at any time by a new vote. The fee is included in the tuition paid by all full-time students. More information about the allocation of funds received from this fee may be obtained in the Pathfinder, as well as from ASUNM. Copies of the ASUNM budget may be examined in the Office of the Dean of Students.
 - b. Graduate student fee.

Graduate students are assessed a nonrefundable fee determined by vote of the members of the Graduate Student Association (GSA) and set forth in their constitution. The University collects this fee for GSA. More information about the allocation of GSA funds may be obtained in the Pathfinder, as well as from GSA.

Refund of Tuition

Registration fees will be refunded (where the student withdraws or drops courses voluntarily) to the end of the fourth week of the semester for full semester courses as follows:

- 100% refund prior to start of semester
- 90% refund during the 1st week
- 80% refund during the 2nd week
- 60% refund during the 3rd week
- 30% refund during the 4th week

40 UNDERGRADUATE PROGRAM

For courses that are six to eight weeks in duration, registration fees will be refunded to the end of the second week of the semester as follows:

- 90% refund during the 1st week
- 60% refund during the 2nd week

For courses that are less than six weeks in duration, registration fees will be refunded to the end of the first day of classes, at 90%. All refunds are based on the date of withdrawal.

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

Student Accounts

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

Tuition and Fee Payment

Checks or money orders should be made payable to the University of New Mexico: they should be mailed to: The Cashier, The University of New Mexico, Albuquerque, NM 87131. Do not mail cash. All payments must also be accompanied by the students name and Social Security number.

Financial Aid Refunds and Repayment

Because student financial aid must be used solely for educational expenses, when a student receives a cash payment of financial aid and then withdraws or ceases to carry at least one-half of a full-time course of study, some of these funds may have to be repaid. The University of New Mexico utilizes the following refund/repayment schedule:

$$\text{Amount to be repaid} = \frac{\text{No. of calendar days between the withdrawal and midpoint of semester}}{\text{No. of calendar days between beginning of semester and midpoint}} \times \text{Amount disbursed in excess of direct institutional charges}$$

Direct institutional charges include allowable tuition and daily living expense rate. Repayment of aid must be made prior to subsequent disbursement of any type of financial assistance.

STUDENT HOUSING

Residence Halls

Facilities

UNM residence halls are designed to provide attractive living accommodations that meet the academic needs of students and at the same time offer convenience and economy of housing and dining. The halls are within easy walking distance of classrooms and recreational facilities.

Each of the University's six residence halls is supervised by a professional staff experienced in counseling and advising student groups. Residents of each hall elect a governing body that plans and organizes a full program of educational, governmental, social, and recreational activities, such as the annual Inter-dorm Olympiad.

To meet the diverse needs and interests of its students, the University offers a variety of living and dining options. There are single-sex residence halls and other halls where men and women live on different floors or in different wings. Some halls are open for visitors 24 hours a day; others have limited visitation schedules. Similarly, numerous meal plans are available in La Posada Hall, the residence hall dining facility.

Details on all these options are contained in the housing materials accompanying the application for room and board. Students may wish to confer with their parents regarding choice of a residence hall.

Housing Policy. Undergraduate students may live either on or off campus. Students electing to live on campus are required to sign a room and board contract obligating them for one entire semester.

Living quarters in residence halls are available

to students with a minimum course load of 6 semester hours during the fall and spring semesters and 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, initial payment, and \$25 deposit. All students occupying rooms in residence halls are required by contract to take their meals at the University dining hall, La Posada. Special diets are not provided.

Room and Board Fees

The 1982-83 rates for room and board range from \$1,784 to \$2,166 per academic year, depending on the type of living arrangement desired. To gain the maximum financial advantage from the room and board contract, students should remain in the residence halls for both the fall and spring semesters. Students in residence for the fall semester may extend their contracts for room and board for the spring semester. A deferred payment plan for room and board is available.

Rates include provision of a telephone in each student's room and University-supplied bed linens. The rates do not include room and board between semesters or for meals during official recesses listed in the academic calendar. The rates are subject to adjustment, with appropriate notice, reflecting changes in operating costs.

Reservation Procedure

Students are encouraged to apply early. Historically, demand for residence hall space exceeds capacity during the fall semester. Information concerning various living situations, housing programs, meal plans, room and board rates, and applications may be obtained by writing to: Housing Collections Office, The University of New Mexico, La Posada Hall 201, Albuquerque, NM 87131, Tel. (505) 277-2606.

Married Student Housing

Facilities

The University operates 200 married student apartments constructed in 1975 just south of the main campus. One-, two- and three-bedroom units are available and are designated as furnished or unfurnished.

Housing Policy

To be eligible for married student housing, one spouse must be a UNM student pursuing a degree and taking at least 6 semester hours. Single students with legal dependents also are

eligible for married student housing. Apartment residents may remain in married student housing during the summer if they plan to enroll for the fall semester; it is not necessary for them to enroll for the summer session.

Rental Rates

The 1982-83 monthly rental rates range from \$221 to \$301, including utilities. Rates are subject to adjustment, with appropriate notice, reflecting changes in operating costs.

Reservation Procedure

Because the number of apartments is limited, applicants are placed on a waiting list if no apartment is available. Information concerning the reservation procedure, rental rates, and applications may be obtained by writing to: Married Student Housing Office, The University of New Mexico, 961 Buena Vista SE, Albuquerque, NM 87106, Tel. (505) 277-4265.

FINANCIAL AID POLICIES

As part of its basic philosophy, the University of New Mexico is committed to ensuring that the opportunity for a post-secondary education not be denied to any student because of limited finances. To fulfill this goal, the UNM Office of Financial Aid administers a broad spectrum of loans, grants, jobs, and scholarships to meet the financial needs of all the University's students. Of the students who attended UNM during the 1982-83 school year, more than 60 percent received some form of financial aid.

The Office of Student Financial Aid and Career Planning and Placement awards financial aid to students according to their individual needs. Parents of students are expected to contribute to their child's education according to their ability, taking into account their income, assets, number of dependents, and other relevant information. Students themselves are expected to contribute from their own assets and earnings, including appropriate borrowing against future income. Because the amount of assistance awarded is based on financial need, the amount of aid awarded is not publicly announced, and all information provided to the Office of Student Financial Aid and Career Planning and Placement is regarded as confidential.

Students applying for financial aid complete one of several forms designed to determine, in accordance with state and federal guidelines, the difference between what the student or family is expected to contribute and the cost of attending UNM. Among the factors that determine the family's expected contribution are: 1) annual adjusted gross income as determined by the Internal Revenue Service; 2) home equity; 3) savings, stocks, or bonds; 4) other assets in the form of a business, farm, or real estate; 5) non-taxable income and benefits; and 6) a student's summer earnings and assets.

The costs of attending UNM include: 1) tuition and fees; 2) room and board; 3) books and supplies; 4) transportation; and 5) personal expenses.

To qualify for financial aid programs at UNM, with the exception of academic scholarships, students must meet the following general requirements (requirements for individual programs may vary): 1) demonstrate financial need; 2) be a U.S. citizen; 3) show academic promise or progress; and 4) carry at least 6 semester hours. For maximum student financial aid consideration, students should apply prior to March 1.

Satisfactory Academic Progress

Following the initial award of student financial aid to a student, the student must make satisfactory progress toward a degree for the financial aid to be continued. A student must complete 12 semester hours if awarded on a full time basis, 9 semester hours for $\frac{3}{4}$ time basis, and 6 semester hours for $\frac{1}{2}$ award. The student must obtain a minimum GPA of 2.0 for each semester awarded student financial aid.

Financial Aid Programs

Following is a brief summary of the financial assistance programs administered by the Office of Student Financial Aid and Career Planning and Placement. For more complete information about these programs, including eligibility requirements, contact: The Office of Student Financial Aid and Career Planning and Placement, Mesa Vista Hall, the University of New Mexico, Albuquerque, NM 87131, Tel. (505) 277-2041.

Grants. Grants are awarded to students showing academic promise or progress. Grants, like scholarships, do not have to be repaid.

—**Pell Grants (formally BEOG).** These federal grants, ranging from \$200 to \$1,800, are intended to provide a financial basis on which needy students can build a post-secondary education.

—**Supplemental Educational Opportunity Grants (SEOG).** Federal grants ranging from \$200 to \$500. This program is designed for students with exceptional financial need.

—**New Mexico Student Incentive Grant (NMSIG).** This provides state and federal funds, in amounts ranging from \$200 to \$500, to extremely needy New Mexico residents.

Student Employment

Student employment is provided to students who wish to work part time while pursuing their education. Jobs normally found on campus range from the very general to those that are highly technical.

—**College Work Study Program (CWSP) and New Mexico (NMWS)** This is a state or federally funded program designed to provide income and work experience in a student's field. Work is limited to 20 hours a week, except for summers, holidays, and vacations.

—**Off campus employment.** Part time jobs available off campus are listed with the Office of Student Financial Aid and Career Planning and Placement.

—**Cooperative Education.** Students may alternate semesters of full-time, semiprofessional employment with semesters of full-time academic study through the Cooperative Education Program. This program provides excellent salaries and experience.

Loans

Student loans provide an opportunity to borrow against future earnings, with relatively low interest rates and favorable repayment schedules.

—**National Direct Student Loan (NDSL).** This is a long term, low interest loan program for students meeting the financial need requirement.

—**New Mexico Student Loan (NMSL).** Available only to New Mexico residents, this program provides long term, low interest rates to qualified students.

—**New Mexico Plus (NMPLUS).** Long-term, low interest rate loans made available to eligible students and parents to help pay educational expenses.

—**Federally Insured/Guaranteed Student Loan (FISL/GSL).** This program provides long term, low interest loans to eligible students through private lending institutions, such as banks, credit unions, and home savings and loan associations.

—**Short term loans.** Loans up to \$100 and payable within 90 days or the end of the semester are available to qualified students through the Office of Student Financial Aid and Career Planning and Placement.

Scholarships, Prizes, and Awards

More than 400 individual scholarships, prizes, and awards exist at UNM for qualified students. Students receiving scholarships awarded through the Office of Student Financial Aid and Career Planning and Placement must reapply each year by March 1. For students applying only for a scholarship and no other financial aid, the only form required is the New Mexico Financial Aid and Scholarship Application. Students applying for departmental or college scholarships should contact those offices.

—*Presidential Scholarship Program.*

Presidential Scholarships of \$1000 are awarded annually to 100 New Mexico high school seniors who have demonstrated exceptional leadership and academic ability.

—*Academic scholarships.* Academic scholarships of \$500 a year are awarded to entering freshmen students ranging in the top 10 percent of their high school graduating classes.

—*College major related scholarships.* Several departments award scholarships to beginning freshmen or upperclass students. Beginning freshmen should write directly to the College of Engineering or the Department of Music for more information. Juniors and seniors or graduate students may inquire directly to the School of Architecture and Planning, the Robert O. Anderson Schools of Management, the College of Engineering, the Geology Department, the Law School, the Medical School, and the College of Nursing.

—*Other scholarships.* A wide variety of organizations offer scholarships to eligible students. Many scholarships are awarded through the Office of Student Financial Aid and Career Planning and Placement. All students applying for an academic scholarship will be considered for these individual scholarships. The Navy and Air Force offer scholarships to students enrolled in their programs; contact them directly for details.

Other Programs and Benefits.

Professional Programs

For students admitted into a nursing program or law enforcement/criminal justice academic program, additional student financial assistance programs exist. Contact the Office of Student Financial Aid and Career Planning and Placement for details about these.

Bureau of Indian Affairs (BIA) Programs

Each year the BIA provides grants to assist eligible Native American students in meeting their educational costs. The amounts of the

grants vary according to the student's financial need, and the funds are available through the student's BIA area office or tribal scholarship office.

Social Security Educational Benefits

The U.S. Social Security Administration provides funds to assist dependents of Social Security beneficiaries in attending college. Details may be obtained from local Social Security offices.

Veterans Administration Educational Benefits

The purpose of this program is to assist Vietnam era veterans pursuing a post secondary education. Application is made through the Veterans Administration, and certified by the Veterans' Affairs Office at UNM.

Vocational Rehabilitation

Through the New Mexico Division of Vocational Rehabilitation, the state and federal governments offer tuition assistance to students with physical or emotional disabilities. Other assistance also may be given to those physically handicapped students who financially are unable to provide the services themselves. Students wishing to apply for this assistance should contact one of the New Mexico Vocational Rehabilitation offices.

Career Planning and Placement

The Office of Student Financial Aid/Career Planning and Placement works with all UNM students and alumni in achieving their career and employment goals, providing counseling and testing for undecided career seekers.

The office maintains close contact with all colleges and departments within the University. It acts as general clearinghouse for registrants seeking college trained personnel. Prospective employers are provided with administrative assistance and facilities for interviewing candidates. Registrants are furnished assistance in preparing a career file encompassing biographical data, scholastic 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 desired.

The office also makes available to eligible students and alumni information concerning new or existing career opportunities, trends in employment, and educational requirements. The office monitors the conditions and trends of the nation's job market, and it maintains close contact with representatives of

commerce and education. Workshops are held each semester to assist students in career planning, the job search, resume writing and writing and interviewing.

Career Planning and Placement is located on the second floor, south wing, of Mesa Vista Hall. All career services provided to students and prospective employers are free.

Veterans Affairs

The University of New Mexico is approved for certification of students eligible to receive educational assistance from the Veterans Administration. Persons applying to UNM who are eligible for Veterans' benefits should follow the requirements and procedures outlined in the Admission and Registration section of this catalog. The Division of Veterans Affairs, located within the Department of Student Financial Aid and Career Planning and Placement, was established to provide every possible service to these students and to aid in the solution of any problems that might arise in the student's relations with the University and the Veterans Administration. The student is given assistance in making application to the Veterans Administration, certification of registration so that training allowance may start, proper withdrawal or interruption of the student's educational program, and information of any changes in procedures and regulations of the University and the Veterans Administration. This Division can also provide advisement counseling to any student under one of the Veteran's educational programs, to assist the student in the selection of an objective, and in the development of a program of education. All documentary forms necessary for these government programs are available in this office which is located in Mesa Vista, Room 2122. (See *Veterans Affairs Office* for detailed requirements).

STUDENT SERVICES

Finding Out About UNM and Its Student Services

Dean of Students

A wide range of organizations and services are available on the UNM campus to meet the needs of the University's students, with the **Office of the Dean of Students** having coordinating supervision of programs and activities affecting student life outside the classroom.

Orientation

To help new students become acquainted with the University, the **Office of the Dean of Students** prepares an orientation program prior to the beginning of each academic session. Brochures with a schedule of specific orientation events are mailed to all new students before each semester. The events planned for orientation sessions generally include information sessions about services at UNM, campus tours, open houses in various academic divisions and student service centers, advisement and registration, and entertainment. The Office of the Dean of Students also maintains a listing of off-campus houses and apartments available for rent to students. The Deans are always available for general personal and academic counseling on a drop in basis. More information about orientation programs, advisement, and off-campus housing may be obtained by contacting the Office of the Dean of Students, Mesa Vista Hall, 277-3361.

Student Handbook

The most comprehensive directory of student services at UNM is the **UNM Pathfinder**, the student handbook published annually by the Student Activities Center, a division of the Office of the Dean of Students, located on the main floor of the New Mexico Union building. The **UNM Pathfinder** gives general information, including office locations and telephone numbers, about academic and cultural programs, athletics and recreation, campus organizations, entertainment, financial services, food, health and medical assistance, housing, information and orientation, UNM policies affecting students, transportation, and other services and programs. Free copies of the **UNM Pathfinder** may be obtained from the Student Activities Center, the Office of the Dean of Students, the Registration Center, as well as from the Student Information Center in the New Mexico Union, 277-4606.

Attendance

Absences due to illness, field trips, athletic trips, and so forth are to be reported by the student to the instructor and to the Office of the Dean of Students. These reports do not relieve the student of the responsibility for lost work, and it is the obligation 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 automatically is notified. If a student has been ill and needs verification, he or she should notify the Dean of Students Office, 277-3361. It is expected that professors normally will

indicate at the beginning of a semester whether students will need verification.

Students who are absent without approved excuse from final examinations or other closing exercises of their classes will be given the grade of F.

Student Organizations

The Student Activities Center also publishes the annual campus guide to Chartered Student Organizations. This lists chartered student organizations on campus, including the names and telephone numbers of organization officers and sponsors. Among the types of organizations listed are ethnic and cultural, fraternities and sororities, graduate, honorary, military, political, professional and departmental, religious, residence hall, service, special interest, and sports and recreation. Copies of the Campus Guide are published as an insert to the Daily Lobo campus newspaper once during the month of October. Copies of this handbook may be obtained free from the Student Activities Center, which also assists students in organizing and chartering new student organizations.

Student Information Center

Another source of information about student services and activities is the Student Information Center, 277-4606, in the main floor lobby of the New Mexico Union. Students who work at the Student Information Center have details about athletic and entertainment events, registration, buses, the want-ad board, student government, the ride board, and so forth. They also may provide maps and referrals to other campus offices.

Other informational materials available through the Student Activities Center are bi-monthly calendars of events on campus, campus maps, a calendar of summer session events, and a monthly Life Skills Workshop calendar which lists workshops, groups, and other activities which provide support to students in career, health, academic, family and other life skill areas.

UNM Information Services

For persons wishing to obtain information about UNM by telephone, UNM Information Services has over 60 taped messages available describing student services, as well as University policies and procedures. The number to call is 277-6281.

In addition, the Student Activities Center has a tape-recorded message listing each day's scheduled events on campus. The number is 277-5243.

Persons wishing to reach the University information operator should dial "O" from on-campus phones or 277-0111 from off-campus phones. The operator may give numbers for University offices and officials from 8:00 a.m. to 5:00 p.m. weekdays.

Student Directories

A student directory listing each student's name, local and home address, telephone number, and academic classification is published by the Student Activities Center. These directories are available to students at the Student Information Center in the New Mexico Union and at the UNM Bookstore. A validated student ID is required to obtain a directory.

Other Programs

Other services, programs and student groups coordinated and advised by the Dean of Students and Student Activities Staff include: the Undergraduate and Graduate Student Governments, the Returning Student Association, the nine national Fraternities, and five national Sororities, class honoraries, campus spirit groups, the Parents Day Program, the Alcohol Awareness Program, Student Recognition Banquet, and the University Ticket Agency.

Further information on any of these services or publications should be directed to the Student Activities Center, Room 106, New Mexico Union Building, 277-4706.

Prospective Student Services

The Office of School Relations, located at 1716 Las Lomas NE, 277-5161, provides information about the University for prospective students. This information includes degree and course offerings, admission requirements and procedures, housing, expenses and financial aid, registration, and special services and programs. The Office of School Relations also arranges campus tours.

Honorary Organizations

The following organizations are active: Blue Key National Honor Fraternity, Eta Kappa Nu, General Honors Student Association, Golden Key National Honor Society, Kappa Mu Epsilon, Kappa Omicron Phi, Las Campanas, Mortar Board, Phi Alpha Theta, Phi Beta Kappa, Phi Eta Sigma, Phi Kappa Phi, Phi Sigma Tau, Pi Tau Sigma, Presidential Scholars Club, Sigma Gamma Epsilon, Spurs, Tau Beta Pi.

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

Student Standards and Grievance

A Student Standards and Grievance Committee has been created to hear complaints and render decisions in disputes between students and the University. The committee, composed equally of student representatives and faculty members, may be convened through the Office of the Dean of Students.

Office of International Programs and Services

Through its involvement in the various dimensions of educational and cultural exchange, the University of New Mexico endeavors to strengthen communication and mutual understanding on an international level. It is the mission of the Office of International Programs and Services to develop and implement campus and community activities in support of this commitment.

For the more than 550 International Students who attend the University of New Mexico, OIPS is a central resource for information and assistance. Each semester new international students are invited to orientation activities which familiarize them with the campus and the services available to them, in addition to certain immigration policies and procedures. The office continues to provide information concerning immigration matters and acts as a liaison with the immigration office for all foreign students throughout their stay and for the more than forty visiting scholars and professors who teach or conduct research on campus. Counseling is made available to UNM's international students in areas ranging from difficulties with cultural adaptation and other personal matters, to legal and financial problems. The Friendship Family program, administered by OIPS, matches international students with local families, providing an opportunity for the students to get to know an Albuquerque family on a social basis and to learn more about American culture and customs. OIPS administers the UNM Intensive English Institute, a twenty-five hour per week program of study designed primarily to develop the English proficiency of non-native speakers who intend to enter into university study. The Intensive English Institute (IEI) offers classes in composition, listening comprehension, reading, English structure and conversation. In addition, the program provides students with an orientation to U.S. culture and customs. A non-credit course in oral English offered to UNM international graduate students with special needs is also coordinated by OIPS. **The International**

Center located at 1808 Las Lomas NE, serves as a gathering place for both international and American students and sponsors social and cultural activities. Its facilities are available to international organizations on campus. The International Center receives funding from ASUNM.

The Office of International Programs and Services is an **information resource center for students and faculty interested in international study, research or teaching.** The study abroad library includes information on international study sponsored by UNM as well as other U.S. institutions and on direct enrollment in foreign universities. Information and advisement on fellowships, grants, scholarships and other types of financial support for graduate and undergraduate students is also available. Candidates for graduate Fulbright and Marshall Program fellowships are advised and interviewed on campus at OIPS. The office also administers student exchanges between UNM and Hull University in England, the Universities of Wurzburg and Munster in Germany, as well as the Universidad Autonoma de Guadalajara in Mexico. Each year OIPS directs **UNM summer sessions in Guadalajara, Mexico, and Almeria, Spain.** Courses are taught by UNM faculty members on site and are open to undergraduate and graduate students from UNM and other universities. An agreement between UNM and the University of Sao Paulo in Brazil promotes cooperative research projects, the exchange of scholarly research, and faculty exchanges.

OIPS works closely with the **Russian, Asian and European studies** committees at UNM to promote these interdisciplinary academic programs through publications, lectures, films and performances, while serving as an Area Studies information and advisement center. Each year the director of OIPS offers a three-credit seminar in **international studies** designed to provide seniors from any discipline with an opportunity to apply an international perspective to their undergraduate training through examination of contemporary global issues and problems.

The Office of International Programs and Services participates in many **community activities** including Partners of the Americas, the Albuquerque Committee for Foreign Visitors, the New Mexico/Mexico Border Commission, and the Albuquerque Sister Cities Association. A number of newsletters and directories are published on a regular basis by OIPS to inform the campus and community of topics which are international in scope.

THE ROBERT O. ANDERSON SCHOOLS OF MANAGEMENT

Morgan Sparks, Dean
Robert O. Anderson Schools of Management
Anderson School 286, 277-6471

Edwin H. Caplan, Associate Dean
Anderson School 263, 277-3207

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:

- Accounting
- Business computer systems
- Economics, environment, and policy*
- Financial management
- General management
- Health systems management*
- Human resources management
- International management
- Management information systems*
- Management science
- Marketing management
- Tax accounting*
- Travel and tourism management**

COLLEGES, SCHOOLS AND DIVISIONS

Degrees Offered

The Robert O. Anderson School of Management offers the degree of Bachelor of Business Administration. The Robert O. Anderson Graduate School of Management offers two degrees: The Master of Business Administration and the Master of Management; a Ph.D. in Business and Administrative Science is offered cooperatively through the UNM Graduate Studies Program.

Bachelor of Business Administration

The B.B.A. degree requires satisfactory completion of a four-year (129 hour) course of studies which features an upper division (junior and senior year) professional curriculum. Specific admission and graduation requirements are discussed in later sections.

Before admission to the upper division professional curriculum, the student takes course work in a number of foundation subject areas outside the field of management while enrolled in the University College or some other college.

The course work in the upper division consists of two groups. The first group is required of all students in the Anderson School and comprises the core of the subject matter in management. The second group consists of concentration and elective courses of the student's own choosing.

The program provides the opportunity for concentrations in accounting, business computer systems, financial management, general management, human resources management, international management, management science, marketing management, and travel and tourism.

Master of Business Administration

The School offers two programs leading to the M.B.A. degree. One program is for persons who have earned a bachelor's degree. For information concerning this program, consult

*Career preparation in economics, environment and policy, health systems management, management information systems, and tax accounting is offered only at the graduate level.

**Not currently offered.

the **Bulletin of the Robert O. Anderson Graduate School of Management**. Applications should be made to the Anderson Graduate School of Management M.B.A. Program Office.

A second program leading to the M.B.A. degree is offered by the Anderson School jointly with cooperating departments in the University. It is a special "three-two" program which permits a student to complete a bachelor's degree in a field outside of business and an M.B.A. degree in five years. The curriculum 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 at the Anderson Graduate School. This program is described in a later section as the "Three-Two" Program.

Master of Management

The M.Mgt. degree is awarded to candidates who successfully complete the Management Master's Program. This two-year program is restricted to managers from public and private organizations who have gained at least three years of managerial experience and who retain full job responsibilities while enrolled. Additional information is available in the **Master of Management Program Brochure** and from the office of the Director of the Management Development Center.

Scholastic Regulations

The student should become familiar with the general academic regulations 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. Management courses taken out of sequence cannot be used to fulfill the degree requirements of the School regardless of the grades earned in such courses.

Coursework in the following areas cannot be taken on a credit/no credit basis either at UNM or another institution: specific requirements, management core, concentration including concentration electives, upper division humanities, upper division social and behavioral sciences.

Bachelor of Business Administration Degree Program

Students who have completed two years of general education and have satisfied specific requirements for entrance may be admitted to the upper division B.B.A. program at the Anderson School. Wide-ranging early studies give the student breadth and necessary perspective on the world in which he or she 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 field of management and comprises 40 percent or more of the entire four-year program, the second division is a group of professional management courses required of all students in the School, and the third division comprises a group of courses in a concentration area of the student's own choosing.

Admission

The admission requirements stated below are minimum requirements. Since the number of applications 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 given to the courses listed under "Specific Requirements."

First preference for enrollment in all of the upper division management courses will be given to students who have been admitted to the Anderson School. Other students will be accepted on a space-available basis, provided they satisfy prerequisites.

Admission from the University College

The minimum requirements for transfer from the University College to the Anderson School are:

1. Sixty-two hours of earned credit.
2. A minimum scholarship index of 2.0 (UNM cumulative).
3. A minimum grade of C in each course listed in the Specific Requirements. *NOTE: Because of space limitations, fulfillment of minimum grade point requirements does not guarantee admission into the Anderson School of Management. For several years a 2.4 grade-point average in Specific Requirements has been required. Students who have accumulated 66 earned credit hours and are below the current minimum grade-point average are invited to make an appointment with the Undergraduate Advisement Center at the Anderson School to discuss eligibility for an alternative admission criterion.*
4. Satisfactory competence in written communications as evidenced by completing UNM's English 102 after Fall 1980 with a grade of C or better or achieving a score of 25 or higher on the English portion of the ACT or a score of 552 or higher on the verbal SAT. Transfer students who have completed one year of college-level English composition coursework may take the Communications Skills Test. Effective written communications are essential for satisfactory performance in the upper division courses of the Anderson School. Therefore, students who have difficulties in these areas are advised to take appropriate courses in English as part of their first two years' work.
5. Completion of the following course requirements:
 - a. General education electives:
 - (1) Humanities: English (excluding English 101 and 102); Speech Communications 130L or 132; modern languages; philosophy; fine arts 9 hours
 - (2) Social sciences (anthropology, geography, history, political science) 9 hours
 - (3) Laboratory science (biology, chemistry, geology, physics) 4 hours
 - b. Specific requirements: These courses are prerequisites for all 300- and 400-level courses. These prerequisites cannot be taken on a credit/no credit basis.
 - (1) English 102* or the equivalent 3 hours
 - (2) Math 121* and 180 (or the equivalent) 6 hours
 - (3) Econ 200, 201 6 hours
 - (4) Behavioral Sciences—either Psych 102 and a 200-level or higher psychology course or Soc 101 and a 200-level or higher sociology course 6 hours
 - (5) Statistics—MGT 290 and 291 4 hours
 - (6) Computer Science—CS 150 (or the equivalent) 3 hours
 - (7) Introduction to Accounting—MGT 202** 3 hours
 - c. Electives (excluding physical education activity courses, management courses for non-majors, Math 120 and University Skills courses) 9 hours

62 hours

Suggested First Two Years of B.B.A. Program**FIRST YEAR****First Semester**

Math 121 College Algebra	3
Laboratory science	4
Humanities elective	3
Social science elective	3
Elective	3
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	16

Second Semester

Math 180 Elements of Calculus	3
Econ 200 Principles & Problems	3
Soc 101 or Psych 102	3
English 102	3
Humanities elective	3
	<hr/>
	15

SECOND YEAR**First Semester**

CS 150 Computing Bus Stu	3
Econ 201 Principles	3
Soc or Psych (200-level or above)	3
Humanities elective	3
Elective	3
	<hr/>
	15

Second Semester

MGT 290 Statistical Methodology	3
MGT 291 Business Stat Lab	1
MGT 202 Intro to Acct	3
Social science elective	6
Elective	3
	<hr/>
	16

Junior and Senior Years

Suggested programs for the junior and senior years for each concentration are available from the undergraduate Advisement Center at the Anderson School.

Application for Admission

Application for admission to the Anderson School 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. Such students should notify the School of their intent to transfer and request that the Records Office send a transcript of their college work **not later than the eighth week** of the semester in which they will complete the requirements for admission.

Transfer from Other Accredited Institutions

Undergraduate programs in management or business administration in universities normally concentrate the professional courses in the last two years of a four-year program. Only a limited amount of work in business courses is offered prior to the junior year. The objective of this policy is to permit the student to acquire a foundation of work in the basic arts and sciences as a prerequisite for professional courses in management.

All programs accredited by the American Assembly of Collegiate Schools of Business require the students to take a substantial portion of the four years' work in the arts and sciences, including work in mathematics, social sciences, humanities, and the natural sciences. Students desiring a four-year degree are advised to take a majority of their work

during the first two years in the arts and sciences, including courses that will give them a strong background in mathematics.

Students planning to complete their first two years of study at a junior college or at a four-year college other than UNM should take only those courses that are offered as freshman- or sophomore-level courses at the University of New Mexico.

Transferring students must meet normal requirements for admission to this University as well as admission requirements of the Anderson School. Students desiring transfer credit for upper-division courses must obtain approval of the School's faculty.

General policies for obtaining transfer credit are as follows: Students transferring from accredited four-year institutions granting baccalaureate degrees will follow the existing UNM policy for admission and granting transfer credit. Students desiring to transfer credit for any upper-division Anderson School course must receive prior approval from a faculty member possessing expertise in the area. Forms for such approval are available at the undergraduate Advisement Center at the Anderson School.

Generally, students transferring from accredited junior, community or branch colleges should note that no transfer credit will be given for courses which are offered at the upper-division level at UNM. Lower-division credit will be determined in the following manner. First, courses acceptable for transfer must be contained in the Statement of Advanced Standing provided by the Registrar. Second, students being admitted to the Anderson School must meet the same entrance requirements specified for UNM students seeking admission, and, in addition, must maintain at least a 2.0 GPA on the first 12 hours of Anderson School and economics courses undertaken. Failing to do so will cause the student to be placed on probation, during which he/she must earn a GPA sufficiently high to raise his/her GPA in management and economics courses to a minimum of a 2.0 upon completing 24 hours of such coursework.

A student on probation who does not show such improvement in his/her management and economics GPA is subject to dismissal by the Anderson School.

Students transferring from a recognized junior or community college not fully accredited should note that the same policy as indicated above for transfers from accredited junior or community college applies to them, except that they will automatically be placed on probation upon entry and must maintain a 2.0 GPA on the first 12 hours of management and economics coursework undertaken. Failing to do so will make the student subject to dismissal by the Anderson School.

The Anderson School will not accept credit from educational programs of non-collegiate organizations.

Each area will determine how many hours must be taken in residence at UNM in concentration area courses in order to obtain a concentration in the area. All other current admission and transfer credit policies now being used by the Anderson School will continue to apply except as modified in this catalog.

*Students who are exempt from English 102 or Math 121 by virtue of ACT or SAT scores should add elective hours to equal the 62 required for admission. (English 219 or 315 are recommended.)

**It is recommended that Mgt 202 be taken in the second semester of the sophomore year. Students desiring an accounting concentration must earn at least a C in Mgt 202 and may schedule this course for the first semester of the sophomore year if they have taken all prerequisites. Those aspiring toward an accounting concentration should consult with a member of the accounting faculty during their first semester at the University. Mgt 340 may be taken by those concentrating in accounting in the second semester of the sophomore year.

Advisement

Students desiring to enter the Anderson School should obtain advisement from the undergraduate Advisement Center at the Anderson School.

Graduation Requirements

To graduate with the degree of Bachelor of Business Administration, the student must meet the following requirements:

1. Completion of all preadmission requirements.
2. Completion of a minimum of 129 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 53 hours in management courses and economics (including management 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 25 hours in economics and management courses while enrolled at the Anderson School.
5. Course requirements:

a. Preadmission Requirements	62 hours
b. Anderson School Core Courses:	
MGT 300 Operations Research/Management Science	3 hours
MGT 301 Computer-Based Information Systems	3 hours
MGT 303 Accounting for Management Control	3 hours
MGT 306 Organizational Behavior I	3 hours
MGT 307 Organizational Behavior II	3 hours
MGT 308 Organizational Environment	3 hours
MGT 309 Man, Society and Law or	
MGT 310 Law of Contracts	3 hours
NOTE: Students concentrating in accounting, marketing management, and/or international management, and/or travel and tourism management must take MGT 310.)	
MGT 322 Marketing Management	3 hours
MGT 326 Financial Management	3 hours
MGT 398 Management Career Planning	1 hour
MGT 498 Senior Seminar	3 hours
Econ 300 Micro-Economic theory	3 hours
Econ 315 Money and Banking	3 hours
Total Anderson School Core	37 hours##
c. Upper division humanities	3 hours**
Upper division social sciences or behavioral sciences	3 hours**
Concentration and other electives.	
At least 12 hours must be in management courses.	24 hours
Total Degree Requirements	129 hours

Coursework in the following areas cannot be taken on a credit/no credit basis: specific requirements, management core, concentration including concentration electives, upper division humanities, upper division social/behavioral sciences.

General Honors Program. Students who accept an invitation to join the University of New Mexico General Honors program may apply their various seminars to satisfy appropriate general education requirements or electives, when approved in advance by the Director of Undergraduate Student Affairs at the Anderson School.

ACT and CLEP Credit. The Anderson School of Management will accept 12 hours of ACT or general CLEP credit toward humanities, social sciences, and free electives. A maximum of 12 hours of subject CLEP credit will be accepted in the courses listed under "CLEP Subject Examination" on p. 21.

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. It is possible, however, 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 5D). It is important that such students make sure that they are taking the courses required for the degree in the proper sequence.

Application for Degree

During the first semester of the senior year, students must file an application for the B.B.A. degree with the undergraduate Advisement Center at the Anderson School of Management. 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 should declare a concentration not later than the first semester of their senior year. The specific concentrations are those listed below:

Accounting

Advisers: Mr. Caplan, Mr. Christman, Ms. Elliott, Mr. Koogler, Mr. Milne, Mr. Phillips, Mr. Yeakel.

In addition to the core courses required of all B.B.A. candidates (which for accounting majors must include MGT 310), the accounting concentration consists of these courses:

MGT 340, 341, 342, 346, 440, 443, 449. 21 hours

MGT 343, 348, 444, and 445 are strongly recommended as electives. Transfer students selecting the Accounting concentration must complete a minimum of 12 hours of upper-division accounting courses, including 341, while in residence at the Anderson School. Students interested in careers in professional accounting are urged to consider additional study leading to the M.B.A. degree.

Business Computer Systems

Advisers: Mr. Bullers, Mr. Kasscieh, Mr. Livano.

The course requirements are:

- a. MGT 435 and 460; CS 237 and 337.
- b. Three courses (9 hours) in management science, computer science, mathematics, or related subject areas approved by the advisers. 21 hours

Students should seek an adviser to assist in planning their program as early as possible, preferably in the first semester after completion of all pre-admission coursework.

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

**Accounting concentrations may substitute accounting electives for these two requirements. It is highly recommended that students concentrating in marketing management or international management, or travel and tourism management meet these two requirements by selecting electives from the interdisciplinary listing of courses under each of these respective concentrations.

Financial Management

Advisers: Mr. Jordan, Mr. Pantone.

In addition to MGT 326, required courses are:

- MGT 470, 471, and 472.
- Three of the following: MGT 340, 341, 342, 343, 440, 449, 473, 474, 495, 496; Econ 303, 350, 415, 424, 500 18 hours

General Management

Advisers: Mr. Parkman, Mr. Porter, Mr. Radosevich, Mr. Ryberg, Mr. Slate, Mr. Smith.

Required courses are:

- One management course beyond the core in each of four of the concentration areas (and small business management). 12 hours

Human Resource Management

Advisers: Mr. Champoux, Mr. Finston, Mr. Jehenson, Mr. Rehder.

In addition to MGT 306 and 307, the required courses are: MGT 463, 464, 465, and 466. 12 hours

International Management

Advisers: Mr. Lenberg, Mr. Robles, Mr. Winter.

Students interested in professional careers in international management are urged to prepare to enter the M.B.A. program to pursue a graduate degree or other related combined graduate degree options offered by the Anderson School with other departments of the University (such as the dual M.B.A./M.A. in Latin American Studies degrees emphasizing International Management.) Course requirements for the B.B.A. concentration are:

- MGT 328, 480 and 483, plus MGT 474 or one of the following: MGT 585, 586, 587, 588*. (MGT 310 is required as fulfillment of the B.B.A. core requirements for International Management.)
- Minimum of 6 credit hours in one of the following options:

Latin American Emphasis Option

Econ 420, 421, 423, Geog 301, 302, Anth 314, Hist 282, 383, 384, 481, 483, Pol Sc 345, 355 or 356, 345, 455, Soc 350, 450, Spanish 201 or 211 or Portuguese 275; or other related courses with adviser's prior approval.

European Emphasis Option

Econ 424, 450, 455, Geog 332, Hist 303, 310, 345, 349, 438, 443, Pol Sc 221, 357, French 201 or 276 or German 201 or Russian 201; or other related courses with adviser's prior approval.

- It is highly recommended that the student's 6 credit hours of electives in upper-division humanities and social sciences and/or behavioral sciences also be selected from (b) above. 18 hours

Management Science

Advisers: Mr. Anderson, Mr. Lievano, Mr. Peters, Mr. Reid, Mr. Schultz.

Required courses are:

- MGT 436 and 439, Math 347, CS 452 (AOA MGT 532)
- Three courses (9 hours) in additional mathematics, computer science, or Anderson School of Management courses as approved by adviser.

Marketing Management

Advisers: Mr. Baker, Mr. Hozier, Mr. Lenberg, Mr. Robles, Mr. Rogers, Mr. Shama.

The course requirements are:

- At least five courses from: MGT 328, 480, 482, 483, 484, 486, and 487. (Seniors with 3.0 or higher GPA may also take 3 credit hours selected from MGT 581, 582, 585, 587* in place of 3 credit hours under (b) below. MGT 310 must have been taken as part of the core requirements.)
- It is recommended that at least 3 credit hours be earned from among the list of approved electives available from the Marketing Area.
- It is also highly recommended that the student's 6 credit hours of electives in upper-division humanities and upper-division social sciences and/or behavioral sciences (as well as other electives) also be selected from the courses listed under (b) above.

15 hours (minimum)

Qualified students interested in careers in marketing management are urged to consider entering the M.B.A. program for additional study.

Travel and Tourism Management

Adviser: Mr. Lenberg

The course requirements are:

- Mgt 411, 412 and 413; plus Mgt 480, 482, 490 (400-hour internship). (Mgt 310 is required in fulfillment of the B.B.A. core requirements for Travel and Tourism Management.)
- Nine credit hours of Management electives chosen from: Mgt 328, 483, 484, 487, 495.
- Nine credit hours chosen from: Recrea 386 (required as pre- or corequisite to Mgt 411), 454, 477, 480, 485; Journ 251, 252, 261, 277, 322, 332, 361, 401, 402, Sp Com 232, 240, 444, 449, 464, 468; Home Ec (options on space available basis) 120L, 125, 222L, 427L, 434. (See note below.)
- Plus 6 additional credit hours of upper division electives selected from (1) preferably "c" above or (2) alternatively other courses in the Humanities or Social and/or Behavioral Sciences. (See note below.)

NOTE: Including Recrea 386, at least 12 credit hours of courses from "c" and "d" above should normally be completed before admission to the B.B.A. program.

Students who complete the Travel and Tourism Management concentration will also simultaneously qualify for a dual concentration in Marketing Management.

Qualified graduates of this concentration are encouraged to obtain the M.B.A. in the Anderson Graduate School of Management (approximately 36 credit hours) with concentration in International Management (including special 5-8 month foreign internship in Travel and Tourism Management). Alternatively, qualified students may pursue the Dual Degree Program: M.B.A./M.A. in Latin American Studies.

MINOR STUDY

For those schools and colleges accepting a minor in business, the recommended courses are a minimum total of 18 credit hours selected from MGT 101, 102, 113, 222, 270, 271, 284, 358 or 359, and Econ 201.

* Students wishing to take a 500-level course must petition the Anderson Graduate School for undergraduate credit. They must have a 3.0 overall GPA and be within 10 hours of graduation.

Not currently offered.

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 three years of 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, the student applies for admission to the M.B.A. program of the Anderson Graduate School. The student is expected to meet the following requirements by the end of the fourth year:
 - a. Complete the bachelor's degree requirements with an overall grade-point average of 3.0.
 - b. Maintain a B average in management courses.
 - c. Take the Graduate Management Admission Test (GMAT) prior to admission.
 - d. Be accepted for admission to the Robert O. Anderson Graduate School of Management.
3. In the 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 the undergraduate field. Each student should consult with the M.B.A. Program Office for a transcript evaluation. Co-operating departments throughout the University will accept the courses in management taken during this year as constituting a minor for the purposes of the bachelor's degree. Normally 18 hours of graduate management courses will constitute a minor. However, each student should verify this with the cooperating department.
4. Prior to being awarded the bachelor's degree the student applies for admission to the Robert O. Anderson Graduate School of Management.
5. In the fifth year of study, the student completes 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 33 hours credit beyond the bachelor's degree, 32 hours of which must be completed while the student is enrolled in the University of New Mexico Graduate Program. At the beginning of each semester in which the student is enrolled as an undergraduate in the M.B.A. courses, he or she must apply for graduate credit. Contact the M.B.A. Program Office for information.

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 studies. Application should be made to the M.B.A. Program Office of the Anderson Graduate School 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 or she has been officially admitted for study except when approved by the M.B.A. Program Office. Such approval will be given only in special cases.*

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 toward the bachelor's degree. No fewer than 30 of these hours must have been taken at the University of New Mexico.

2. 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 Graduate Management Admission Test must be submitted to the School. This examination is administered four times annually 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).

BREADTH REQUIREMENTS

It is the objective of the Robert O. Anderson Graduate School of Management to offer graduate, professional education within an intellectual framework provided by a broad liberal arts preprofessional program. As a general guideline, minimum breadth requirements for entry into the fourth year of the program are:

Humanities

English, including literature; modern languages, philosophy, speech communication 15 hours

Social Sciences

- a. Geography, history, political science
- b. Behavioral sciences: psychology or sociology, anthropology
- c. Economics** 24 hours

Laboratory Sciences

Biology, chemistry, geology, physics 8 hours

Mathematics

It is recommended that Math 180 and 181 or 162 and 163 be taken 6-8 hours

It is recommended that students fulfill the breadth requirements listed prior to being admitted to the first year of the M.B.A. program. Many alternative combinations of course work in the arts and sciences or in other colleges of the University can provide acceptable preparation for study in the Anderson School. For this reason, few specific course requirements have been established as prerequisites for admission. Each application will be considered individually with

†Students who have earned a bachelor's degree prior to entering the M.B.A. program should refer to the *Bulletin of The Robert O. Anderson Graduate School of Management* for details concerning admission, curriculum, and degree requirements. Copies of this bulletin may be obtained from the M.B.A. Program office, Robert O. Anderson Graduate School of Management, The University of New Mexico, Albuquerque, New Mexico, 87131.

‡Information regarding specific courses of study is available from the M.B.A. Program office.

**It is recommended that Econ 201, 300, and 303 or 315 be taken.

respect to the breadth requirement. In instances in which a student's prior academic record appears lacking in breadth, the student will be advised as to the additional course requirements necessary to correct the deficiencies. Such additional work will, in most cases, extend the time required to complete the "Three-Two" Program by at least one semester. A student who has not taken Math 180 and 181 or 162 and 163 and Econ 201, 300, and 303 or 315 may still be admitted. He or she will, however, be required to take one or two additional courses offered by the School during the fourth year. These additional courses may increase the length of the 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 Anderson Graduate School of Management at the earliest possible date in their academic career. Certain graduate courses can be waived on the basis of undergraduate work with a B or above and the permission of the course instructor. Cooperative planning by the student, the adviser in the major field, and an adviser from the Anderson School should permit 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.

M.B.A. Program

First-Year Core Courses

(taken during the fourth year of the "Three-Two" Program)

MGT 500 Quantitative Analysis I	2
MGT 501 Statistical Analysis for Management Decisions	3
MGT 502 Accounting and Management Information Systems I	3
MGT 504 Organizational Economics I	3
MGT 506 Organizational Behavior I	3
MGT 507 Organizational Behavior II	3
MGT 509 Organizational Environment II-Law	2
MGT 510 Introduction to Information Processing	2
MGT 520 Operations Research and Production Management	3
MGT 522 Marketing Management	3
MGT 526 Financial Management	3

30

Second-Year Core Courses (taken during the fifth year of the "Three-Two" Program)

MGT 398 Management Career Planning	0
MGT 503 Accounting and Management Information Systems II	3
MGT 505 Organizational Economics II	3
MGT 508 Organizational Environment I	3
MGT 528 International Management	3
MGT 598 Seminar in General Management	3
Electives*	15

30

NOTE: Reasonable adjustments in the above sequencing of courses can be made in order to provide for individual concentration needs.

The fifth-year course of studies is the normal second year of the M.B.A. curriculum. A moderate capability for specialization in the areas of accounting; economics; environment, and policy; financial management; general management; health systems management; human resources management; international management; management information systems; management science; marketing management; and tax accounting is provided. See the Bulletin of the Robert O. Anderson Graduate School of Management 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. portion of the "Three-Two" Program may be obtained from the M.B.A. Program Office at the Anderson Graduate School.

COURSES OF INSTRUCTION

PROFESSORS:

Edwin H. Caplan, Ph.D., University of California, C.P.A.
Joseph E. Champoux, Ph.D., University of California, (Irvine)
Howard V. Finston, Ph.D., Stanford University
William H. Huber, J.D., Ohio State University
Jerry L. Jordan, Ph.D., University of California, (Los Angeles)
Robert A. Lenberg, Ph.D., University of Minnesota
Don B. Panton, Ph.D., University of Arizona
William S. Peters, Ph.D., University of Pennsylvania
G. Edward Philips, Ph.D., Michigan State University, C.P.A.
Raymond Radosevich, Ph.D., Carnegie-Mellon University
Robert R. Rehder, Ph.D., Stanford University
Avraham Shama, Ph.D., Northwestern University
Daniel M. Slate, Ph.D., University of Washington
Morgan Sparks, Ph.D., University of Illinois
Lothar G. Winter, Ph.D., University of Freiburg, Germany

ASSOCIATE PROFESSORS:

Michael Q. Anderson, D.B.A., Indiana University
Karl Christman, M.B.A., Indiana University, C.P.A.
Patrica Elliott, D.B.A., University of Colorado, C.P.A.
Roger H. Jehenson, Ph.D., Yale University
Rodrigo J. Llevano, Ph.D., University of Houston
Allen M. Parkman, Ph.D., University of California, J.D., University of New Mexico
James L. Porter, J.D., Temple University School of Law
Richard A. Reid, Ph.D., Ohio State University
Howard L. Smith, Ph.D., University of Washington
John A. Yeakei, Ph.D., University of Florida, C.P.A.

ASSISTANT PROFESSORS:

Kenneth G. Baker, Ph.D., University of Oregon
William I. Bullers, Ph.D., Purdue University
George C. Hozier, Jr., Ph.D., University of Arizona
Suleiman K. Kassicieh, Ph.D., University of Iowa
Paul R. Koogler, Ph.D., University of Arizona, C.P.A.
Ronald A. Milne, Ph.D., University of Illinois
Fernando Robles, Ph.D., Pennsylvania State University
Robert D. Rogers, Ph.D., University of Nebraska
Richard Ryberg, Ph.D., Syracuse University
Carl L. Schultz, Ph.D., University of North Carolina

MANAGEMENT (MGT)

Prerequisite for all 100 and 200 level courses: Open only to students enrolled in University College or a baccalaureate program.

101. Fundamentals of Accounting I. (3)

The development of the accounting cycle, special journals and financial statements. (Credit not applicable toward B.B.A. degree.)

102. Fundamentals of Accounting II. (3)

Continuation of 101, including corporation and manufacturing accounting and decision making. (Credit not applicable toward B.B.A. degree.)

Prerequisite: 101.

105. Business Co-op Work Phase. (0)

113. Management: An Introduction. (3)

Modern concepts of organizations and their management. An overview of functional activities within business and other organizations. {Fall, Spring}

*Three hours must be taken in one of the basic areas included in the first-year core. Otherwise, courses may be taken in management or in other subject areas appropriate to the candidate's career objectives.

201. Secretarial Accounting. (3)

Beginning course in accounting open only to two-year Secretarial Certificate, A.A. in Secretarial Studies and Office Supervision, and business education students. (Credit not applicable to B.B.A. degree. Obtain enrollment approval from the instructor.) {Fall, Spring}

202. Principles of Financial 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 applications 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}

211. Organizational Structure and Behavior of Correctional Institutions. (3)

Deals with selected aspects of organizational structure and heavily emphasizes behavior of managers and non-managers within correctional institutions. Cases will be used throughout the courses. (Not applicable for credit toward BBA degree.)

222. Contemporary Marketing. (3)

An introduction to marketing designed to give students an understanding of the roles of marketing in our society and in private and not-for-profit organizations. Also provides perspectives on improving various marketing activities (e.g., retail selling, advertising, industrial selling, transportation and warehousing, etc.). Occasionally offered in Spanish. (Not applicable for credit toward B.B.A. degree.) {Fall, Spring}

270. Introduction to Real Estate. (3)

Shows how financing, the tax system and supply and demand factors influence real estate values. Specific topics include real estate property rights and law, property evaluation and appraisals, land-use planning, interest rate determination, real estate financial mathematics, sources of equity and debt financing, risk analysis, and managing the real estate portfolio. Case studies are used. (Not applicable for credit toward B.B.A. degree.)

271. Introduction to Insurance. (3)

Protection and savings features of insurance contracts covering personal risks including life, health, and disability. Contract analysis, legal aspects, pricing, under-writing and marketing methods. Insurance coverages available for protection of property, casualty, and liability insurance contracts from the viewpoint of the insured, insurers and creditors. Not applicable for credit toward B.B.A. degree.

284. Selling: Retail and Industrial. (3)

Considers professional aspects of selling in retail and industrial markets and the role of selling in our economy. Emphasizes methods and techniques of selling leading to mutually profitable relations between buyers and sellers. (Not applicable for credit toward B.B.A. degree.) {Fall, Spring}

290. Statistical Methodology. (3)

(Also offered as Math 245.) Sample spaces, random variables, probability densities expectation, variance, correlation, estimation, confidence intervals, hypothesis testing power. Specific applications will include T-test, one way analysis of variance, simple linear regression and correlations; applications to business will be emphasized.

Prerequisite: Math 180 or equivalent. {Summer, Fall, Spring}

291. Business Statistics Laboratory. (1)

Application of probability and statistics to administrative problems and processes.

Corequisite: Math 245. {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 non-management majors and may not be used to fulfill the requirements for the B.B.A. degree.

300. Operations Research/Management Science. [Management Science I.] (3)

Survey of various mathematical models in operations research designed to assist in managerial decision-making. Topics to be selected from the following: linear programming, transportation models, project scheduling, inventory theory, decision theory, basic time series forecasting models, and simulation. Other topics covered as time permits: probabilistic models, queueing models. Computer programming is required.

Prerequisites: "specific requirements," see above. {Fall, Spring}

301. Computer-Based Information Systems. (3)

Introduction to computer-based management information systems, intended to provide a foundation for the intelligent use of computers as management tools. Computer hardware and software fundamentals, computer systems analysis, design, and implementation.

Prerequisite: "specific requirements". {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, planned capital expenditures.

Prerequisites: "specific requirements", see above. {Fall, Spring}

306. Organizational Behavior I-Applications. (3)

Emphasis on application of behavioral science theory and concepts.

Prerequisites: "specific requirements", see above. {Fall, Spring}

307. Organizational Behavior II-Theory and Concepts. (3)

Intensive examination of behavioral science research and theory as a basis for understanding, managing and changing organizations. Emphasis is upon a comparative organizational approach which applies to every organization, public or private, as a socio-technical system.

Prerequisites: 306 and "specific requirements", see above. {Fall, Spring}

308. Organizational Environment. (3)

The influence 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 the nature, functions, and ends of law. Philosophical schools of thought concerning the nature of man, organizations, and government from Aristotle to the present. Emphasis on law as external constraint on decision-making by individuals and organizations.

Prerequisites: "specific requirements", see above. {Fall, Spring}

310. Law of Contracts. (3)

A conceptual approach to transactions between people and organizations. Development of an understanding of the ele-

ments of agreements, the types of agreements which are legally enforceable, and the legal remedies available to the parties thereto.

Prerequisites: "specific requirements", see above. {Fall, Spring}

322. Marketing Management. (3)

The marketing system within the framework of private, not-for-profit, and public organizations. Emphasis on the increasingly important role of interdisciplinary tools and the marketing environment. Process of problem-solving and decision-making as well as developing marketing strategy in domestic and international market situations. Occasionally offered in Spanish.

Prerequisites: Econ 200 and 201. {Summer, Fall, Spring}

326. Financial Management. (3)

Principles and practices of funds management in private and public organizations. Sources and uses of short- and long-term funds, determination of capital requirements, obtaining capital, financial forecasting, lease or buy decisions, application of capital and cash budgeting techniques, choices involving risk.

Prerequisite: 300; Corequisites: 303 or 340, Econ 300, 315. {Fall, Spring}

***328. International Management. (3)**

Provides an understanding of international operations and of international institutions in the private, not-for-profit, and public sectors and of their managerial and environmental problems. Analyzes the structure, functions, and decision-making of international organizations.

Prerequisites: Econ 200 and 201. {Fall, Spring}

329. Data Management. (3)

The management of data resources to support information systems in organizations. Logical data base structures, applications, and physical implementation of information systems using data base management systems.

Prerequisites: 301, and CS 237.

340. Financial Accounting I. (3)

Financial reporting theory, applied financial accounting problems, contemporary financial accounting issues. The accounting cycle, asset valuation, income determination; issues resulting from the corporate form of organization; current assets.

Prerequisite: 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 analysis 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 I. (3)**

Technical tax course primarily for accounting majors. Covers the Federal Income taxation of individuals, including capital gains and losses, accounting methods, income, deductions, Social Security, installment sales and alternative tax methods.

Prerequisite: 340 or permission of instructor.

***343. Income Tax Accounting II. (3)**

Continuation of 342. Covers corporation, partnerships, estate and gift taxes, fiduciaries, tax planning and tax shelters.

Prerequisite: 342.

***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 infor-

mation; 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 practice. Specific topics: contracts, agency, sales, and legal liability of accountants.

Prerequisites: 340 and 310. {Fall}

358. Man, Society, and Law. (3)

Examination of the nature, functions, and ends of law. Philosophical schools of thought concerning the nature of man, organizations, and government from Aristotle to the present. Emphasis on law as an external constraint on decision-making by individuals and organizations. For non-business students. (Not applicable for credit toward B.B.A. degree.) {Fall}

359. Law of Contracts. (3)

A conceptual approach to transactions between people 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. For non-business students. (Not applicable for credit toward 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. For non-business students. (Not applicable for credit toward a B.B.A. degree.) {Fall, Spring}

398. Management Career Planning. (1 credit hour for undergraduate students; 0 credit hours for graduate students)

Career planning and practical preparation for entrance into the job market. Emphasis on investigating career alternatives, self-evaluation, resumes, interviewing, and current job prospects. Available only to students enrolled in the Anderson School. Required for all undergraduate and graduate students. At the undergraduate level, only second-semester juniors or seniors are eligible to enroll. At the graduate level, students must be within two semesters of graduation to enroll. Graded on a CR/NC basis. {Fall, Spring}

***411. Travel and Tourism Management I. (3)**

Introductory coverage of particular management skills needed and special managerial problems in management of motels and hotels, restaurants, travel agencies, airline customer services, convention centers, tours, car rentals, vacation lodges and related recreation facilities.

Prerequisites: Econ 200, 201; MGT 202, 290, and 291. Pre- or corequisite: Recrea 386. MGT 113 is recommended. (Not currently offered.)

***412. Hotel and Restaurant Management. (3)**

Scope and importance, managerial organization, management functions and particular managerial problems of the hotel and restaurant industry. Special emphases on economic, legal and technological environments of the industry, and their impacts on management.

Prerequisite: MGT 411. (Not currently offered.)

***413. Travel and Tourism Management II. (3)**

Scope and importance, managerial organization, management functions and particular problems of travel and tourism industry (excluding hotel and restaurant sector). Special emphases on industry's economic, legal and technological environments, and their impacts on management.

Prerequisite: MGT 411. (Not currently offered.)

***435. Business Data Processing. (3)**

Emphasis is placed on the practical day-to-day information-processing activities of the firm to include structured business system design and documentation, structured COBOL

program writing, database data structures, and data access techniques.

Prerequisite or corequisite: 301, C S 237. {Fall, Spring}

***436. Production and Operations Management. (3)**

Mathematical models presented for various topics operations management. Topics selected from classical management science areas (as in Mgt 300) and management science applications.

Prerequisite: 300. {Fall}

***439. Operations Analysis and Decision Models. (3)**

A course in operations research techniques designed to examine in greater depth topics presented in 300, as well as to introduce the student to new topics and applications. Areas of study may include mathematical programming, probabilistic models, stochastic processes, inventory, queueing, and networks.

Prerequisite: 300 or equivalent, or permission of instructor. {Spring}

***440. Financial Accounting III. (3)**

Continuation of 340 and 341. Problems and theory related to advanced accounting topics, including: partnership operation and liquidation, consolidated financial statements, bankruptcy and corporate reorganization, government entities, not-for-profit entities, and estates and trusts.

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}

***444. Accounting for Not-for-Profit Organizations. (3)**

Theory and practice of accounting in not-for-profit organizations: municipalities, federal government, public schools, universities, and health organizations. Special topics considered will be fund accounting, zero-based budgeting, financial audits and operations auditing.

Prerequisite: permission of instructor. {Spring}

***445. Contemporary Accounting Topics. (3)**

An examination of selected theoretical issues related to current controversy in accounting.

Prerequisite: 440. {Fall}

***449. Accounting Information Systems. (3)**

An examination of the relationship between computer-based management information systems and accounting. Applications of M.I.S. techniques in the design and operation of accounting systems.

Prerequisite or corequisite: 346 or permission of instructor. {Fall, Spring}

451-452. Problems. (1-3, 1-3 hours each semester)††

Special permission of the adviser and of the Dean of the Anderson School of Management required. Arrangements must be made with individual instructor before enrolling for Problems. A maximum of 6 hours of Problems courses is acceptable for credit toward the B.B.A. degree. {Fall, Spring}

456. Managerial Economics. (3)

Gives the student an appreciation of application of economic theory to problems confronting managers. Specific areas of investigation include demand estimation and forecasting; cost estimation and forecasting; production estimation and forecasting; output and price determination and externalities and problems relating to public good.

Prerequisite: Econ 300.

458. Managerial Ethics. (3)

An issues- and problems-oriented course in applied management ethics. How to reason ethically about management problems and choices. Focus is on the crises of conscience

and the everyday conflicts of role and obligation that characterize our professional lives.

Prerequisite: 308.

459. Information Analysis. (3)

Information system analysis and logical system design in organizations. Topics include application development strategies, information system life cycle, requirements determination, analysis, and specification.

Prerequisite: 301.

***460. Information System Design. (3)**

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: 435. {Fall, Spring}

461. System Development Project. (3)

Integrative case or field study in the analysis, design, implementation and evaluation of an information system. Individual or team application development.

Prerequisite: 459.

463. Human Resources Management: Theory and Application. (3)

Application of behavioral science research to the problems of personnel management. Implications for manpower recruitment, selection and planning, performance appraisal, training and development, and wage and salary administration.

Prerequisites: 306 and 307, or permission of instructor.

***464. Labor Arbitration 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: 306 and 307. {Spring}

***465. Labor Law. (3)**

Case studies of common, statutory, and administrative law, with emphasis on modern labor legislation and related court and administrative agency decisions affecting labor-management relations.

Prerequisites: 306 and 307. {Fall}

***466. Advanced Concepts and Problems in Organizational Behavior. (3)**

Selected topics, problems, learning designs, and models in organizational behavior.

Prerequisites: 306 and 307. {Spring}

470. Financial Markets and Institutions. (3)

Analysis of markets for mortgage, state and local, corporate, and Federal debt; flow of funds and their influence on credit conditions, lending, investment, and liquidity policies. Behavior of term structure and risk structure of interest rates. Study of alternative regulatory and structural frameworks of the financial markets.

Prerequisite: 326. {Spring}

471. Investment Analysis and Management. (3)

Theory and techniques basic to control of investment risks and optimization of investment returns. Security market operations, portfolio theory, profitability analysis, planning and management of investment programs, timing of securities transactions.

Prerequisite: 326. {Fall}

472. Advanced Problems in Financial Management. (3)

Planning, directing, controlling, and financing current operations as well as long-term capital commitments. Internal versus external financing, programming techniques for managing working capital and debt structure. Development of a

policy-making framework for sound decision-making under conditions of uncertainty and risk.

Prerequisite: 326. {Spring}

473. Commercial Banking. (3)

Emphasizes coordinated asset and liability management of the individual bank. Frequent use will be made of cases to develop major aspects of bank management under changing monetary conditions and competitive forces. Primary emphasis is placed on the analysis of bank financial performance, obtaining funds, investment and loan policies, and capital requirements.

Prerequisite: 326.

***474. International Financial Management. (3)**

Covers application of concepts of managerial finance in the international setting. Reviews and develops as background the financing of international trade and balance of payments problems, including currency hedging in the money and foreign exchange markets. Touches on problems of corporate financial accounting and the effects of currency valuation on income and asset values. Cases are used to study financial decision problems of working capital management, capital budgeting, and providing of funds for international corporate operations with emphasis on Latin America. Surveys the financial institutions, instruments, and markets of international business.

Prerequisite: 326.

***480. Marketing Research. (3)**

Research methods and techniques as an aid to marketing management, and the application of these tools to the process of decision-making. Special emphasis on the role of the manager in the specification of research projects and programs.

Prerequisite: 322. {Fall, Spring}

***482. Consumer/Buyer Market Behavior. (3)**

Interdisciplinary analysis of buyer behavior through review of theories, explanatory and predictive models, empirical studies and consumer research methodologies. Study in behavior of consumers/buyers as decision makers. Emphasizes applications to marketing management strategy formulation.

Prerequisite: 322 or equivalent. {Fall, Spring}

***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. Some special emphasis on Latin America.

Prerequisite: 322. {Fall, Spring}

***484. Sales and Purchasing Management. (3)**

Focuses on major managerial decision areas in the management of both sales and procurement. Within various institutions emphasizes: (a) how customers buy and the systems required to satisfy their needs, and (b) management of field sales force.

Prerequisite: 322. {Fall, Spring}

***486. Retail and Distribution Management. (3)**

Retail store management within the marketing distribution system. Applies systems approach to decision-making in management of retailing, wholesaling, and related physical distribution. Primary emphases on major retailing management functions and ability to develop plans for inception and operation of retail business.

Prerequisite: 322. {Fall, Spring}

***487. Advertising and Promotion Management. (3)**

Analysis of personal and nonpersonal forms of market communications, including market, audience, and individual behavior in both wholesale and retail markets and institutions; relationships of advertising and promotion in Marketing Mix; determination of promotional appropriations, budgets, and

strategies, and media analysis and evaluations for various institutions (private, not-for-profit, and public).

Prerequisite: 322. {Fall, Spring}

490-491-492-493. Special Topics in Management. (3, 3, 3, 3)

Selected offerings of management 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 products of small firms.

Prerequisites: 301, 309, 310, 322, 326. {Fall, Spring}

***496. Seminar in Venture Capital for Small Business. (3)**

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. {Fall, Spring}

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. Enrollment normally limited to students in final semester of B.B.A. Program.

Prerequisites: all Mgt core courses or permission of the instructor. {Fall, Spring}

***500. Quantitative Analysis I. (2)**

{Fall, Spring}

***501. Statistical Analysis for Management Decisions. (3)**

Prerequisite: 500 or the equivalent. {Fall, Spring}

***502. Accounting and Management Information Systems I. (3)**

{Fall, Spring}

***503. Accounting and Management Information Systems II. (3)**

Prerequisites: 502 or the equivalent. {Fall, Spring}

***504. Organizational Economics I. (3)**

{Fall, Spring}

***505. Organizational Economics II. (3)**

Prerequisite: 504 or the equivalent. {Fall, Spring}

***506. Organizational Behavior I. (3)**

{Fall, Spring}

***507. Organizational Behavior II. (3)**

Prerequisite: 506. {Fall, Spring}

***508. Organizational Environment. (3)**

{Fall, Spring}

***509. Organizational Environment—Law. (2)**

{Fall, Spring}

***510. Introduction to Information Processing. (2)**

{Fall, Spring}

***520. Operations Research and Production Management. (3)**

Prerequisites: 501, 502, 504, 510. {Fall, Spring}

***522. Marketing Management. (3)**

Prerequisite: 504. {Summer, Fall, Spring}

***526. Financial Management. (3)**

Prerequisites: 500, 502, 504; corequisite: 503. {Fall, Spring}

***528. International Management. (3)**

Prerequisite: 504. {Summer, Fall, Spring}

- *530. Applied General Systems Theory. (3)**
Pre- or corequisite: 520 or permission of instructor. {Spring}
- *531. Multivariate Analysis for Administrative Science. (3)**
Prerequisite: 501. {Spring}
- *532. Simulation. (3)**
(Also offered as CS 452.)
Prerequisite or corequisite: 520. {Fall, Spring}
- *533. Quantitative Analysis for Systems Planning. (3)**
Prerequisite: 520 or permission of instructor. {Fall}
- *534. Introduction to Data Management. (3)**
Prerequisites: 501, 502, 504, 506, 509, 510. {Fall}
- *535. Information System Analysis and Design. (3)**
Prerequisites: 534. {Spring}
- *536. Quantitative Methods in Health Systems Management. (3)**
Prerequisites: 500, 501, 520, 591, or equivalent. {Fall}
- *537. Database Management Systems. (3)**
Prerequisite: 534. {Spring}
- *538. Management Information Systems Design Applications. (3)**
Prerequisites: 535 and 537. {Fall}
- *540. Financial Accounting. (3)**
Prerequisites: 502, 503. (503 may be taken concurrently.) {Fall}
- *541. Advanced Accounting Theory and Practice. (3)**
Prerequisite: 540. {Spring}
- *542. Seminar in Personal Tax Planning. (3)**
- *543. Seminar in Business Tax Planning. (3)**
- *545. Seminar in Accounting Theory and Its Development. (3)**
Prerequisite: 540 or the equivalent. {Fall}
- *546. Seminar in Controllorship. (3)**
Prerequisite: 346 or equivalent. {Spring}
- *547. Seminar in Advanced Tax Accounting. (3)**
Prerequisite: permission of instructor. {Spring}
- *548. Seminar in International Accounting. (3)**
Prerequisite: instructor's consent. {Fall in alternate years}
- *549. Seminar in Managerial Control. (3)**
Prerequisite: 503 or equivalent. {Fall}
- *551-552. Problems. (1-3, 1-3)††**
{Fall, Spring}
- *553. Industrial Organization Economics. (3)**
Prerequisite: 504. {Fall in alternate years}
- *554. Public Control of Business. (3)**
Prerequisite: 504. {Fall in alternate years}
- *555. Urban Economics and Social Welfare. (3)**
Prerequisite: 504. {Spring in alternate years}
- *557. Seminar in Organizational Economics. (3)**
Prerequisite: 504. {Spring in alternate years}
- *558. Man and His Environment. (3)**
Prerequisite: 508. {Fall}
- *559. Technological Entrepreneurship. (3)**
{Fall}
- *560. Seminar in Cross-Cultural Organizational Behavior. (3)**
Prerequisites: 500, 502, 504, 506, 509, 510. {Spring in alternate years}
- *561. Interpersonal Dynamics. (3)**
Prerequisites: 500, 502, 504, 506, 507, 509, 510. {Fall}
- *562. Organizational Design and Development. (3)**
Prerequisites: 500, 502, 504, 506, 507, 509, 510. {Fall}
- *563. Human Resources Management: Theory and Applications I. (3)**
Prerequisites: 500, 502, 504, 506, 507, 509, 510. {Spring in alternate years}
- *565. Seminar in Administrative Theory and Decision Making. (3)**
Prerequisites: 500, 502, 504, 506, 507, 509, 510, or permission of instructor. {Spring}
- *566. Human Relations Laboratory. (3)**
Prerequisites: 500, 502, 504, 506, 507, 509, 510. {Spring}
- *569. Seminar in Organizational Communication. (3)**
(See Sp Com 544.)
- *570. Analysis of the Financial System. (3)**
Prerequisite: 526. {Spring}
- *571. Security Analysis and Investment Management. (3)**
Prerequisite: 526. {Fall}
- *572. Financial Planning and Capital Budgeting. (3)**
Prerequisite: 526 {Spring}
- *573. Seminar in Management of Financial Institutions. (3)**
Prerequisite: 526. {Spring}
- *574. Seminar in International Financial Management. (3)**
Prerequisite: 526. {Spring in alternate years}
- *575. Seminar in Finance. (3)**
Prerequisite: 526. {Fall in alternate years}
- *576. Health Care Financing and Financial Management. (3)**
Prerequisites: 502, 504, 526, or equivalent. {Spring}
- *580. Research for Marketing Management. (3)**
Prerequisite: 522. {Spring}
- *581. Strategic Marketing Planning. (3)**
Prerequisite: 522. {Spring}
- *582. Industrial Marketing Management. (3)**
Prerequisite: 522. {Fall}
- *583. International Marketing Management. (3)**
Prerequisite: 522. {Fall}
- *584. Management of Sales and Procurement Systems. (3)**
Prerequisite: 522. {Spring}
- *585. Management in Latin America. (3)**
Corequisite: 528. {Offered upon demand}
- *586. Management of International Operations. (3)**
Prerequisite: 528. {Fall}
- *587. Management of World Markets. (3)**
Prerequisite: 528. {Fall}
- *588. International Management Seminar. (3)**
Prerequisite: 528. {Spring}
- *589. Research in International Management. (3)**
Prerequisites: 528, plus two courses chosen from among 583, 585, 586, 587, 588. Offered upon demand
- *590. Problems for Interns. (1-6)**
- *591. Introduction to Health and Health Care Organizations. (3)**
{Fall}
- *592. Environmental Factors in Health Systems Planning. (3)**
Prerequisite: 591 or equivalent. {Spring}
- *593. Field Study in Health Systems Management. (3)**
Prerequisite: last year of M.B.A. Program. {Spring}

*594-596-597. **Special Topics in Management.** (3, 3, 3)
Prerequisite: permission of instructor.

*595. **Seminar in Corporation and Society.** (3)
Prerequisites: 500, 502, 504, 506, 509, 510. {Offered upon demand}

*598. **Seminar in General Management.** (3)
Prerequisites: all other core courses. Enrollment normally limited to students in final semester of M.B.A. Program. {Fall, Spring}

*599. **Administrative Research and Problems I and II.** (1-6)

*651-652. **Doctoral Problems.** (1-3, 1-3 hours per semester)

*699. **Dissertation.** (3-12 hours per semester)

*700. **Computer-Based Information Systems.** (3)

*701. **Management Science.** (3)

*702. **Financial Accounting.** (3)

*703. **Management Accounting.** (3)

*704. **Organizational Economics I.** (3)

*705. **Organizational Economics II.** (3)

*706. **Organizational Behavior I.** (3)

*707. **Organizational Behavior II.** (3)

*708. **Organizational Environment.** (3)

*720. **Operations Management.** (3)

*722. **Marketing Management.** [Marketing and International Business.] (3)

*726. **Financial Management.** (3)

*728. **International Management.** (3)

*751. **Practicum.** (3)

*798. **Integrative Seminar.** (3)

SCHOOL OF ARCHITECTURE AND PLANNING

George Anselevicius, Dean
School of Architecture and Planning
Architecture 104, 277-3133

THERE IS growing concern with the influence of the built environment on the quality of life. Societal responses will be wide ranging in scope and continuously changing. People capable of meeting the challenges of the future will be needed.

The fields of architecture, planning, and environmental design offer a significant share of the knowledge and skills necessary to work in the complex relationships between people and the built environment.

Educational Objective

For *undergraduates*, the School offers either a preprofessional program or a way to become generally educated by focusing on the processes by which we design and build our environment. The *graduate* program offers an accredited professional degree in architecture and a professional degree in community and regional planning.

The curriculum of the School is designed to help provide students with the ability to learn to analyze and to synthesize. It provides methodologies and concepts which will enable them to address the complexities of social values, historical context, political, economic, psychological, cultural, and technological factors in order to positively affect the built environment.

Admission Procedures: Undergraduate

All incoming freshman students are required to enroll in University College. Upon completion of 26 credit hours, students may apply for transfer and acceptance into the School of Architecture and Planning. Applications are accepted from any college within the University (including University College), as well as transfers from any other accredited universities approved by the Office of Admissions & Records. Requirements for application are as follows:

1. Completion of a minimum of 26 credit hours at an accredited college. (University Skills hours are not included.)
2. A scholarship index of at least 2.5 on all credit hours.
3. Demonstration of competency in English by passing English 102.
4. A grade of B or better in the Arch 104 (Introduction to Design), or a demonstration of comparable ability prior to application. In addition, Arch 101, CRP 165 or CRP 181, English 102, Art St 121 or Art St 106, Physics 102, 151 or 160 must be completed prior to admission, Math 180 or 162 are required for admission, but may be taken concurrently with Arch 201 for students entering the Fall 83.
5. Submission of a letter of intent, indicating which of the two program emphases (architecture or environmental design) is of most interest, a description of current life goals, and how an architectural education might implement those goals.
6. Two letters of recommendation (at least one academic recommendation is preferred.)
7. Advisement copies of transcripts.

8. A portfolio (8 1/2" x 11") of all Arch 104 work and selected examples of other artwork.
9. Submission of all material by March 1 for fall semester admission and November 1 for spring semester admissions.

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.

For further information, please write: Admissions, School of Architecture and Planning, 2414 Central Ave. S.E., Albuquerque, New Mexico 87131. Telephone: 277-2903.

Graduation Requirements

Each student must satisfy all general University requirements.

1. Of the 128 hours required, 40 hours must be in courses numbered 300 or above; no more than 4 hours of physical education courses may be included.
2. A student whose grade point average falls below 2.5 in architecture and/or overall will automatically be placed on School probation; thereafter, the faculty reserves the right to disenroll that student from the School of Architecture and Planning. Students who plan to enter the Graduate Program for the professional study of architecture or planning must graduate with a 3.0 overall average in order to be considered for admission to graduate study.

The School offers two options under separate degree titles for undergraduates with different educational objectives.

Bachelor of Arts in Architecture. For the student who is primarily interested in architectural design, this emphasis allows concentration in the esthetic, social, programmatic, structural, management, or research aspects of building design and construction. Instruction often uses case studies of a variety of building types in projects which simulate the conditions met in architectural practice and research. Emphasis is placed on methods, process, and the development of a product, be it a building design or a research document. This is a "pre-professional" degree. It prepares the student for entry to the graduate (professional) level program at this School or any other similarly accredited school. Beginning in 1984 the National Council of Architectural Registration Boards will require an accredited first professional degree in architecture for national certification. At UNM this is the Master of Architecture.

Bachelor of Arts in Environmental Design. This degree can best be described as a generic one for those students who wish to concentrate their education in the realm of knowledge about the built environment, problem solving as a way of thinking, and the design process. Students may continue their study or work in such related fields as community and regional planning, offered at this school, or interior design, landscape architecture, construction, environmental analyses, and many others offered at other universities.

Upon graduation with either degree, a student should: 1) be able to work effectively on environmental design problems within the real-world constraints of our changing society; 2) be able to formulate concepts of better environments beyond present-day constraints, and understand how such needed changes may be brought about; and 3) have the widest possible array of career choices known and accessible.

The Master of Architecture. This is the first professional degree in architecture. It is granted upon completion of a 48-credit-hour graduate program which allows students to specialize in a specific area or generally to broaden their previous education, so that they can practice as professionals or pursue interests through research and postgraduate study.

We are now identifying specific areas of concentration such as urban design and planning, behavioral and social issues, energy conscious architecture, construction management, etc.

The Master of Community and Regional Planning. A professional two year degree program for training and education in the field of planning. The program emphasizes regional planning issues and reflects the multi-cultural and resource conscious nature of the Southwest. The course of study provides training opportunities in rural as well as urban settings. Dual degree opportunities are available with the Latin American Studies Program, the Division of Public Administration and the Graduate Architecture Program. Students are encouraged to engage in field work and professional internship experiences.

Curricula

The curriculum is designed to achieve two basic educational objectives. The first of these is to offer sufficient breadth of subject area to define the fields of architecture, planning and environmental design and to give students an awareness of the many facets involved through an introductory course. The core of courses required for graduation reflects the faculty's judgment as to the appropriate breadth of study in each degree program.

The second objective is to allow students armed with this awareness the opportunity to pursue selected areas of interest to greater degrees of depth, i.e., to cycle from introductory courses to advanced courses, seminars or independent study (problems).

New degree requirements are being developed to take effect August 1983. For information on these requirements inquire at the School of Architecture and Planning Office.

THE PROGRAM COMPONENTS

Design Studios. Open only to majors, the studio is the essential setting for the integration of all other relevant learning employed in the design process. Studios such as Arch 201, 202, 301, 302, etc., must be taken in sequence according to one's level of demonstrated ability, regardless of scholastic standing.

Lectures and Seminars. While seminars may change each semester according to demand and student-faculty interest, lecture courses are organized to offer a sequential complementary learning opportunity.

Problems. Listed as Arch 429. Individual instruction for 1-3 credits with a faculty member. Problems offer the opportunity for students to engage in independent study or to develop special skills. Faculty approval is required.

Design and Planning Assistance Center (DPAC). Listed as Arch 498. Through the Design and Planning Assistance Center, (DPAC), School provides architectural and planning services to individuals and groups in New Mexico who have inadequate financial resources to obtain services from practicing professionals. The program provides a clinical learning opportunity for students to work on real problems in communities under faculty supervision.

Center for Environmental Research and Development. Environmental issues of the Southwest are being studied by faculty members, often with the assistance of students. Conservation of energy, solar heating and cooling, water, planning, land use, environmental impact in semiarid climates, and behavioral impacts of the natural and built environment are among the typical subjects of a study.

Institute for Environmental Education. Knowledge of human growth and development needs are emphasized as they apply to the process of designing optimal environments for learning and living. The institute engages in research and graduate training of resource personnel to assist public schools and institutions in raising the levels of awareness, understanding, and knowledge of the interrelationships between design and behavior and between people and their physical environment.

Licensing for Architects in the State of New Mexico. Graduates of the architectural program with the Master of Architecture are required to have three years of approved architectural work experience to become eligible to take the design and site planning portion of the equivalency exam and the professional exam. In New Mexico, graduates with the Bachelor of Arts in Architecture are required to have four years of approved experience and to take the entire equivalency exam and the professional exam for certification. After 1984, certification by the National Council of Architectural Registration Boards will require a professional degree such as our M.Arch. NCARB certification is necessary for licensing in other states after original licensing in New Mexico.

Licensing for Planners. There are no licensing requirements for planners in the State of New Mexico. Planners can be certified through the American Institute for Certified Planners (AICP).

COURSES OF INSTRUCTION

PROFESSORS:

George Anselevich, Diploma of Arch., Leeds School of Arch., England
Robert C. Cohlmeier, B.S. Arch Engr., University of Illinois
Wolfgang F. E. Preiser, Ph.D., Pennsylvania State University
Don P. Schlegel, M. Arch., Massachusetts Institute of Technology
Anne P. Taylor, Ph.D., Arizona State University

ASSOCIATE PROFESSORS:

Richard A. Anderson, Ph.D., Michigan State University
Edith Cherry, M.Arch., Rice University
Paul E. Lusk, M.Arch., University of Pennsylvania
Richard S. Nordhaus, M. Arch., University of Pennsylvania
William J. Siembieda, M.C.R.P., University of California (Berkeley)
Robert C. Walters, B.F.A., University of New Mexico

ASSISTANT PROFESSORS:

Stephen Dent., M.Arch., Arizona State University
Theodore Jojola, Ph.D., University of Hawaii

LECTURERS:

David Kal, M.A., University of Illinois
Edward B. Norris, B.A., Howard University

Students are reminded that charges for classroom supplies and services for certain architecture courses must be paid during the first three weeks of each semester.

ARCHITECTURE

101. Introduction to Architecture. (3)

Architecture—the social, historical, perceptual, and technical determinants; current and likely future directions; the people and processes involved. {Fall, Spring}

104. Introduction to Design Skills. (3)

Laboratory, lectures, and exercises to learn basic two- and three-dimensional problem solving in perception, cognition, and the development of graphic skills for recording and visual communication. {Summer, Fall, Spring}

*201. Design I. (1 and 3)

Introduction to design concepts and methods, lab and lectures with emphasis on perception analysis, space manipulation, and integration of basic design determinants. Open to students enrolled in the School of Architecture and Planning.

Prerequisite: grade of B or better in Arch 104 or faculty approval of equivalent work. {Fall, Spring}

*202. Design II. (1 or 3)

Continuation of 201.

Prerequisite: 201. {Spring}

204. Environmental Problems. (3)

Exploration of the political and physical determinants of environmental conflict. The course focuses on how environmental problems are conceived and resolved in contemporary society. The perspectives offered are those of political science, chemistry, geology, environmental design and planning.

251. Correctional Institutions Architecture. (3)

This course will deal with planning and design concepts related to various types of correctional institutions.

261. Ancient and Medieval Architecture. [Architecture History I.] (3)

(Also offered as Art Hi 261.) Survey of the history of Western architecture from the Egyptian pyramid to the Gothic cathedral. {Fall}

262. Renaissance Through Modern Architecture. [Architecture History II.] (3)

(Also offered as Art Hi 262.) Survey of the history of Western architecture from the Renaissance palace to the Post-Modernist house.

Prerequisite: 261 or permission of instructor. {Spring}

271. Introduction to Design and Behavior. (3)

Issues and case studies on relationships between the built environment and its users. {Fall}

285. Building Technology I. (3)

Lab and lectures—introduction of technological aspects of building design and construction. {Fall, Spring}

*301. Design III. (4)

Continuation of lab and lectures on design concepts and methods with building design problems of increasing complexity.

Prerequisite: 202 or equivalent. 1 lecture, 3 hrs. lab. {Fall}

*302. Design IV. (4)

Continuation of lab and lecture on design concepts and methods.

Prerequisite: 301 or equivalent. {Spring}

343. Pre-Columbian Architecture. (3)

(Also offered as Art Hi 343.) North, South, and Mesoamerican pre-Columbian architecture, with emphasis on cultural background of ancient civilizations. {Fall}

357. Landscape Design. (3)

Lecture, field, and studio assignments—concepts and methods of site and landscape design plus use of plant material and other media.

Prerequisite: 202. {Fall}

361. Architecture in Europe from 1750 to 1914. [Architecture in Europe Since 1750.] (3)

(Also offered as Art Hi 461.) European architecture from Neoclassicism to Protomodernism.

Prerequisites: 261, 262 or permission of instructor. {Offered upon demand}

362. Architectural Theory and Criticism. (3)

Also offered as Art Hi 462.) Seminar on the theoretical and critical significance of a selected architect or architectural movement.

Prerequisites: 261, 262 or permission of instructor. {Offered upon demand}

* Open to students enrolled in the School of Architecture and Planning or by special permission of the instructor.

365. Urban Design, Concepts, and Methods. (3)

Lectures, reading, and field exercises to develop understanding of specific urban environments in relationship to architecture, planning, and other environmental design activities. Prerequisite: 202. {Fall}

373. Programming for Design. (3)

Lecture and case study evaluation. Concepts and methods for converting social objectives and problems into operational design criteria. {Fall, Spring}

385. Building Technology II. (3)

Lectures on analysis for building energy systems such as thermodynamics, heat transfer, solar and conventional energy use.

Prerequisites: 1 semester of physics, Arch 285 {Fall}

386. Building Technology III. (3)

Design of environmental control systems; heating, cooling, plumbing, power, and light.

Prerequisite: 385. {Spring}

***401. Design V. (4)**

Lab, architectural design of complex and large-scale problems, such as housing, educational facilities, neighborhood facilities.

Prerequisite: 302 or equivalent. {Fall}

***402. Design VI. (4)**

Lab, individual selection of project types consistent with senior design interests and abilities.

Prerequisite: 401 or equivalent. 1 lecture, 3 hrs. lab. {Summer, Spring}

429. Problems. (1-3) †

Students wishing to undertake a special study project must have instructor approval. {Fall, Spring}

***431. Professional Practice/Internship. (2-4)**

Planned program of actual experience with an employer such as an architect, planning agency, engineering consultant, or building contractor, plus 2-hour weekly seminar which deals with the issues involved in the establishment and operation of an architectural practice.

Students must have 160 hrs. work experience to receive 4 credits. {Spring}

***457. Landscape Architecture: Advanced. (3) Morrow**

Design development and study of landscape architectural history, professional practice, plant materials, and landscape architecture as function of site planning and urbanism. Special attention is paid to New Mexico conditions, public and commercial scale.

Prerequisite: Arch 357 or equivalent. {Spring}

***462. Seminar. (2-3)**

Individually listed topics each semester. {Fall, Spring}

***463. 20th Century Architecture. (3)**

(Also offered as Art Hi 463.) Modern Architecture in Europe and America.

Prerequisite: Art Hi 261, 262 or permission of instructor. {Offered upon demand}

***468. Urban Design: Concepts and Methods. (4)**

(Also offered as CRP 468.) Overview of the main theoretical and methodological elements in urban design. Emphasis on technique and application. {Spring}

***471. Advanced Topics in Design and Behavior. (3)**

Exploration of current theoretical concepts of relationships between the built environment and its users. Case study applications.

Prerequisite: 271 or permission of instructor. {Spring}

***472. Exploring Albuquerque's Environment. (3)**

(Also offered as SATE 472.) Lectures and student research on issues in the cultural, natural and built environment in Albuquerque.

***473. Advanced Programming. (3)**

Theory and techniques for analyzing complex social and organizational situations and translating that analysis into design criteria for physical facilities.

Prerequisite: 373 or permission of instructor. {Spring}

***474. Cultural Implications of Built Environment. (2)**

A study of the built environment as cultural evidence. Techniques are developed for analyzing the cultural and social implications of the built environment. {Offered upon demand}

482. Lighting. (2)

{Fall or Spring}

483. Acoustics. (2)

Concepts, theory, and methodology for analysis and design of acoustical environments. {Fall or Spring}

***484. Building Systems Estimating. (2)**

Sources of building costs, methods for determining costs, a systems approach for cost estimating.

Prerequisite: 285. {Fall, Spring}

***485. Working Drawings and Specifications. (4)**

Development of partial contract documents. Course includes office methods and procedures.

Prerequisites: 302 and 386. {Fall, Spring}

***498. Design and Planning Assistance Center. (6) ‡**

(Also offered as CRP 498.) Architectural and planning services to organizations and groups throughout the state who cannot afford traditional professional services. May repeat to a total of 12 hours. Advance approval required.

Prerequisite: 301 or consent of instructor. {Summer, Fall, Spring}

499. NAG Design Studio. [Comprehensive Review.] (6) ‡

Introduction to architectural theory and design.

Prerequisite: restricted to NAG students. {Fall, Spring}

***501. Graduate Design Studio and Seminar. (6)**

Entry by graduate standing or special permission. {Fall}

***502. Graduate Design Studio. [Graduate Seminar.] (6)**

{Spring}

***503. [601.] Advanced Design Studio. (6)**

{Fall or Spring}

***551. Problems. (1-3)**

May be repeated to a total of 12 hours. {Fall, Spring}

***562. Seminar. (2-3)**

{Fall, Spring}

***568. Advanced Urban Design. (4)**

Prerequisites: 365, or CRP 468, or consent of instructor.

***571. Current Issues in Design and Behavior. (3)**

Undergraduates with senior standing may be admitted. {Fall}

***572. Current Issues in Design and Behavior. (3)**

Undergraduates with senior standing may be admitted. {Spring}

***580. Seminar in Spanish Colonial Art. (3) ‡**

(Also offered as Art Hi 580.)

Prerequisite: 450. {Fall}

***588. Independent Design Project I. (4)**

Plan II only.

Prerequisite: 501 or equivalent; advance approval by faculty member. {Fall, Spring}

***589. Independent Project II. (6)**

Plan II only.

Prerequisite: 588. {Fall, Spring}

***598. Thesis Research. (4)**

Plan I only. Requires advance approval by thesis chairperson.

* Open to students enrolled in the School of Architecture and Planning or by special permission of the instructor.

***599. Thesis. (1-6)**

Plan I only.

Prerequisites: 598 or equivalent and advance approval.

COMMUNITY AND REGIONAL PLANNING

165. Community and Regional Planning, Introduction. [Introduction to the City.] (3)

Introduction to the spatial, economic, political and physical factors involved in the development of cities and towns. Emphasis on the nature of urban form as a reflection of the prevailing past and present political economy of society. {Fall}

181. Introduction to Environmental Problems. (3)

Development of the major issues, concepts and methods emerging from the relationship of social systems and the natural environment. {Fall or Spring}

203. The Environmental Problem. (3)

(Also offered as Econ and Phil 203.) What the environmental problems are and how they are approached by various disciplines; how problems are defined, limits imposed on scope of problems, solutions and tradeoffs.

265. Community Planning: Concepts and Methods. (3)

Exploration of land-use activities, transportation systems, municipal services, and design as related to the community planning process. {Spring}

281. Environmental Evaluation. [Environmental Impact Review.] (3)

Principles and techniques of evaluating the impact (social, economic, and physical) of development of natural systems. Emphasis on understanding of interrelationships and document preparation. {Fall or Spring}

338. The City in History. (3)

(Also offered as Hist 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. {Spring}

429. Problems. (1-3)†

Problems are individualized topics conducted on a one to one student-faculty arrangement. The course allows for exploration of various subjects of interest to students and faculty members. May be repeated for credit to a total of 6 hours. {Fall, Spring}

***463. The Housing Process. (3)**

Principles of housing development in the U.S. and developing countries. Overview of the effects of migration, finance and public programs on the provision of shelter. Use of case studies and field projects included. {Fall or Spring}

***464. Land Development Economics. (3)**

Case studies in concepts and processes involved in the changing of raw land to urban fabric. Public and private sector roles involving housing, shopping, and all community facilities. {Fall}

***465. Community and Regional Planning Methods. (3)**

(Also offered as Econ and Pol Sc 465.) Readings and case studies of city- and regional-scale planning process, integrating social science and physical design methods. {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}

***467. Research Concepts and Methods. (3)**

Introduces students to behavioral and physical research concepts. Course covers descriptive and inferential statistics; prepares students to evaluate and to carry out research in architecture, planning, and environmental design.

***468. Urban Design Concepts and Methods. (4)**

(Also offered as Arch 468.) Overview of the main theoretical and methodological element in urban design. Emphasis on techniques and application. {Spring}

***469. Rural Environmental Planning Studio. (4)**

Principles and applications of the techniques involved in planning for rural and small community settings. Emphasis on the maintenance of rural settings and the understanding of the culture and value unique to rural development issues. {Spring}

470. Seminar. (1-3, maximum of 6 hours)‡

Various topics related to planning in the southwest.

***472. Regional Planning Process & Theory. (3)**

Basic theories and practices of regional planning and development. The physical, demographic and functional structure of regions. Problems of uneven development in the southwest; implications on the economic and cultural welfare of the region. {Fall}

***473. Planning Process and Issues of Native American Reservations. (3)**

The social, political, and economic interrelations between tribal lands and their activities with the outside dominant society. Case studies are used to present views in support of tribal autonomy and tribal integration.

***474. Cultural Aspects of Planning. (3)**

Topics relevant to community planning. Theories of human behavior under varying cultural conditions as made evident in time, space, and location. Special attention is given to the use of qualitative and quantitative methods in community profiling.

***497. Social Planning Seminar. (3)**

(Also offered as Pub Ad 497.) Consequences of social and cultural change on design and planning. Prerequisite: senior standing. {Fall or Spring}

***498. Design and Planning Assistance Center. (6) ‡**

(Also offered as Arch 498.) Architectural and planning services to organizations and groups throughout the state who cannot afford traditional professional services. May repeat to a total of 12 hours. Advance approval required. Prerequisite: 301 or consent of instructor. {Summer, Fall, Spring}

***500. Professional Problems and Practices Studio. (4)**

{Spring}

***506. Internship. (2)**

{Summer, Fall, Spring}

***551. Problems (1-3)**

Consent of instructor required. {Fall, Spring}

***563. Housing Seminar. (3)**

{Fall or Spring}

***564. Regional and Resource Planning. (2)**

Prerequisite: 472 or consent of the instructor. {Spring}

***565. The Planning Process: Theory and Practice. (3)**

(Also offered as Pub Ad 565.) {Fall}

***568. Advanced Urban Design. (4)**

Prerequisite: 468, or Arch 365, or consent of instructor. {Fall, Spring}

***569. Rural Community Development. (3)**

{Spring}

***570. Seminar. (1-3)**

Individually listed topics each semester. {Fall, Spring}

***575. Seminar on Energy Administration. (3)**

(Also offered as Pub Ad 575.)

***578. Latin American Development Studies. (3)**

(Also offered as Lat Am 578.) {Spring}

***588. Independent Project I. (1-4)†**

{Fall, Spring}

***589. Independent Project II. (1-4)†**

{Fall, Spring}

***598. Thesis Research. (1-4)**

{Fall, Spring}

***599. Thesis. (1-6)**

Prerequisite: 598 or equivalent and approval by thesis chairperson. {Summer, Fall, Spring}

COLLEGE OF ARTS AND SCIENCES

F. Chris Garcia, Dean
College of Arts and Sciences
Ortega Hall 201, 277-3046

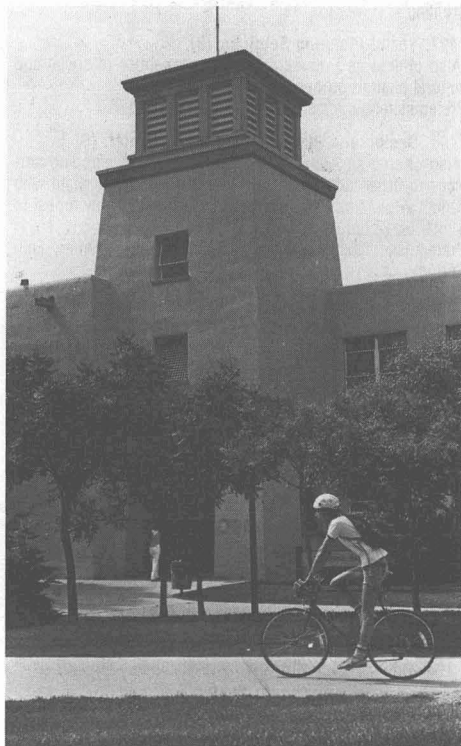
THE COLLEGE OF ARTS AND SCIENCES offers bachelor of arts and bachelor of science degrees in a variety of subjects that relate to humanity's cultural, social, and scientific achievements. Although the fields of study offered by the departments in the College underlie the more specialized work of graduate and professional schools, most of the degree programs are not designed as vocational ends, but rather as the means for understanding society's condition, achievements, and problems. Students obtaining a degree from Arts and Sciences should have a broad understanding of the world in which they live and should be able to think logically and express themselves clearly. Consequently, the College requires preparation based on the offerings of several departments.

Academic Advisement and Requirements for Admission

Freshmen enrolled in University College and new transfer students who intend to major in the College of Arts and Sciences should visit the College Advisement Center before registering for classes. The Center is located in Ortega 201 and advisers are available during regular University hours. Appointments are not needed.

Requirements for Admission from University College

1. Twenty-six hours of earned credit; 23 of these hours must be acceptable toward graduation.
2. (a) A cumulative grade-point average of at least 2.0 on all hours attempted; or
(b) A cumulative grade-point average of 2.0 on the last 30 hours.
(c) Any exceptions to the above must be approved by the Dean of Arts and Sciences.
3. Demonstrated competence in the writing of English as evidenced by one of the following:
 - (a) Completion of English 102 with a grade of C or higher.
 - (b) A passing score on the Communications Skills test administered by the English Department. (Only for students who completed English 102 at UNM with a grade of C or higher prior to the Fall of 1980, or for students who transfer English 102 credit to UNM from another institution.)
 - (c) A score of 25 or better on the English portion of the ACT.
 - (d) A score of 570 or better on the verbal portion of the SAT.
 - (e) A score of 55 or better on the Analysis and Interpretation of Literature Test of the CLEP.
 - (f) A passing score on the Michigan Test (for foreign students only).
 - (g) Credit for English 102 through CEEB advanced placement program.
4. Students planning to major in a department of the College of Arts and Sciences should apply to University College for transfer as soon as they have met the requirements listed above.



Transfer from Other Colleges in the University and from Non-Degree

1. A cumulative GPA of at least 2.0 on all work attempted.
2. Demonstrated competence in the writing of English as evidenced by one of the methods indicated above.
3. Students should apply to the college of their current enrollment for transfer to the College of Arts and Sciences.

Transfer from Other Accredited Universities

1. A minimum of 26 hours, 23 must be in courses acceptable to Arts and Sciences.
2. Demonstrated competence in the writing of English (see above).

Communications Skills Test

Transfer students and readmits who have not demonstrated competence in writing of English may be admitted with the Dean's approval to the College of Arts and Sciences on a *provisional basis*. At the end of the one semester, students who have not passed the Communications Skills Test or completed English 102 with a grade of C or higher will be ineligible to reenroll in the College of Arts and Sciences.

CLEP and ACT

The College of Arts and Sciences accepts credit earned through the general *CLEP* and the *ACT* only as elective credit not as credit toward fulfillment of major, minor or group requirements. Six hours of *subject CLEP* may be used to fulfill group requirements and toward elective credit, but not in the major or minor.

Graduation Requirements

A degree from the College of Arts and Sciences is designed to give students a relatively broad background while allowing concentrated study in two disciplines. This is accomplished through group requirements, the selection of a major and minor, and the opportunity to select electives.

Students declare a major and minor upon completion of 90 hours. This is done by submitting a degree application to the College office. The degree application must be filed no later than midterm of the semester in which the student intends to graduate. A list of courses required for graduation is then sent to the student. *The student is solely responsible for being familiar with and completing all graduation requirements.*

A degree from the College of Arts and Sciences is awarded upon completion or accomplishment of the following:

1. A minimum of 96 hours of courses taught by Arts and Sciences departments. Exceptions are allowed for majors in home economics (88 hours) and art (92 hours)
2. A total of 128 acceptable hours.
3. A grade-point average of at least 2.0 on all college-level work attempted or at least a 2.0 on the last 128 semester hours. Grades of F or WF are not credited toward graduation but are included in the grade-point average.
4. 42 hours of courses numbered 300 or above with at least a 2.0 average on all hours attempted.
5. A major and minor or a double major.
6. Group requirements as described below.
7. Demonstration of competence in the writing of English.
8. Subsequent to admission to the College of Arts and Sciences, one semester of resident enrollment.
9. A minimum of six (6) semester hours of courses taught by Arts and Sciences departments while enrolled in the

College of Arts and Sciences. **Students who have not been in continuous attendance must follow the requirements of the current catalog upon reenrollment.**

Group Requirements

The purposes of the following group requirements are to ensure that students will explore various fields of knowledge before beginning to concentrate too heavily in their major fields and to provide a broad base in several areas necessary to a well-rounded general education. University Skills (100) courses are not acceptable.

To fulfill the group requirements students must complete SEVEN of the following eight groups:

- I. Communications:** 9 credit hours (not more than 6 from any one area) in English **writing**, speech communication, linguistics, or journalism. (Engl 100 is not acceptable.)
- II. Humanities:** 9 credit hours (not more than 6 from any one area) in literature, including English, American, foreign and comparative literature, history, philosophy, or approved courses in American Studies.
- III. Biological/Behavioral Sciences:** 6/7 credit hours in anthropology, biology, or psychology. Psychology 201 is not acceptable.
- IV. Physical Sciences:** 6/7 credit hours in chemistry, geology, or physics/astronomy.
- V. Mathematics:** 6 credit hours. Math 111, 112, and 120 may not be used to satisfy this requirement.
- VI. Social Sciences:** 9 credit hours (not more than 6 in any one area) economics, geography, political science, or sociology (not acceptable are Political Science 250, 309, 350, 465, 478, and 499 and Sociology 280, 281, 338, 478, 480, 481L, 490, and 499).
- VII. Foreign Language:** As many credit hours as needed to complete the fourth semester of a language. Satisfaction of this group requirement can be established through testing. Students with prior exposure to a foreign language should consult with the Department of Modern and Classical Languages for advisement and placement. Satisfaction of this group requirement can be met by completion of one of the following courses or by passing the challenge examination for one of these courses: French 202, 276, German 202, 276, Navajo 202, Greek 302, Italian 276, Latin 202, 352, Portuguese 276, Russian 202, Spanish 202, 212, or 276, Swahili 202, Chinese 202.
- VIII. Fine Arts:** 6 credit hours. Acceptable are selected courses in the history, appreciation, and criticism of art, music, theatre, and dance. Not acceptable for this group are all other courses in studio, design, dance, applied music, music theory, or ear training.

Additional Information

1. At least one credit hour of a laboratory in one of the sciences (Group III or IV) is required.
2. No single course may be applied to more than one group.
3. Course work done at other schools or in another UNM college may apply but requires the approval of the Dean of Arts and Sciences.
4. Courses taken in the General Honors or Undergraduate Seminar Programs may, with the prior approval of the Dean, be counted toward the group requirements in groups for which course content is clearly appropriate. The question of appropriateness will be determined by the Dean in each case.
5. These group requirements are effective for all students entering the University in the summer of 1977 and

thereafter. Other students may complete their degrees under either the old or new group requirements as they prefer.

Major and Minor Studies. Upon completion of 90 hours, students shall declare (1) a major and a minor subject, or (2) two major subjects, or (3) one of the special curricula of the College. After declaring these, the program of studies must meet the approval of the chairpersons of the major and minor departments or the supervisor of the special curriculum. Students may not elect **both a major and a minor** outside the College.

Only work of C quality or better is accepted for the major and minor. CR (credit) grades are not accepted in the major or minor unless they are courses specifically carrying only CR/NC grades. No more than 24 CR grade hours are acceptable toward a degree over and above the specifically designated CR courses.

Grades of D are not acceptable in the major or minor but may be used as elective hours counting toward the 128 required for graduation.

A major department may specify in lieu of a specific minor a **distributed** minor in courses in related departments. A distributed minor shall consist of not less than 30 semester hours nor more than 36 hours. A student should consult with the major department chairperson if a distributed minor is desired.

The same courses may not be used to fulfill both major and minor requirements. If the same course(s) are required for both major and minor or for both majors in the case of double majors, an equivalent number of approved hours shall be added to the total combined hours required. Contact the college office for further information.

Individual Interdisciplinary Majors. The College of Arts and Sciences offers a special option of individual interdisciplinary majors for qualified Arts and Sciences students having the initiative and ability to formulate a special program of studies. This added program flexibility may increase the opportunities to pursue more directly an academic preparation that is aimed at professional or technical positions as well as specialized graduate programs. For students accepted into the program, this interdisciplinary major will replace the current standard major/minor or double major. Further information is available at the College of Arts and Sciences office.

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 in addition to those required for the first degree and must choose majors and minors different from the first degree. 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. Normally a student cannot receive two Bachelor of Arts or two Bachelor of Science degrees unless one has been earned from a different university.

Certification to Teach in High School. Students in Arts and Sciences who wish to acquire certification as a secondary school teacher should confer with appropriate people in the College of Education regarding suitable majors and minors and necessary education courses.

Cooperative Education Program. The College of Arts and Sciences offers a cooperative education program (Co-op) for students majoring in some departments in the college. The Co-op curriculum is a work-study program which alternates a semester or a year of full-time academic study with a

semester or year of full-time employment. Co-op students gain employment experience in major subject-related areas which provides career guidance and makes their academic study more meaningful. Also, Co-op students earn a substantial part of their educational expenses.

Students who are interested in the Co-op Program should contact the 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. Thus, Co-op students normally begin their first work phase at the end of the freshman year at the earliest.

While on each work phase, Co-op students must register in a special Arts and Sciences course, Cooperative Education Work Phase, and pay a \$20 fee. This registration maintains the students' academic status, including eligibility for dormitories, activity cards, library privileges and insurance. After completing each work phase, Co-op students who wish to earn credit may enroll in a course, Evaluation of Co-op Work Phase, for 1-3 credit hours. A maximum of six hours of academic credit earned from Co-op evaluation courses may be counted as elective credit toward the degree but **not** toward the major, minor or group requirements.

Combined Curricula. Degrees from both Arts and Sciences and the College of Engineering may be obtained upon completion of a five-year program as approved by the dean of each college. Interested students should consult with each dean before the end of their sophomore year.

A combined program in the College of Arts and Sciences and the Anderson School of Management allows for a bachelor's and master's degree upon completion of a five-year program. This "Three-Two" M.B.A. proposal allows students to complete Arts and Sciences group requirements and majors in the first three years, the Mgt. minor in the fourth year, and the M.B.A. in the fifth year. Requirements for the Mgt. minor and M.B.A. are outlined in the Anderson Schools of Management section of this catalog.

Courses for Which Credit Toward a Degree is not Given. Except as specified below, the College of Arts and Sciences does not count toward a degree practicum or activity courses offered in other colleges such as typing, shorthand, PE, shop work; courses that are primarily vocational or directed toward professional practice; courses taken in a school of law or medicine to be used for degrees in law or medicine or University Skills (100) courses. Students may enroll in any of these courses in pursuit of their own interests. See the College office for detail on courses that are not counted toward a degree.

Credit will be given toward a degree:

1. for ensemble music or dance, up to 4 hours, separately or in combination. Declared Dance minors may exceed the 4-hour limit in Dance only to the extent required by the Theatre Arts (Dance) Department.
2. for courses in methods of high school teaching, provided these courses are required for certification in a single or composite field, up to 12 hours.
3. for USP courses that are approved for credit by the College of Arts and Sciences, up to 4 hours.

Freshman-Sophomore Programs. Students enrolled as freshmen in University College normally 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 chairperson of the department, and the dean of the college.

Departments or Programs of Instruction.

A student may not elect both a major and minor outside the college.

Major in A&S

American Studies (BA)
Anthropology (BA or BS)

Astro-Physics(BS)
Biology (BS)
Chemistry (BA or BS)

Classics (BA)
Communicative Disorders (BA)
Comparative Literature (BA)
Creative Writing (BA)

Economics (BA)
Economics-Philosophy (BA)
English (BA)
English-Philosophy (BA)
Geography (BA)
Geology (BA or BS)
History (BA)
Individual Interdisciplinary (BA or BS)
Journalism (BA)
Latin American Studies (BA)
Languages (BAs):
 French
 German

Portuguese

Spanish
Linguistics (BA)
Mathematics (BS)

Philosophy (BA)
Physics (BS)
Political Science (BA)
Psychology (BA or BS)
Religious Studies (BA)
Russian Studies (BA)
Sociology (BA)

Speech Communication (BA)

Minor in A&S

American Studies
Anthropology
Asian Studies

Astro-Physics
Biology
Chemistry
Distributed

Communicative Disorders
Comparative Literature

Economics

English
European Studies
Geography
Geology
History

Journalism
Latin American Studies

French
German
Greek
Latin
Portuguese

Russian
Spanish
Linguistics
Mathematics
Paleoecology
Philosophy
Physics
Political Science
Psychology
Religious Studies
Russian Studies
Sociology
Social Welfare
Speech Communication

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 either a major or minor, but not both, from the following programs outside the College of Arts and Sciences.

Major

Art (BA)

Home Economics (BA)

Minor

Art
Management
Computing Science
Electrical and Computer Engineering
 (For Mathematics majors only)
Home Economics
Library Science
Mechanical Engineering
 (For Mathematics majors only)
Music
Naval Science
Special Education
Theatre Arts (Drama, Dance)

Major and minor requirements and course descriptions will be found listed by departments.

Preprofessional and Other Curricula

Students are cautioned against assuming that four-year college courses prepare them for professional work. At least

one year of specialized graduate work is advisable in many fields, 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.

Preprofessional advisement is the responsibility of the Arts and Sciences Advisement Center where students will be advised and/or referred to an appropriate faculty adviser.

Curriculum Preparatory to Medicine

Specific requirements for admission to medical schools in the United States and Canada are included in a volume published by the Association of American Medical Colleges and is titled, *Medical School Admission Requirements, U.S.A. and Canada*. Interested students should consult this volume.

Curriculum Preparatory to Dentistry

Specific requirements for admission to dental schools in the United States and Canada can be obtained by writing to the individual schools. Lists of the schools and their addresses can be obtained by contacting Dental Programs or by writing to the American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

COURSES OF INSTRUCTION

AMERICAN STUDIES

Sam B. Girgus, Chairperson
Humanities Building 320, 277-3929

PROFESSORS:

Sam B. Girgus, Ph.D., University of New Mexico
Hamlin Hill, Ph.D., University of Chicago
Joel M. Jones, Ph.D., University of New Mexico

ASSOCIATE PROFESSORS:

Charles D. Biebel, Ph.D., University of Wisconsin-Madison
Peter Lupsha, Ph.D., Stanford University
Marta Weigle, Ph.D., University of Pennsylvania

ASSISTANT PROFESSORS:

Jane E. Caputi, Ph.D., Bowling Green State University
Vera Norwood, Ph.D., University of New Mexico
Peter White, Ph.D., Pennsylvania State University

THE AMERICAN STUDIES COMMITTEE:

George W. Arms, Ph.D. (English)
Ernest W. Baughman, Ph.D. (English)
Sanford Cohen, Ph.D. (Economics)
Douglas George, M.A. (Art)
Ira Jaffe, Ph.D. (Theatre Arts)
Howard Rabinowitz, Ph.D. (History)
Harold V. Rhodes, Ph.D. (Political Science)
Daniel M. Slate, Ph.D. (Management)
M. Jane Slaughter, Ph.D (History)
Anne P. Taylor, Ph.D. (Art Education and Architecture)

MAJOR STUDY

The major in American Studies is designed for the student interested in the interdisciplinary study of American culture and character. It encourages flexibility and innovation within a general structure of areas of study and investigation. The student will work closely with his or her undergraduate adviser in putting together the major and must receive the adviser's approval and the chairperson's approval for all course work related to the major. Nine hours of courses in American Studies may overlap with Arts and Sciences group requirements.

A. Introductory courses (Am St 285 or equivalent)	3
B. Interdepartmental Studies of American Culture: after consultation with faculty adviser choose 30 hours of courses numbered 200 and above from five of the areas below, with no more than 12 hours in any one area and at least 15 hours of courses numbered 300 and above. Six hours of courses in American Studies at the 200 level may be used in the appropriate subject area below.	
History	
Literature	
Political, economic and geographic studies	
Social and cultural systems (Soc, Anth, Psych)	
Humanities and communication (Phil, Ling, Fine Arts, Comp Lit, Journ, Sp Comm)	30
C. Specialization: students are encouraged to minor or have a second major in a discipline that can be used as a tool for the study of American culture (18-26 hours or more in another department).	
D. Advanced Senior Program and Thesis: after consultation with faculty adviser, choose (courses numbered 300 and above):	
1. 12 interdepartmental hours in courses centering around a particular topic or problem in American culture, such as Popular Culture Studies, Women in the Pluralism, The United States and Other Cultures	12
2. American Studies Seminar and Thesis (485)	3
Total Hours	48

DEPARTMENTAL HONORS

Students seeking departmental honors should apply to the undergraduate adviser in the junior year. In addition to maintaining a 3.2 overall grade-point average, Honors candidates must also successfully complete 6 credit hours of 9 Senior Honors Thesis in their senior year.

MINOR STUDY

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. People having other majors will need the special approval of both their major adviser and the American Studies office.

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. A student may choose to focus his or her minor program on another important theme in American culture, such as the popular arts, ecology in America, or may emphasize the interdisciplinary study of a region or the nation as a whole. 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.

MAJOR OR MINOR: SOUTHWEST CONCENTRATION

The wealth of courses in various departments and colleges at UNM dealing with American Southwest and the Mexican Borderlands supports this concentration. Recognizing the unique contributions of Southwest regional cultural devel-

opment to the larger United States, the American Studies Concentration in Southwest Cultural Studies provides undergraduates and graduates with an interdisciplinary program which is both structured and flexible.

The Major concentration in Southwest Culture Studies includes:

- A. American Studies 285. "American Life and Thought" (3). 286. "Introduction to the Southwestern Studies." (3). Courses designed to provide an introduction to interdisciplinary methods and a context for Southwest Studies.
- B. 30 hours of Interdisciplinary Studies of Southwest Culture: In consultation with faculty adviser, the student will structure a coherent program of 10 related courses in five general areas: History and Literature, Social and Cultural Systems, Political and Economics Studies, Humanities and Natural History. The major portion of this coursework will generally center on a particular historical focus (Spanish Colonial, US Territorial, Contemporary SW, etc.). Ethnic or cultural experience (Chicano Experience, SW Native Americans), or specific geographical or environmental studies (The Ecology of Arid Climates, etc.). In all cases, students are encouraged to develop a broad comparative analysis (for example, a US national cultural context or a Latin American context), or an extended chronological emphasis, not simply a concentration on a single narrow topic.
- C. Advanced Senior Program
Again after consultation with a faculty adviser, the student will choose 12 interdepartmental hours in courses numbered 300 and above centered around a specific topic or problem in Southwest Cultural Studies. The theme of this final coursework generally emerges from the previous broad sampling. The coursework will normally conclude with the American Studies Senior Seminar (Amer St 485) where the interdisciplinary implications of each student major's topic are explored.

The minor concentration in Southwest Culture Studies is designed to introduce students to the interdisciplinary study of the culture of the Southwest. Within the concentration, students may study the broad issues of Southwest Culture or focus on a specific area such as Native American Studies, Chicano Studies or cultural ecology. Hours requirements are identical with the minor specified above.

MASTER OF ARTS AND DOCTOR OF PHILOSOPHY

A professional degree for the inter-disciplinary study of American culture and character. Depending on the student, the degree can either be terminal or lead to further study. A Doctor of Philosophy degree is also offered.

AMERICAN STUDIES (AM ST)

100. Social Science. (3)

An introduction to the Social Science disciplines. Emphasis on intensive skills improvement in communications, reading comprehension, study techniques and logical reasoning which are required for further study in any of the Social Science disciplines. Course themes may vary by department, but all courses will be interdisciplinary and will emphasize skills. For students who score 13 or below in Social Science on the ACT or who are admitted with a Social Science deficiency.

185. American Life and Thought I. (1, 2, 3)

An interdisciplinary investigation of American culture and character focusing on the use of the humanities for understanding important themes in American life.

186. Introduction to American Popular Culture. (3) Caputi
Survey of the basic concepts of popular culture and methods for its study. Includes examination of popular myths and

beliefs, heroes, rituals, icons, and formulas. Source materials are drawn from diverse areas—television, film, fashion, comics, music, and games. {Fall}

211. The Black Experience in the United States. (3) Staff
An analysis of the political, economic, religious, and familial organization of Black communities in the United States. {Spring}

221. Southwest Indian Communities. (3) Staff
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)† Staff
An analysis of the contributions and problems of women in the United States. Titles of individual sections will vary as content varies. May be repeated for credit. {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}

250. The Popular Film in America. (3) Caputi
An exploration of why Hollywood movies are so appealing. Topics include the old Hollywood studio system, the essence of movie stardom and popular film genres. Several Hollywood classics will be screened and discussed. {Fall}

265. American Life and Thought III. [American Life and Thought.] (3)
Examination of the development of American cultural values and attitudes from the seventeenth to the early twentieth centuries. The course will demonstrate the use of interdisciplinary modes of inquiry. {Fall, Spring}

286. Introduction to Southwestern Studies. (3) Biebel, Norwood
This course provides both an introduction to the complex history and culture of the Southwestern United States and a demonstration of the possibilities of the interdisciplinary study of regional American culture. It is multicultural in its content as it is multidisciplinary in its methodology. {Fall}

301. Interdepartmental Studies in the Culture of the United States. (1-3)†
(Also offered as Engl 301.) Subjects, varying from semester to semester, will be topical in 301 (as "Present Predicaments" and "Politics of the Transcendentalist"). **May be repeated for credit as subject matter varies, with permission of American Studies undergraduate adviser or of the chairperson of the student's major department.** {Summer, Fall, Spring}

302. Interdepartmental Studies in the Culture of the United States. (1-3)†
(Also offered as Engl 302.) Subjects, varying from semester to semester will be 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 chairperson of the student's major department.** {Summer, Fall, Spring}

303. Topics in Popular Culture. (1-3) Caputi
{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}

305. The Myth of America. [The American Dream.] (3)
This course will analyze the meanings and dimensions of the myth of America as it appears in American literature and thought. It will also consider when possible the form of the myth in the visual arts and mass media. {Fall}

306. The Frontier in American Thought. (3)
An interdisciplinary study of the impact of the frontier experience upon American culture, emphasizing how literary,

historical, and artistic interpretations reflect or challenge prevailing myths of the West. {Spring}

308. The Jewish Experience in American Literature and Culture. [The Jewish Experience in the United States.] (3) Girus
(Also offered as English 308.) A comprehensive survey of the cultural and historic relationship between Jews and American culture and character as a whole.

311. The Family in American Culture and Character. (3) Biebel, Girus, Norwood

A cross-cultural survey of the American family as portrayed in fiction and memoir and as defined by the social and behavioral sciences. Specific time periods covered or texts used may vary. {Fall}

321. Indian in a Multicultural Setting. (3) Staff
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) Staff
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}

326. The Indian in American Popular Culture. (3) Staff
Analyzes roles assigned to Indians in American culture. Studies literature of Colonial and Romantic periods as well as modern books, photography, art, movies, television, and industry. {Spring}

331. Classics of Feminism in the United States. (3) Staff
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}

332. Women and Nature. (3) Norwood
An analysis of women's writings on nature: how American Women describe nature and their place in nature from 17th century to the present. Specific emphasis placed on women naturalists. {Fall}

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}

342. 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}

350. Popular Culture in America. (3) Girus
Analyzes the implications for democracy and democratic institutions of the rise of mass society and popular culture. Draws from both traditional and popular culture sources for reading material and subject matter. {Fall}

352. America on Film. (3) Girus
Reflections and reconstructions of American culture, values and attitudes as seen in major Hollywood movies. {Fall, Spring}

353. America in the Fifties. (3) Biebel
Through architecture, music, art, fiction, drama, poetry, and the social sciences, this course examines America's coming of age in the crucial years of the 1950s. By concentrating on one decade, students relate political, social, economic, and graphic change to their expressions in new, lasting cultural forms. {Spring}

354. Schools in Crisis. (3) Biebel

An interdisciplinary analysis of the role of schools in recent American society. Through fiction, film, autobiography, political science, and sociology, the class will explore the nature of cultural values as revealed in current conflicts over education. {Fall}

360. Albuquerque in Cultural Context. (3) Biebel

An interdisciplinary exploration of Albuquerque's multicultural evolution and growth from ranching village to regional trade and cultural center, emphasizing the impact of technology and immigration and the interplay of contemporary social and cultural forces. {Fall}

361. Made in the Southwest. (3) Biebel

An investigation of the national and regional significance of the material culture of the southwest, including architecture; utilization technology; religious art and artifacts; literary, folk, and "fine" arts. By its content the course illustrates both the theoretical and practical problems and possibilities of using material artifacts for American Culture Studies. {Fall}

485. 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}

497. Individual Study. (1-3 hrs. per semester, to a maximum of 9)†**498. Internship. (1-6) Staff**

This course involves internships in off-campus learning experiences related to the study of American and regional culture and character, such as work in local communities and with relevant institutions. {Fall, Spring}

***501. Interdisciplinary Seminar in U.S. Culture. [Interdisciplinary Seminar in U.S. Culture] (1-3)†**

(Also offered as Engl 501.) {Summer, Fall, Spring}

551. Individual Study-Master's Degree. (1-3, hrs. per semester, to a maximum of 6) Biebel, Girgus, Hill, Jones**599. Master's Thesis. (1-6, hours per semester), Biebel, Girgus, Hill, Jones*****606. Interdisciplinary Seminar on Problems in U.S. Culture. (4)**

Prerequisite: permission of instructor.

***651. Individual Study. (1-3 hrs. per semester, to a maximum of 12)†**

For Ph.D. candidates only.

***699. Dissertation. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

ANTHROPOLOGY

Jeremy A. Sabloff, Chairperson
Anthropology 150, 277-4524

PROFESSORS:

Lewis R. Binford, Ph.D., University of Michigan
Philip K. Bock, Ph.D., Harvard University
John Martin Campbell, Ph.D., Yale University
Linda S. Cordell, Ph.D., University of California (Santa Barbara)
Henry C. Harpending, Ph.D., Harvard University
Alfonso Ortiz, Ph.D., University of Chicago
Jeremy A. Sabloff, Ph.D., Harvard University
Karl H. Schwerin, Ph.D., University of California (Los Angeles)
James N. Spuhler, Ph.D., Harvard University
J. J. Brody, Ph.D., University of New Mexico (Director, Maxwell Museum of Anthropology)

ASSOCIATE PROFESSORS:

Anita L. Alvarado, Ph.D., University of Arizona
Richard A. Barrett, Ph.D., University of Michigan
Patricia Draper, Ph.D., Harvard University
Jeffery W. Froehlich, Ph.D., Harvard University
Larry P. Gorbet, Ph.D., University of California (San Diego)
W. James Judge, Ph.D., University of New Mexico
J. Stanley Rhine, Ph.D., University of Colorado
James M. Sebring, Ph.D., University of California (Berkeley)
Lawrence G. Straus, Ph.D., University of Chicago
M. Marta Weigle, Ph.D., University of Pennsylvania

ASSISTANT PROFESSORS:

Caroline H. Bledsoe, Ph.D., Stanford University
James S. Chisholm, Ph.D., Rutgers University
Marl Lyn C. Salvador, Ph.D., University of California (Berkeley)
Robert S. Santley, Ph.D., Pennsylvania State University

EMERITI PROFESSORS:

Harry W. Basehart, Ph.D., Harvard University
Florence H. Ellis, Ph.D., University of Chicago
Frank C. Hibben, Ph.D., Harvard University
Stanley S. Newman, Ph.D., Yale University

MAJOR STUDY (36 credits)

All majors are required to complete the seven courses in the core curriculum (21 credits) which provide an integrated preparation for advanced study in any of the anthropological subfields. It should be noted that Anth 359 has as a prerequisite Anth 110 or any introductory course in the linguistics department. Some of these prerequisites are lower division and one is considered upper division (Ling 292L), but all are acceptable for fulfilling the anthropology major and the A & S Communications Group. Courses in the anthropology core curriculum include:

Archaeology:	Anth 120 Digging Up Our Past
	Anth 320 Strategy of Archaeology
Biological Anthropology:	Anth 150 Human Evolution
	Anth 350 Human Biology
Ethnology:	Anth 130 Cultures of the World
	Anth 330 Principles of Cultural Anthropology
Linguistic Anthropology:	Anth 359 Language and Culture

Majors must also elect an additional 15 credits in anthropology, which may include a maximum of 6 credits in field and/or problems courses, and must include a minimum of 9 upper division credits (300-400 level).

In addition to fulfilling the core curriculum and unit distribution requirements for the B.A. degree, students desiring a B.S. degree must concentrate (i.e. a minimum of 9 hours of 300-400 courses) in archaeology and/or biological anthropology, including an advanced laboratory course or the summer field school (475F), as part of their elective course work. To complement this science emphasis, they must also take a least 6 hours of mathematics and have a minor in or distributed among biology, chemistry, geology, mathematics, or physics.

All students interested in majoring or minoring in anthropology are urged to consult with one of the department undergraduate advisers as early in their academic careers as possible.

MINOR STUDY (21 credits)

A total of 21 credits, including at least one of the following core curriculum sequences: 292L, 359, 120, 320, 130, 330, or 150, 350. No more than 3 hours of field or problems courses or 10 hours of lower division (100-200 level) courses may be applied toward the minor. Alternatively, a student may select a distributed minor with an emphasis in anthropology (see below).

DISTRIBUTED MINORS OUTSIDE ANTHROPOLOGY (30-36 credits)

Anthropology majors with interdisciplinary interests may select from a variety of distributed minors designed as preparation for diverse professional or educational goals. These include urban studies, folklife studies, earth sciences for archaeologists, population science, social biology, applied social research, premedicine, behavioral biology, human ecology, and regional studies (Asian, Southwestern, etc.). All courses for these distributed minors are normally taken outside of anthropology. A distributed minor comprises a total of 30 to 36 hours, dependent upon meeting a 15 hour minimum of upper division courses (300-400 level). In addition, students with specialized interests may design their own distributed minors and petition the Department Undergraduate Committee for approval of such programs. Details on these programs may be obtained from the Department Office.

DISTRIBUTED MINORS WITHIN ANTHROPOLOGY (30 credits)

Students majoring in other fields may select a distributed minor with an emphasis on anthropology. These are similar in intent and format to other distributed minors, but they require a minimum of one core curriculum sequence and 6 additional credits of anthropology.

DEPARTMENT HONORS

Students seeking departmental honors should identify a research project during their junior year in consultation with an appropriate professor and enroll in the fall of their senior year in either Anth 497 or 499; after which, they should enroll in Anth 498, an appropriate graduate seminar, or another section of Anth 497. These 6 hours of honors work are in addition to the 36 credits required for the major.

ANTHROPOLOGY (ANTH)

GENERAL AND SURVEY COURSES

(Designed for all students without prior courses in anthropology.)

105. Natural History of Man. (3) Staff

Fundamentals of biological and cultural anthropology: origin of mankind, prehistoric adaptation, and contemporary cultural and linguistic diversity. Emphasis on current research with guest lectures by specialists in each of the four fields of anthropology. (Does not provide credit toward anthropology major requirements.) {Fall, Spring}

108. The Evolution of Human Nature. (3) Binford

Evolutionary origins of mankind and the genesis of cultural variability. This class will discuss a variety of culturally different views of human origins. The results of recent archaeological research will be presented. (Does not provide credit toward anthropology major requirements.)

110. Language, Culture, and Man. (3) Gorbet

Fundamentals of anthropological linguistics. The biological, structural, psychological, and social nature of language; implications for cross-cultural theory, research, and applications. Students may not receive credit for both Anth 110 and Linguistics 101. {Fall, Spring}

111. Introduction to the Study of Language. (3) Oller (See Ling 101.)

120. Digging Up Our Past. (3) Staff

Introduction to archaeology. Uses contemporary archaeological findings to discuss aspects of cultural evolution and to teach basic concepts of archaeological theory and method.

Each lecture section emphasizes data from a specific geographic area (Europe, Mesoamerica, etc.). Students are encouraged but not required to enroll concurrently in 121L. {Fall, Spring}

121L. Archaeology Laboratory. (1) Staff

Basic techniques of excavation and methods of analysis in contemporary archaeology. Should be taken concurrently with 120. 2 hours lab. {Fall, Spring}

125. Man in Nature. (3) Campbell

Man's role in nature with respect to principles of biological ecology. Anthropological emphasis is on preindustrial human societies; lectures and reading will also treat critical changes which have occurred recently in human-environmental relationships. {Fall, Spring}

130. Cultures of the World. (3) Staff

Basic concepts and methods of cultural anthropology. Selected cultures, ranging from preliterate societies to aspects of urban civilization. {Fall, Spring}

150. Human Evolution. [Primates and Fossil Man.] (3) Staff
Fundamentals of biological anthropology and principles of organic evolution, in relation to the biology, ecology, and behavior of primates and fossil man.

Students are encouraged but not required to enroll concurrently in 151L. {Fall, Spring}

151L. Human Evolution Laboratory. [Fossil Man Laboratory] (1) Staff

The factual basis of human evolution, from the comparative study of living and fossil primates to interpretation of recent human fossils.

Should be taken concurrently with 150. 3 hours lab. {Fall, Spring}

212. People and Land in Sub-Saharan Africa. (3) Draper

(Also offered as Geog 212.) Regional geography of Sub-Saharan Africa followed by ethnographic and/or cultural-physical spatial topics from the areas of North Africa, West Africa, East Africa, South Central Africa, and Southern Africa.

213. African Art and Culture. (3) Bledsoe

Survey of African art forms, aesthetics, symbolism, social contexts, historical issues, and tourist influences.

220. World Prehistory. (3) Campbell, Santley, Straus

Discusses cultural development on a world-wide basis from the origin of the genus *Homo* to historic times. The course will cover such topics as the origins of culture, civilization, and cities.

230. Topics in Current Anthropology. (3)† Staff

Experimental courses on topics of current interest.

231. Behavior of Apes and Monkeys. (3) Froehlich

Survey of primate behavior with emphasis on its relevance to human origins. Films of animals in their natural settings will be used and discussions focus on the ecological significance of social behavior. {Fall 1983 and alternate years}

237. Indians of New Mexico. (3) Alvarado

Survey of the Indian cultures of New Mexico including anthropological perspectives on their history, language, social organization, economy, health, and education. {Fall}

250. Human Life Cycle. (3) Chisholm

An elementary cross-cultural study of developing physiological, cognitive, linguistic, and social behavior in human embryos, fetuses, infants, children, adolescents, and adults.

254. Cultures of the Southwest. (3)

Basic concepts of cultural anthropology, illustrated with overviews of social and cultural patterns of Southwest Indians and Hispanics. Interethnic relations of these with other American populations.

255. Ancient Peoples of the Southwest. (3) Cordell
Survey of prehistoric cultures of the Southwest from Paleo-Indian times to the Historic Period. {Spring}

260. Southwest Crafts in Context. [Cultural Context of Southwest Crafts.] (3)
Socio-economic, cultural and historic factors that contribute to the contemporary survival or revival of Native American crafts of the Southwest, including pottery, textiles, and jewelry-making.

284. Ancient Mexico. (3) Sabloff, Santley
An intensive archaeological survey of the pre-Columbian civilizations of Mexico and adjacent areas. Open to undergraduates with no previous courses in anthropology.

***325. Anthropology of China. (3)** Spuhler
An introductory survey of the population biology, archaeology; cultural anthropology, and comparative linguistics of China from the Middle Pleistocene to the 1949 Communist Revolution and the contemporary modernization of the Peoples Republic of China.

***341. Biosocial Bases of Sex Roles. (3)** Draper, Harpending
Biological and sociological bases of sex role differentiation. {Spring}

***402. American Indian Art I. (3)** Brody
(Also offered as Art Hist 402.) Prehistoric and historic art forms of the Arctic, Northwest Coast, and the eastern woodlands of North America.

***403. American Indian Art II. (3)** Brody
(Also offered as Art Hist 403.) Prehistoric and historic art forms of the Plains, Southwest, and western regions of North America.

SPECIAL TOPIC COURSES BY SUBFIELD

In general, prerequisites are listed with each course description. If none are listed, the class is designed for those without previous courses in anthropology.

ARCHAEOLOGY

(Anthropology 120 is suggested as background for the following courses.)

***312. European Prehistory. (3)** Straus
The prehistory of Europe with emphasis on hunter-gatherer adaptations of the Pleistocene and early Holocene, using primary data sources. {Spring 1984 and alternate years}

***320. Strategy of Archaeology. (3)** Binford
The purpose and theory of the study of archaeology; relates archaeology to anthropological principles and the practice of a science.
Prerequisites: 120 and 130. {Fall}

***349. Archaeology of Complex Societies. (3)** Cordell, Santley
Comparative approach to origin and development of stratified societies and pristine states as known from the archaeological record. {Fall}

***356. Southwest Archaeology. (3)** Cordell
An intensive survey of Southwest prehistory including discussion of major interpretative problems. Covers the period from 11,000 years ago to historic times. {Fall}

***362. Topics in Old World Prehistory. (3)** Binford, Straus
The prehistory of specific Old World regions, concentrating on the record of changing Pleistocene adaptations. {Spring 1983 and alternate years}

***366. Archaeological Field Techniques. (3)** Staff
Site survey, techniques of excavation, field mapping, data

recording, initial laboratory analysis, cataloging, and site reporting.

Prerequisites: 120 and permission of the instructor. {Spring}

***385. American Archaeology: North America. (3)** Binford
An analysis of research problems in North American prehistory. Course will focus on explaining social, cultural, and economic change as reflected in the archaeological record.

***386. American Archaeology: South America. (3)**
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.

***391. Near Eastern Archaeology. (3)** Santley
A survey of the Near Eastern culture area from the origins of agriculture to the development of Bronze Age civilization.

***420. Topics in Archaeology. (3)†**

***466. Archaeological Research Methods. (3)** Staff
Collection, interpretation, and analysis of archaeological and Paleoenvironmental data.

Prerequisites: 120 or permission of the instructor, intro. statistics; recommended: 320.

***467. Analytic Methods in Archaeology. (3)** Staff
Specific, individualized instruction on qualitative and quantitative methods of archaeological data analysis. Students will do all phases of data analysis from initial selection of attributes to computer processing, tabulation, and interpretation of results.

Prerequisites: permission of instructor.

***507. Seminar: Archaeological Theory and Method. (3)†**

***516. Seminar: European Prehistory. (3)††**
{Offered upon demand}

***520. Topics in Archaeology. (3)†**

***594. Seminar: Southwestern Archaeology. (3)** Judge
{Offered upon demand}

BIOLOGICAL ANTHROPOLOGY

***331. Evolutionary Biology of Primates. (3)**
Evolutionary history of the primates, including the earliest humans, and the comparative biology of living primates. Students are encouraged but not required to enroll concurrently in 332L.

Prerequisites: 150 or 231. {Fall 1984 and alternate years}

***332L. Primate Biology Laboratory. (1)** Froehlich
Methods used in the study of primate evolution and classification.

Concurrent enrollment in Anth 331 required. {Fall 1984 and alternate years}

***343. Human Population Biology. (3)** Harpending
Survey of demographic and ecological principles underlying human adaptation; topics to include subsistence systems, nutrition, infectious diseases, breeding structures, population, and cultural evolution.

***350. Human Biology. [Social Biology.] (3)** Spuhler
Human heredity, variation, and adaptation within and between different ecological and cultural settings; medical genetics; quantitative variation; elements of human population biology and human ecology.
Prerequisite: 150 or introductory biology. {Fall, Spring}

***351L. Anthropology of the Skeleton. (4)** Rhine
A laboratory course in the identification of human skeletal materials with attention to problems in the evolution of primates. 3 lectures, 2 hrs. lab.

Prerequisite: 150. {Fall 1983 and alternate years}

***388. Human Genetics. (3)** Spuhler
Fundamentals of human transmission, cellular, molecular, developmental, and population genetics. {Spring 1984 and alternate years}

***432. Primate Anatomy. (4)** Froehlich, Rhine.
Comparative functional, myological, and osteological anatomy of the primates. Emphasis placed upon dissection and comparison of specimens. 2 hrs. lecture, 6 hrs. lab.
Prerequisite: 331 or 231.

***450. Topics in Biological Anthropology. (3)†**

***452. Genetic Basis of Human Evolution.** [Human Population Genetics.] (3) Harpending
Evolutionary theory and methodology for the study of human genetic variation within and between populations.
Prerequisites: 350 or 388 or equivalent; college algebra; Math 102 or equivalent.

***453. Human Behavioral Genetics. (3)** Spuhler
The intersection between genetics and the behavioral sciences. {Spring 1983 and alternate years}

***455. Advanced 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.
Prerequisite: 150. {Spring 1984 and alternate years}

***456L. Human Evolution Laboratory. (1)** Rhine
Anthropometric and anthroposcopic comparisons of fossil and recent hominoids. {Spring 1984 and alternate years}

***465. Medical Anthropology. (3)** Alvarado
Analysis of systems of health, curing, and disease in aboriginal, western, and pluralistic societies. {Spring 1984 and alternate years}

***531. Seminar: Morphology and Evolution.** [Seminar: Problems in Primatology.] (3) Froehlich, Rhine

***550. Topics in Biological Anthropology. (3)†**

***551. Seminar: Behavior and Evolution.** [Topics in Social Biology.] (3)†

***552. Seminar: Genetics and Evolution.** [Seminar: Topics in Evolutionary Theory.] (3)

***553. Forensic Anthropology. (3)** Rhine
Prerequisite: 351 or familiarity with skeletal biology.

ETHNOLOGY

301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)
(See Am St 301-302.)

***305. The American Indian: North America. (3)** Ortiz
Major culture types and selected ethnographic examples of North American Indian cultures. {Spring}

***306. South American Indians.** [The American Indian: Lowland South America.] (3) Schwerin
Approaches to explaining differential cultural adaptations to the diversity of South American environments. Development of aboriginal social and political organization is illustrated by selected examples from both lowland and highland societies. {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/her society. {Spring 1983 and alternate years}

***309. Comparative Studies of Socialization. (3)** Draper
Socialization of children in varied cultural settings: hunter-gatherers, tribal African societies, peasant cultures. Social-

ization theories and practices in modern states, e.g., Russia, United States, and Israel. Emphasis on theories of learning, cognitive and child development.

***313. Peasant Cultures of the World. (3)** Bock
Comparative studies of peasant societies with emphasis on Europe and Latin America. The internal structure of peasant communities and their relations to the state under feudalism, capitalism, and socialism.

***314. Latin American Culture and Societies. (3)** Barrett, Schwerin

Cultural and social institutions common throughout Latin America and their historical antecedents. Contemporary social movements and their prognosis for the immediate future. Analyses of the variations among selected Latin American societies. {Fall}

***315. Current American Indian Problems. (3)**
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.

***316. Applied Anthropology. (3)**

The application of anthropological methods and principles to problems of intercultural communication and social change.
Prerequisite: 130.

***321. Ethnology of South Asia. (3)** Sebring
Survey of modern social structures and cultures of South Asia with emphasis upon selected areas and problems.

***330. Principles of Cultural Anthropology. (3)**
Social, economic, and ecological adaptations of human cultures. Consideration of development of ideas and theories in socio-cultural anthropology; focus on topics such as integration of human societies, sources for change in economic and cultural systems.
Prerequisite: 130 {Fall, Spring}

***333. Ritual Symbols and Behavior. (3)** Ortiz
Comparative analysis of ritual processes, symbol systems, and world views in the context of social structure.

***335. Comparative Value Systems. (3)** Sebring
A comparative treatment of values, 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 1984 and alternate years}

***336. Ethnology of Africa. (3)** Draper, Bledsoe
Cultural and social patterns characteristic of sub-Saharan Africa with special reference to problems of culture history and comparative political organization.
Prerequisite: 130 or permission of instructor. {Spring}

***337. Southwest Indians I: Colonial Period. (3)** Alvarado
Analyses of the native cultures of the Southwest and the changes resulting from Hispanic contact and incorporation; Indians as ethnic minority groups in the Spanish colonial period. {Fall}

***338. Southwest Indians II: Modern. (3)** Alvarado
Analyses of changes in Native American cultures in the post-colonial period, including urban Indians. {Spring}

***339. Anthropological Studies of American Society and Culture. (3)** Sebring
The empirical results and the practical and theoretical implications of the study by anthropologists of American society and culture. Other disciplinary approaches will be contrasted with anthropological approaches.

***340. Man in the Tropics. (3)** Schwerin
Nature of tropical ecosystems and the ways in which man has adapted to them. The conditions for civilization in the tropics, and contemporary problems of tropical development.

***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 1983 and alternate years}

***346. Ethnography of Communication. (3)** Weigle
Observation, description, and analysis of verbal and non-verbal communication in mundane and artistic situations. Special emphasis on narration, humor, song, dreams, and concepts of creativity cross-culturally.

***347. Folklife Studies. (3)** Weigle, Salvador
Folk culture: community studies, ethnohistory, festivals, games, folk religion, folk medicine and witchcraft, folk arts and crafts. Emphasis on American and especially Southwestern groups.

***348. Social Anthropology of Complex Societies. (3)** Barrett
Main contributions of anthropology to the study of complex societies, with special attention to the methods and techniques utilized in the study of these societies.
Prerequisite: 130.

***361. Modernization of Traditional Societies. (3)** Barrett
(Also offered as Soc 361.) The impact of technological and cultural change on societal institutions with special attention to underdeveloped areas.

***371. Images of the Indian in American Culture. (3)** Ortiz
Analysis of literary, historical, ethnographic, and contemporary texts, written by both Indians and non-Indians, to understand Native American peoples' reaction and adjustment to conquest and domination.
Prerequisite: 305 or permission of instructor.

***384. Peoples of Mexico. (3)** Schwerin
Emergence of the modern Indian and Mestizo cultures of Mexico and Guatemala. Persistence and change in social institutions and cultural patterns.

***396. Cultural Ecology. (3)**
The ecological orientation in explaining human behavior. Focus is upon the systemic relationships among ecological, demographic, social, and cultural variables.
Prerequisites: 120 and 130. {Fall}

***397. Music in Society. (3)** Bock
Examination of the functions of music in tribal and modern society; tools of analysis; survey of selected samples of musical culture.
Recommended: ability to read simple music. {Fall 1983 and alternate years.}

***430. Topics in Ethnology. (3)†**
Comparative study of social, economic, and political systems, their evolution and interrelations.

***487. Research Methods in Ethnology. (3)** Bledsoe
Research strategy in ethnology, research design formulation, techniques for the collection of ethnological data, and an introduction to ethnological fieldwork.
Prerequisites: 130, 330.

***493. History of Anthropology. (3)**
The development of anthropological theory from the nineteenth century to the contemporary period, with major emphasis on cultural anthropology. {Offered upon demand}

***530. Topics in Ethnology. (3)†**
{Fall, Spring}

***536. Seminar: Theories of Symbolic Action. (3)**

***537. Seminar: Southwestern Ethnology. (3)**
{Fall 1983 and alternate years.}

***538. Seminar: Culture Change. (3)** Alvarado
{Fall 1984 and alternate years.}

***539. Seminar: Cultural Ecology. (3)**

***541. Seminar: Theory and Method in Ethnology. (3)**

***542. Seminar: Urban Anthropology. (3)**

***543. Seminar: Topics in Psychological Anthropology. (3)**

***544. Seminar: Applied Anthropology. (3)**

***545. Seminar: Anthropological Problems in Latin America. (3)**

***547. Seminar: Topics in Social Organization and Kinship. (3)**

***548. Seminar: Complex Societies. (3)**

***549. Seminar: Economic Anthropology. (3)**

***561. Seminar: Economic Development and Social Change. (3)**

LINGUISTICS

Courses with similar content and the same number as 110, 317, 318, 359, 417, 418, 446, 470, and 554 are cross-listed by the Department of Linguistics. Students may obtain credit for these courses in only one department; credits from either department may be applied toward the anthropology major degree requirements and for fulfillment of the Communication Group in Arts and Sciences.

292L. Introduction to Linguistic Analysis. (3)
(See Ling 292L.)

***317. Phonological Analysis. (3)** Gorbet
(Also offered as Ling 317.) Phonetic principles and phonological theory, descriptive analysis of phonological systems, transcriptional practice, and problems from selected languages.
Prerequisites: Ling 292L. {Fall}

***318. Grammatical Analysis. (3)**
(Also offered as Ling 318.) Principles of morphological and syntactic analysis and the theory of grammar, descriptive analysis of grammatical structures, problems from selected languages.
Prerequisite: Ling 292L. {Spring}

***352. Verbal Art. (3)** Weigle
Comparative study of non-Western oral traditions as cultural and aesthetic expressions. Narratives, oratory, verbal aggression, proverbs, riddles, poetry; ethnoaesthetics; other topics.
Prerequisite: 110 or 346 or permission of instructor.

***359. Language and Culture. (3)** Gorbet
(Also offered as Ling 359.) An examination of the interrelations of language and speech with other selected aspects of culture.
Prerequisite: an introductory linguistics course. {Spring}

***405. North American Indian Languages. (3)** Gorbet
Survey of North American native languages and contemporary speech communities, including examination of the structure of one or more Southwestern native languages.
Prerequisite: 317 or 318 or Ling 292L. {Spring}

***410. Topics in Anthropological Linguistics. (3)†**
May be repeated as subject matter varies.

***413. Linguistic Field Methods. (3)** Gorbet
Practice in transcribing from oral dictation, phonemic analysis, introduction to problems of morphology.
Prerequisites: 317 and consent of instructor. {Spring}

***417. Phonological Theory. (3)**
(Also offered as Ling 417.) Survey of problems in theoretical

phonology, with emphasis on generative phonology, formalization of rules, and universals.

Prerequisite: 317. {Spring}

***418. Grammatical Theory. (3)**

(Also offered as Ling 418.) Survey of problems in theoretical grammar. Topics range from syntax to pragmatics.

Prerequisite: 318. {Fall}

***446. Introduction to Comparative Linguistics. (3)**

(Also offered as Ling 446.) Theories and methods of comparative and historical linguistics, emphasizing change in English, Indo-European, and Native American languages.

Prerequisite: 317.

***470. History of Linguistics. (3)** Gorbet

(Also offered as Ling 470.) A survey of methods and assumptions in the scientific study of language from antiquity to present; emphasis on twentieth-century precursors of modern linguistics.

Prerequisites: 317 and 318.

***510. Topics in Anthropological Linguistics. (3)†**

***554. Seminar: Linguistic Theory. (3)†**

(Also offered as Ling 554.) {Offered upon demand}

TECHNICAL COURSES

304. Beginning Museology. (3) Brody, Salvador

History, philosophy, and purpose of museums. Techniques and problems of museum administration, education, collection, exhibition, conservation, and public relations. {Fall 1984 and alternate years}

***460. Seminar in Museology and Museography. (3)** Brody, Salvador

(Also offered as Art Hi 460.) Practical and theoretical work in specific museum problems.

Prerequisite: 304 or Art Hi 400 or permission of instructor.

***490. Topics in Mathematical Anthropology. (3)** Harpending

Formal and mathematical approaches to anthropological research. Topics include graphs and networks, linear systems and filtering, probability models.

Prerequisites: calculus (recommended: linear algebra) and a computer language.

***560. Seminar in Museology and Museography. (3)** Brody, Salvador

Prerequisite: 304 or Art Hi 400 or permission of instructor.

INDIVIDUAL STUDIES, FIELD PROGRAMS, AND HONORS COURSES

399F. Introduction to Field Research. (2-6)†

Directed study under the supervision of faculty member.

Prerequisite: permission of instructor. {Offered upon demand}

***475F. Summer Field Session. (2-6)†**

Field course in archaeology, biological anthropology, linguistics or ethnology. This course includes intensive instruction in field techniques and opportunity for independent research (on the part of the student).

Prerequisite: permission of instructor. {Summer only}

497. Individual Study. (1-3 hrs. per semester, to a maximum of 6)

Directed study of topics not covered in regular courses.

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 ap-

plications for the honors programs have been approved. {Offered upon demand}

***499F. Field Research. (2-6)†**

Field research for qualified advanced or graduate students with previous experience in archaeology, biological anthropology, linguistics, or general ethnology. Problems are selected on the basis of student-faculty interest and field research opportunities.

Prerequisite: permission of instructor. {Offered upon demand}

***597. Problems. (1-3 hrs. per semester, to a maximum of 6)**

Limited to graduate majors in the master's program.

***598. Advanced Research. (3)†**

Limited to graduate majors in the master's program.

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

***697. Problems. (1-3 hrs. per semester, to a maximum of 6)**

Limited to graduate majors in the doctoral program.

***698. Advanced Research. (3)†**

Limited to graduate majors in the doctoral program.

***699. Dissertation. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

ASIAN STUDIES

See International Studies.

ARTS AND SCIENCES COOPERATIVE PROGRAM (ASCO)

Elinore Barrett, Coordinator

Ortega 201, 277-3046

105. Arts and Sciences Co-op Work Phase. (0)

This course is merely a mechanism for registered work phase students from the College of Arts and Sciences as full time students while working.

209. Evaluation of Arts and Sciences Co-op Work Phase I. (1-3)

This course provides the means for obtaining 1-3 hours of credit for a project related to their co-op work experience. Students must consult a departmental adviser about what kind of project would be acceptable.

210. Evaluation of Arts and Sciences Co-op Work Phase II. (1-3)

No prerequisite.

309. Evaluation of Arts and Sciences Co-op Work Phase III. (1-3)

No prerequisite.

310. Evaluation of Arts and Sciences Co-op Work Phase IV. (1-3)

No prerequisite.

409. Evaluation of Arts and Sciences Co-op Work Phase V. (1-3)

No prerequisite.

410. Evaluation of Arts and Sciences Co-op Work Phase VI. (1-3)

No prerequisite

ASTRONOMY

See Physics and Astronomy

BIOLOGY

Donald W. Duszynski, Chairperson
Castetter Hall 173A, 277-3411**PROFESSORS:**

Clifford S. Crawford, Ph.D., Washington State University
 William G. Degenhardt, Ph.D., Texas A & M University
 Donald W. Duszynski, Ph.D., Colorado State University
 James S. Findley, Ph.D., University of Kansas
 James R. Gosz, Ph.D., University of Idaho
 Robert O. Kelley, Ph.D., University of California (Berkeley)
 David E. Kidd, Ph.D., Michigan State University
 J. David Ligon, Ph.D., University of Michigan
 William C. Martin, Ph.D., Indiana University
 Loren D. Potter, Ph.D., University of Minnesota
 Marvin L. Riedesel, Ph.D., State University of Iowa
 Robert E. Waterman, Ph.D., University of Washington
 John A. Wiens, Ph.D., University of Wisconsin (Madison)

ASSOCIATE PROFESSORS:

J. Scott Altenbach, Ph.D., Colorado State University
 Oswald G. Baca, Ph.D., University of Kansas
 Larry L. Barton, Ph.D., University of Nebraska
 Earl W. Bourne, Ph.D., Oklahoma State University
 Rex G. Cates, Ph.D., University of Washington
 Gordon V. Johnson, Ph.D., University of Arizona
 William W. Johnson, Ph.D., University of Minnesota
 Paul Kerkof, Ph.D., University of California (Berkeley)
 Tokio Kogoma, Ph.D., University of Tokyo
 Frederick W. Taylor, Ph.D., University of Chicago
 Randy Thornhill, Ph.D., University of Michigan
 Eric C. Toolson, Ph.D., Arizona State University
 John L. Trujillo, Ph.D., University of Texas Medical Branch (Galveston)

ASSISTANT PROFESSORS:

Robert Chiovetti, Jr., Ph.D., University of Kansas
 Evelyn P. Ewing, Ph.D., University of Kansas
 Manuel C. Molles, Ph.D., University of Arizona
 Kathryn G. Vogel, Ph.D., University of California (Los Angeles)
 Terry L. Yates, Ph.D., Texas Tech University

LECTURER:

Sandra H. Ligon, M.S., University of New Mexico

ADJUNCT PROFESSORS:

Troy L. Best, Ph.D., University of Oklahoma
 Roger Conant, Sc.D., University of Colorado
 Thomas H. Fritts, Ph.D., University of Kansas
 Eugene W. Rypka, Ph.D., Stanford University
 Peter B. Stacey, Ph.D., University of Colorado
 Norman J. Scott, Ph.D., University of Southern California

PROFESSORS EMERITI:

Howard J. Dittmer, Ph.D., State University of Iowa
 Martin W. Fleck, Ph.D., University of Colorado
 William J. Koster, Ph.D., Cornell University

Explanation of footnotes not indicated will be found on p. 316.

MAJOR STUDY

All majors in biology must complete sections A, B, C, and D.

A. Biol 121L-122L, 221, 222, and 429.

B. Option of one of the three following tracks:

1. Microbiological: Biol 350L, 460L, plus Biol 260L or 371L or 386L.
2. Botanical: Biol 260L, 478L, plus Biol 350L or 371L or 386L.
3. Zoological: Biol 371L or 386L, 435L, plus 260L or 350L.

C. Biology electives to total 37 hours of biology (Biol 100, 110, 111, 123L, 136, 139L, and 239L will not be allowed for biology majors).

D. Supportive courses:

Math 182-183 (or 180-181, or 162); Physics 151 and 152; Chem 121L-122L (or 131L-132L) and 301-303L (or 212).

(for those interested in microbiology, physiology, or medicine, Chem 301-303L and 302-304L are recommended.)

Grades of C or better are required in all of the above courses.

MINOR STUDY

Biol 121L-122L, 221, 222, and 6 additional hours of biology. (Biol 100, 110, 111, 123L, and 499 will not be allowed for biology minor). Grades of C or better are required in biology courses used for a minor.

MINOR STUDY IN PALEOECOLOGY

See p. 132.

PROFESSIONAL CURRICULA

Lists of suggested electives for students pursuing careers in specific areas of biology may be obtained in the departmental office. Faculty advisers are available for students wishing to pursue various specialities or professional curricula.

CURRICULA PREPARATORY TO HEALTH SCIENCES

See School of Medicine.

BIOLOGY (BIOL)

100. Natural Science. (4) Kidd

For Students who score 17 or below in Natural Science in the ACT, or who are admitted with a Natural Science deficiency. 1 lecture, 3 1-hour discussion/laboratory sessions. Cannot be used for credit toward the biology major or minor. {Fall, Spring}

110. Life Science for Non-Majors. (3) Degenhardt

Plants as producers and animals as consumers. Basic concepts, human application, and ecology are emphasized rather than chemical and molecular aspects. 3 lectures. (Credit not allowed for both 110 and either 121L-122L or 123L.) {Fall}

111. Life Science for Non-Majors. (3) Degenhardt

Continuation of 110. Major topics are reproduction and development, heredity, evolution, plant and animal diversity, and ecology.

Prerequisite: 110. 3 lectures. (Credit not allowed for both 111 and either 121L-122L or 123L.) {Spring}

121L. Principles of Biology. (4) Altenbach, Toolson

Impact biology, biological chemistry, molecular genetics, Mendelian inheritance, embryology. Emphasis on develop-

ment of concepts. 3 lectures, 3 hrs. lab. (Credit not allowed for both 121L and either 110-111 or 123L.) {Summer, Fall, Spring}

122L. Principles of Biology. (4) Altenbach, Toolson
Population genetics, evolution, ecology, behavior, plant and animal physiology, and survey of diversity of organisms. Emphasis on development of concepts.

Prerequisite: 121L or permission of instructor. 3 lectures, 3 hrs. lab. (Credit not allowed for both 122L and either 110-111 or 123L.) {Summer, Fall, Spring}

123L. Biology for Health Related Sciences and Non-Majors [Biology for Health Related Sciences.] (4)

Principles of cell biology, genetics, evolution, and social biology.

3 lectures, 3 hrs. lab. (Credit not allowed for both 123L and either 121L-122L or 110-111.) {Spring}

136. Human Anatomy and Physiology for Non-Majors. (3) Staff

Fundamental concepts of human physiology stressing the relationship of structure to function at the cellular and gross anatomical levels. May be taken independently of 139L. Not accepted toward a biology major. 3 hrs. lecture. (Credit not allowed for both 136 and either 237 or 238.) {Fall, Spring}

139L. Human Anatomy and Physiology Laboratory for Non-Majors. (1) Staff

Laboratory exercises, demonstrations and dissection in anatomy and physiology.

Pre- or corequisite: 136. 3 hrs. lab. (Credit not allowed for both 139L and either 247L or 248L.) {Fall, Spring}

221. Introductory Genetics. (3) W. Johnson, Ewing, Kogoma

Structure, function, and transmission of hereditary factors. May be taken with or independently of 223L.

Prerequisites: 121L and 122L. {Fall, Spring}

222. Evolution and Ecology. (3) Molles, Taylor, Thornhill
Evolutionary processes; population, community, and ecosystem ecology.

Prerequisite: 221. 3 hrs. lecture. {Fall, Spring}

223L. Introductory Genetics Laboratory. (1) W. Johnson

Genetic principles using the fruit fly and lower organisms. Pre- or corequisite: 221. 3 hrs. lab. {Fall, Spring}

237. Human Anatomy and Physiology I. (3) Bourne, Yates

An integrated study of human structure and functions of the skeletal, muscular, nervous, and cardiovascular systems.

Prerequisites: 121L or 123L and 4 hrs. of general chemistry. 3 hrs. lecture. {Fall, Spring}

238. Human Anatomy and Physiology II. (3) Bourne, Yates

Continuation of 237. Cardiovascular, respiratory, digestive, excretory, reproductive, and endocrine systems.

3 hrs. lecture. {Fall, Spring}

239L. Microbiology for Health Sciences. (4-5) Baca

Introduction to microbiology with emphasis on principles of infection and immunity.

Prerequisites: 121L or 123L and 4 hours of chemistry. Not accepted toward a biology major. 3 lectures; 4 hrs. lab required for pharmacy students, 3 hrs. lab required for nursing and dental hygiene/assisting students. (Credit not allowed for both 239L and 350L.) {Summer, Fall, Spring}

247L. Human Anatomy and Physiology Laboratory I. (1) Staff

Laboratory work using cadavers. Anatomy stressed with appropriate physiological work. Topics integrated with 237.

Pre- or corequisite: 237. 3 hrs. lab. {Fall, Spring}

248L. Human Anatomy and Physiology Laboratory II. (1) Staff

Continuation of Biol 247L. Topics integrated with 238.

Pre- or corequisite: 238. 3 hrs. lab. {Fall, Spring}

260L. Introductory Botany. (4) Cates

Emphasis on energy flow in plants; evolution of complexity, specialization and plant diversity; correlation of structure with function; interaction of the biotic and abiotic environment; plant adaptations.

Prerequisites: 121L and 122L or permission of instructor. 2 lectures, 4 hrs. lab. {Spring}

290L. Biological Lab Techniques. (4) Duszynski

Preparation of cells and tissues for microscopic examination using paraffin and plastic methods. Other techniques may also include: histochemistry, basic photography, and fermentation studies.

Prerequisites: 121L and 122L or permission of instructor. 1 lecture, 5 hrs. lab. {Fall}

312. Developmental Biology. (3) Trujillo

A survey of the basic mechanism of organismic development from both descriptive and experimental points of view.

Prerequisites: 121L, 122L, and Chem 212 or 301. 3 hrs. lecture. {Fall}

****350L. General Microbiology. (4)** Barton

Anatomy, physiology, and ecology of microorganisms. Principles of bacterial techniques, host-parasite relationships, and infection and immunity.

Prerequisite: Recommended 221 and Chem 301. 3 lectures, 6 hrs. lab. (Credit not allowed for both 350L and 239L.) {Fall, Spring}

351. Introductory Molecular Biology. (3) Kogoma

Interpretation of biological activities in terms of molecules, with emphasis on interactions of molecules in cells.

Prerequisite: 350L; Physcs 151-152 recommended. 3 lectures. {Fall}

363L. Flora of New Mexico. (4) Martin

Identification, classification, and nomenclature of vascular plants. Field trips required.

Prerequisite: 222 or permission of instructor. 3 lectures, 3 hrs. lab. {Fall}

370F. Invertebrate Marine Laboratory. (1) Duszynski

Major marine invertebrates inhabiting intertidal areas of the Gulf of California. A one-week field trip to the Gulf and lab fee required.

Pre- or corequisite: 371L. {Fall}

371L. Biology of the Invertebrates. (5) Duszynski

Survey of the major invertebrate groups with emphasis on evolutionary and ecological relationships, and the correlation of structure with function.

Prerequisite: 222. 3 lectures, 4 hrs. lab. {Fall}

372. Desert Biology. (3) Crawford

Origin and evolution of deserts, adaptations of desert biota, organization and dynamics of desert communities.

Prerequisites: 121L and 122L or permission of instructor. 2 lectures. {Fall}

379. Biological Conservation. (3) Kidd

The population-resource-environment predicament; strategies for solving it and prospects for the future.

Prerequisite: 222. {Fall}

382L. 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.

Prerequisites: 121L and 122L; recommended: 371L. 2 lectures, 4 hrs. lab. {Spring}

386L. General Vertebrate Zoology. (4) Findley

Ecology, behavior, sociology, adaptations, and evolution of the vertebrates.

Prerequisite: 222. 3 lectures, 3 hrs. lab. {Fall}

400. Senior Honors Thesis. (1-3) Taylor

Original theoretical and/or experimental work under supervision. Work for the thesis is carried on throughout the senior year. A maximum of 4 credits may be taken of 400.

***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}

402. Special Topics in Biology. (1-3) Staff

Prerequisites: senior status, high scholastic standing, and permission of instructor. {Summer, Fall, Spring}

***403. Ecosystem Ecology. (3) Gosz**

Detailed study of the structure and function of diverse ecological systems.

Prerequisite: 222. {Spring}

***405. Scientific Publication. (2) Wiens**

Organization, writing, illustrating, and publishing scientific papers and oral presentation of research; workshop format.

Prerequisites: 16 hrs. of biology and permission of instructor. {Fall}

***406. Insect Ecology. (3) Taylor**

Physiology and behavior of insects as adaptations to their environments.

Prerequisites: 222 and 414L or permission of instructor. {Spring}

408L. Desert Invertebrates. (4) Crawford

Biology of desert invertebrates with emphasis on their roles in and adaptations to xeric ecosystems. Credit not allowed for both 408L and 508L.

Prerequisite: 371L. 2 lecture, 3 hrs. lab. {Spring}

***411L. Ecology of Populations. (4) Taylor**

Basic concepts in the evolution and ecology of populations.

Prerequisites: 222, Math 162 or 180-181. 3 hrs lecture, 3 hrs. lab. {Fall}

***412L. Descriptive and Comparative Embryology of the Vertebrates. (4) Bourne**

Prerequisite: 221 or permission of instructor. 3 lectures, 4 hrs. lab. {Fall}

***414L. General Entomology. (4) Crawford**

Biology and classification of the insects.

Prerequisite: 371L or permission of instructor. 2 lectures, 4 hrs. lab. {Fall}

***416L. Histology. (5) Bourne**

Microscopic structure of vertebrate tissues, emphasizing correlation of structure and function.

Prerequisite: 221. 3 lectures, 4 hrs. lab. {Spring}

***418. Population Genetics. (3) Ewing**

Mechanisms for the maintenance of genetic variation in natural populations: descriptive population genetics; forms of balancing selection; population structure and size; multi-locus questions; neutrality and mutation, migration, and finite size.

Prerequisites: 221, 222, calculus. {Fall}

***419. [423.] Biological Adaptation. (3) Staff**

Adaptations of plants and animals to light.

Prerequisites: 222 and junior status.

***420. [424.] Biological Adaptation. (3) Staff**

Adaptations of plants and animals to temperature and water.

Prerequisites: 222 and junior status.

***421L. Comparative Vertebrate Anatomy. (5) Altenbach**

Prerequisites: 222 and 386L or permission of instructor. 2 lectures, 6 hrs. lab. {Spring}

***423. [324.] Introductory Biochemistry. (3)**

(Also offered as Chem and Med Sci 423.) Introductory course

into metabolic reactions 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.

Prerequisite: Chem 302 or 308. {Fall, Spring}

***425. Molecular Genetics. (3) Kogoma**

Molecular biology of the gene. May be taken with or independently of 426L.

Prerequisite: 351 or permission of instructor.

***426L. Molecular Genetics Laboratory. (1) Kogoma**

Experiments with bacteria and bacteriophages to understand mutation, recombination, complementation, etc.

Pre- or corequisite: 425. 3 hrs. lab.

***427. Advanced Genetics. (3) W. Johnson**

Consideration of the evolution and integration of genetic systems and the genetic component of certain complex behavioral and developmental traits.

Prerequisite: 221.

***428. Human Heredity. (3) W. Johnson**

Genetic principles applied to man.

Prerequisite: 221. {Fall}

***429. Cell Biology. (4) Kerkof**

Life processes with emphasis on relationships of structure and function at organelle and molecular level.

Prerequisites: 14 hrs. of biology and Chem 212 or 301-303L. 4 lectures. {Fall, Spring}

***430. Vertebrate Physiology. (4) Riedesel**

Functions and structures with emphasis on fundamental physiological processes and mechanisms at cell and system levels.

Prerequisites: 14 hrs. of biology and 429, Chem 423 or Chem 585-586. {Spring}

***431L. Vertebrate Physiology Laboratory. (1) Riedesel**

Independent research projects in small student groups with demonstration of competence in operation of equipment and data interpretation.

Pre- or corequisites: 430 and permission of instructor. 3 hrs. lab.

***433. Molecular Biophysics. (3) Beckel, Kogoma**

(Also offered as Physcs 433.) Physio-chemical properties and the dependence of biological function on these properties for amino acids, proteins, nucleotides, DNA, and RNA. {Offered upon demand}

***435L. Animal Physiology. (4) Altenbach, Toolson**

The function of organ systems in animals, emphasizing neuromuscular, cardiovascular, gastrointestinal, and renal physiology.

Prerequisite: 429 or permission of instructor. 3 hrs. lecture, 3 hrs. lab. {Fall, Spring}

***439L. Cell Biology Laboratory. (3) Kerkof**

Laboratory experience with various methods and techniques used in cell biology.

Pre- or corequisite: 429. 1 hr. lecture, 5 hrs. lab.

***440L. The Soil Ecosystem. (4) G. Johnson**

Interrelationship between the abiotic and biotic factors in soils; influence of soils on above-ground biota.

Prerequisites: 222 and Chem 121L-122L or 131L-132L. {Offered upon demand}

***443L. Comparative Physiology. (4) Toolson**

Comparative treatment of physiological processes in animals, with emphasis on osmoregulation, metabolism, circulation, and thermobiology.

Pre- or corequisite: 429 or permission of instructor. 3 lectures, 3 hrs. lab. {Spring}

***450. General Virology. (3)** Baca, Kogoma

Structure, properties, and chemistry of viruses; virus-host interactions, multiplication, serological properties, uses as probes in molecular biology; effects of physical and chemical agents, classification.

Prerequisite: Chem 423 or Biol 350 or 429 or 351. {Fall}

***451. Microbial Ecology. (3)**

Role of microorganisms in terrestrial and aquatic ecosystems. Emphasis on biogeochemistry and nutrient cycling.

Prerequisite: Chem 423 or 212. 3 lectures. {Fall}

***452. Vertebrate Endocrinology. (3)** Trujillo

An advanced course on hormones, their synthesis and mechanisms of action in endocrine physiology and biochemistry.

Prerequisites: 429, Chem 423 or permission of instructor. 3 lectures. {Fall}

***454L. Pathogenic Bacteriology. (3-5)** Baca

The properties and characteristics of disease-producing bacteria and their relationship to disease.

Prerequisite: 350L; 456 recommended. 3 lectures, 6 hrs. lab. {Spring}

***455. Ethology: Animal Behavior. (3)** Ligon

A survey of behavior patterns in animals, with emphasis on adaptive significance.

Prerequisite: 222. {Spring}

***456. Immunology. (3)** Vogel

Immunoglobulin structure, antigen-antibody reactions, immunity and hypersensitivity, transplantation and auto-immune diseases.

Prerequisites: 239L or 350L, Chem 302-304L; recommended: 429 and Chem-Med Sci 423. 3 lectures. {Fall}

***457L. Ethology Laboratory: Animal Behavior. (1)** Ligon

Special laboratory and field projects in animal behavior.

Pre- or corequisite: 455. 3 hrs. lab. {Spring}

***458L. Immunology Lab Techniques. (2)** Staff

Laboratory preparation, detection, and measurement of antibodies.

Pre- or corequisite: 456. 4 hrs. lab. {Offered upon demand}

***460L. Microbial Physiology. (4)** Barton

Physiological and biochemical activities of bacteria and fungi with emphasis on cell energetics.

Prerequisite: 350L. 3 lectures, 3 hrs. lab. {Spring}

***465. Sociobiology and Evolutionary Ecology. (3)** Thornhill

Evolutionary and social biology; speciation, adaptation, population ecology.

Prerequisite: 222. {Fall}

***466L. Sociobiology and Evolutionary Ecology Project. (2)**

Thornhill

Special lab, field or literature projects.

Pre- or corequisite: 465. 6 hrs. lab (arranged). {Fall}

***467. Evolutionary Plant Ecology. (3)** Cates

An evolutionary approach to the study of adaptation in plants. Particular emphasis will be given to life history strategies, coevolutionary biology, and physiological ecology of plants.

Prerequisite: 222.

***470L. Stream Ecology. [Ecology of Flowing Water.] (4)** Molles

Ecology of rivers, streams, and spring runs. Particular emphasis will be given to invertebrates and fishes of flowing waters. All-day and one or more overnight field trips required.

Prerequisite: 222. 3 lectures, 3 hrs. lab. {Fall}

***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.

Prerequisite: 222. 2 lectures, 6 hrs. lab.

***474L. Plant Anatomy. (4)** Martin

Structure of vascular plants.

Prerequisite: 222. 2 lectures, 4 hrs. lab.

***478L. Plant Physiology. (4)** G. Johnson

Nutrition, metabolism, and growth of higher plants.

Prerequisite: 260L or permission of instructor; Chem 301-303L recommended. 3 lecture, 3 hrs. lab. {Spring}

***483. Analysis of Development. (3)** Trujillo

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: 221, 312, 429, and permission of instructor. {Spring}

***484. Biology of Water Pollution. (3)** Kidd

Application of ecosystem and community diversity concepts to water pollution problems.

Prerequisite: permission of instructor. {Spring}

***485L. Biology of Water Pollution Laboratory. (1)** Kidd

Techniques of monitoring aquatic habitats are stressed.

Pre- or corequisites: 484; permission of instructor. {Spring}

***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)** Molles

Classification, phylogeny, natural history, and literature of fishes. All-day field trips and one or more overnight field trips required.

Prerequisite: 222. 3 lectures, 3 hrs. lab. {Fall}

***488L. Herpetology. (4)** Degenhardt

Classification, phylogeny, natural history, and literature of reptiles and amphibians. All-day field trips and one or more overnight field trips required.

Prerequisite: 222. 2 lectures, 6 hrs. lab. {Spring}

***489L. Mammalogy. (4)** Findley, Yates

Classification, phylogeny, natural history, and literature of mammals. All-day field trips and one or more overnight field trips required.

Prerequisite: 386L. 3 lectures, 3 hrs. lab.

***490. Principles of Systematic Biology. (3)** Yates

Systematic theory and philosophy applied to kinds, diversity, and relationships among organisms. Phenetic, cladistic, and numerical techniques as applied to systematic studies. Levels and methods of biological classification.

Prerequisite: 222. {Spring}

***491L. Radiobiology. (4)** G. Johnson

Properties of radiation; principles, theory, and use of detection and counting instruments; radioisotopes as tracers in biological experiments.

Prerequisites: 429, Physcs 151-153L; one year of organic chemistry recommended. 2 lectures, 6 hrs. lab. {Fall}

***492. Radiobiology. (3)** 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: Physcs 152-154L; 1 year of organic chemistry recommended. {Spring}

***493L. Advanced Radiobiology Laboratory. (1-3)** G. Johnson

Advanced radioisotope methodology, independent research in radiobiology.

Corequisite: 492 and permission of instructor. {Spring}

***494. Geographical Ecology. (3) Findley**

The role of ecologic and evolutionary processes in determining the geographic pattern of biological communities.
Prerequisites: 221-222 or equivalent background in evolution and ecology. {Spring}

***495. Topics on Limnology-Oceanography. (3) Molles**
Biological, physical, and chemical interactions in standing water ecosystems.
Prerequisites: 222, 1 year of physics or chemistry. 3 lectures. {Spring}

496F. Advanced Marine Biology. (3)† Duszynski, Molles
Field and laboratory studies of marine organisms. Required 1-week field trip to a marine environment.
Prerequisites: 222 and permission of instructor; recommended: 370F, 371L, 495. Also offered as 596F for graduate credit. {Spring}

499. Undergraduate Problems. (1-3)
Junior or senior status and permission of instructor required. Maximum of 2 hrs. credited towards a biology major. Credit not allowed toward a biology minor.

***500. New Graduate Student Seminar. (1) Staff**

***502. Special Topics in Biology. (1-3)†**
Prerequisite: permission of instructor. {Summer, Fall, Spring}

***504. Environmental Physiology. (3) Riedesel**
Prerequisites: 430 and permission of instructor. {Fall}

***508L. Desert Invertebrates. (4) Crawford**
Credit not allowed for both 408L and 508L.
Prerequisite: 371L. 2 lectures, 3 hrs. lab. {Spring}

***510. Genetics of Speciation. (3) Ewing**
Prerequisite: 221. {Spring}

***519. [*515.] Comparative Vertebrate Physiology. (3) S. Wood**
(Also offered as Med Sci 619.)
Prerequisites: biochemistry, physiology, or permission of instructor. {Spring}

***520. Energy and Metabolism. (3) Omdahl, Trujillo**
Prerequisite: Biol 429 or Chem 423. {Spring}

***545. A Cellular Approach to the Biology of Aging. (3)**
Prerequisites: 429, at least one of 425, 456, 483, or permission of instructor. 3 hrs. lecture. {Spring 1984}

***551. Problems. (2-3)††**

***552L. Advanced Parasitic Protozoology. (4) Duszynski**
Prerequisites: 371L, 416L, or permission of instructor. 2 lectures, 4 hrs. lab. {Spring}

***554L. Mammalian Ecology. (4) Findley**
Prerequisite: 489L or permission of instructor. 3 lectures, 3 hrs. lab. {Spring}

***555L. Environmental Microbiology. (4)**
Pre- or corequisite: 451. 1 lecture, 9 hrs. lab. {Saturday} {Fall}

***557. Advanced Population Ecology. (3)† Taylor**
Prerequisites: 411L and Math 163 or equivalent. 3 lectures. {Alternate Springs}

***559. Ecology of Natural Communities. (4) Wiens**
Prerequisites: 222, graduate status, and permission of instructor. Field trips required. 3 lectures, 4 hrs. lab. {Spring}

***563L. Advanced Plant Taxonomy. (4) Martin**
Prerequisites: graduate status and permission of instructor. 2 lectures, 6 hrs. lab. {Spring}

***571L. Physiological Plant Ecology. (4) Gosz**
Prerequisite: 478L. 3 lectures, 3 hrs. lab. {Offered upon demand}

***573L. Plant Ecology of North American Forests and Tundra. (4) Potter**
Prerequisites: 222 and 363L or permission of instructor. 3 lectures, 3 hrs. lab. {Fall}

***574L. Plant Ecology of North American Deserts and Grasslands. (4) Potter**
Prerequisites: 222 and 363L or permission of instructor. 3 lectures, 3 hrs. lab. {Spring}

***593. Plant Mineral Metabolism. (2) G. Johnson**
Prerequisite: 478L. 2 lectures. {Fall}

***594L. Plant Mineral and Water Relations Laboratory. (2) G. Johnson**
Pre- or corequisite: 593 or permission of instructor. 6 hrs. lab. {Fall}

***595. Computer Modeling of Environmental Systems. (3)**
Prerequisite: knowledge of Fortran; Math 316 recommended. {Spring}

***596F. Advanced Marine Biology. (3)† Duszynski, Molles**
Also offered as 496F for undergraduate credit. {Spring}

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

***651F. Advanced Field Biology. (4-8)**
Approval of Committee on Studies required.

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Program Bulletin for total credit requirements.

CHEMISTRY

Riley Schaeffer, Chairperson
Clark Hall 103, 277-6655

PROFESSORS:

Roy Dudley Caton, Ph.D., Oregon State University
Guido Herman Daub, Ph.D., University of Wisconsin
Ulrich Hollstein, Ph.D., University of Amsterdam
Riley Schaeffer, Ph.D., University of Chicago
Robert Edwin Tapscott, Ph.D., University of Illinois
David Lee VanderJagt, Ph.D., Purdue University

ASSOCIATE PROFESSORS:

Fritz Schreyer Allen, Ph.D., University of Illinois
Richard Willis Holder, Ph.D., Yale University
William Morris Litchman, Ph.D., University of Utah
Donald Reed McLaughlin, Ph.D., University of Utah
Cary Jacks Morrow, Ph.D., Tulane University
Thomas Michael Niemczyk, Ph.D., Michigan State University
Robert Treat Paine, Jr., Ph.D., University of Michigan
Eleftherios Paul Papadopoulos, Ph.D., University of Kansas
Su-Moon Park, Ph.D., University of Texas at Austin
Edward Albert Walters, Ph.D., University of Minnesota

ASSISTANT PROFESSORS:

Carlos Jose Bustamante, Ph.D., University of California (Berkeley)
Jon R. Maple, Ph.D., Northern Illinois University
Mark Roy Ondrias, Ph.D., Michigan State University
James Satterlee, Ph.D., University of California (Davis)

INSTRUCTORS:

Lorraine Marie Deck, M.S., University of New Mexico
Miriam Pitschner Malm, M.S., University of New Mexico

PROFESSOR EMERITUS:

Milton Kahn, Ph.D., Washington University

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. 316.

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.

For additional biochemistry courses, see listings under medical sciences.

MAJOR STUDY

For the degree of Bachelor of Arts: Chem 121L, 122L, 253L, 301 (or 307), 302 (or 308), 303L (or 309L), 304L (or 310L), 315 (or 311-312), and sufficient hours of electives to bring the total to 31 hours (see approved electives below); or Chem 131L (or 121L), 132L, 301 (or 307), 302 (or 308), 303L (or 309L), 304L (or 310L), 315 (or 311-312), and sufficient hours of electives to bring the total to 31 hours (see approved electives below). Electives must be selected from the following courses: Chem 401L, 423, 425, 431, 433, 454L, 466, 495-496 (no more than 2 credit hours in 495-496). The B.A. program must also include Physics 151, 152, 153L, and 154L, and Math 162 and 163. Credit is not allowed for both 315 and 311-312. (Credit not allowed for both 301-302 and 307-308 and for both 303L-304L and 309L-310L.)

For the degree of Bachelor of Science: Chem 131L (or 121L), 132L, 301 (or 307), 302 (or 308), 309L, 310L, 311, 312, 331L, 332L, 431, 454L, and at least 6 additional hours selected from courses numbered 325-498; or Chem 121L, 122L, 253L, 301 (or 307), 302 (or 308), 309L, 310L, 311, 312, 331L, 332L, 431, 454L, and at least 6 additional hours selected from courses numbered 325-498. The program must also include Physics 160, 161, 163L, 262, 264L, mathematics equivalent to 311, or 316 or higher. Only three credits of Chem 495-498 and two credits of 325-326 may be counted toward the B.S. degree.

Students deciding on a B.S. after having taken Chem 303L-304L may qualify for the B.S. by taking Chem 310L. Two years of German is recommended for students who are planning to do advanced studies in chemistry. English 320 is also recommended.

Physics and mathematics courses required for the B.S. or B.A. degree may not be taken on the credit grade option.

DEPARTMENTAL HONORS

The student enters the program at the beginning 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: 131L-132L (or 121L-122L, 253L) (or 121L-132L), 307-308 (or 301-302), 309L, 310L (or 303L, 304L, 310L), 311, 312, 331L, 332L, 431, 454L and 6 hours of additional courses from 325-498, including at least 3 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 Graduate Record Examination Advanced Test in Chemistry in their senior year and must obtain a satisfactory score.

Any deviation from the requirements prescribed above must be approved by the Department of Chemistry. Credit hours must total a minimum of 31 hours (B.A. degree) or 44-47 hours (B.S. degree).

No distributed minors are allowed for B.S. and B.A. majors.

The Department of Chemistry assigns prospective chemistry majors to faculty advisers and all undergraduate students planning to major in chemistry are encouraged to take advantage of this advisement program.

MINOR STUDY

Twenty hours in chemistry, including Chem 121L, 122L, 253L, and either 301, 302, 303L, 304L, or 311, 312; or Chem 131L (or 121L), 132L, 301, 302, 303L, 304L or 311, 312, and 3 additional hours selected from courses numbered 325-496. Chem 307, 308, 309L, and 310L may be substituted for Chem 301, 302, 303L, 304L in which case the minor will total 22 hours. Chem 111L and 212 do not count toward the minor.

CHEMISTRY (CHEM)

100. Natural Science. (4)

An introduction to the Natural Science disciplines. Emphasis on intensive skills improvement in reasoning, mathematics, communications, reading and comprehensive study techniques which are required for further study in any of the Natural Science disciplines. Individual courses will emphasize content pertinent to the department offering the course, but all courses will be interdisciplinary and focus on skills development. For students who score 17 or below in Natural Science on the ACT, or who are admitted with a Natural Science deficiency. {Fall, Spring}

111L. 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 111L and 121L.) {Summer, Fall, Spring}

121L. General Chemistry. (4)

Introduction to the chemical and physical behavior of matter. Prerequisite: ACT math score of 19 or higher; or completion of Math 121 or Math 150 with a grade of C or better; or a math placement score which qualifies the student for Math 162 or Math 180. 3 lectures, 3 hrs. lab. {Summer, Fall, Spring}

122L. General Chemistry. (4)

Continuation of 121L.

Prerequisite: 121L or 131L with grade of C or better. 3 lectures, 3 hrs. lab. {Summer, Fall, Spring}

131L. Principles of Chemistry. [Honors General Chemistry.] (4)

Chemical and physical behavior of matter, atomic and molecular structure, and chemical periodicity. Introduction to quantitative laboratory techniques and chemical instrumentation. The course is strongly recommended for students intending to major in chemistry.

Prerequisites: 1 year of high school chemistry within the last 3 years and ACT math score of 29 or higher or permission of instructor. Pre- or corequisite: Math 162 or 180. 3 lectures, 3 hrs. lab. (Credit not allowed for both 121L and 131L.) {Fall}

132L. Principles of Chemistry. [Honors General Chemistry.] (5)

Thermodynamics, equilibria, and kinetics in chemical systems. Lab is a continuation of Chem 131L.

Prerequisite: 131L or grade of A in Chem 121L the previous semester or permission of instructor. Pre- or corequisite: Math 163 or 181. 3 lectures, 6 hrs. lab. (Credit not allowed for both 122L/253L and 132L.) {Spring}

151L. General Chemistry, Special, Lecture or Laboratory. (1-3)

This course provides either lecture or laboratory credit for transfer students needing only the lecture or laboratory for Chem 121L or 131L. This course is available only to transfer students with this special problem.

Prerequisite: permission of department chairperson only. {Offered upon demand}

152L. General Chemistry, Special, Lecture or Laboratory. (1-3)

This course provides either lecture or laboratory credit for transfer students needing only the lecture or laboratory for Chem 122L or 132L. This course is available only to transfer students with this special problem.

Prerequisite: permission of department chairperson only. {Offered upon demand}

201. Introduction to the Chemistry Profession. (1)

Description of professions within the field of chemistry to include presentations by academic, industrial and government chemists. Discussion of the nature of pure and applied research in chemistry. Introduction to educational requirements for chemists and available programs in Chemistry.

212. Integrated Organic Chemistry and Biochemistry. (4)

Survey interrelating the major principles of organic chemistry and biochemistry with special emphasis toward interests of students in the health sciences.

Prerequisite: 111L or 121L. (Credit not allowed for both 212 and 301.) {Summer, Fall, Spring}

226. Honors Seminar. (1)

Discussion of research topics currently under investigation in the department. Primarily for sophomores considering the Departmental Honors Program.

Prerequisite: 132L or permission of instructor. {Spring}

253L. Quantitative Analysis. (4)

Theory and techniques of volumetric and gravimetric analysis.

Prerequisite: 122L. 2 lectures, 6 hrs. lab. (Students should make every effort to complete 253L within two semesters of completion of 122L.) {Summer, Fall, Spring}

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 eighth 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: 122L or 132L. {Summer, Fall, Spring}

****302. Organic Chemistry. (3)**

Continuation of 301.

Prerequisite: 301. {Summer, Fall, Spring}

****303L. Organic Chemistry Laboratory. (1)**

To be taken concurrently with 301 or 307. 3 hrs. lab. {Summer, Fall, Spring}

****304L. Organic Chemistry Laboratory. (1)**

To be taken concurrently with 302 or 308. 3 hrs. lab. {Summer, Fall, Spring}

****307. Organic Chemistry. [Honors Organic Chemistry.] (3)**

Chemical and physical behavior of the compounds of carbon. A quantitative approach to mechanistic principles is emphasized. This course is strongly recommended for students majoring in chemistry.

Prerequisites: an A or B in Chemistry 121L-122L or 131L-132L. It is mandatory that 303L or 309L be taken concurrently. {Fall}

****308. Organic Chemistry. [Honors Organic Chemistry.] (3)**

Continuation of 307.

Prerequisite: 307. It is mandatory that 304L or 310L be taken concurrently. {Spring}

****309L. Organic Chemistry Laboratory. (2)**

To be taken concurrently with 301 or 307 by B.S. majors. 6 hrs. lab. {Fall}

****310L. Organic Chemistry Laboratory. (2)**

To be taken concurrently with 302 or 308 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: 132L or 253L, Math 162, 163, Physics 151, or 161; corequisite: Physics 152 or 262. {Fall}

****312. Physical Chemistry. (4)**

Continuation of 311.

Prerequisite: 311. {Spring}

****315. Introductory Physical Chemistry. (4)**

Fundamentals of physical chemistry with primary emphasis upon biological and biochemical applications.

Prerequisites: 122L and 253L or 132L, Math 162 or 180 and 181, or permission of instructor. (Cannot be used for credit toward a B.S.) (Credit not allowed for both 311 and 315.) {Fall}

****325-326. Special Topics for Undergraduates. (1-3, 1-3 hrs. each semester)†**

Possible topics are: chemical literature, environmental chemistry, photochemistry, stereochemistry, macromolecules, ¹³C-NMR, natural products.

Prerequisite: permission of instructor. {325—Fall upon demand; 326—Spring 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. Pre- or corequisite: 311. 6 hrs. lab. {Fall}

****332L. Chemistry Laboratory III. (1-2)**

2 credits for chemistry majors, 1 credit for chemical engineers. Continuation of 331L.

Prerequisite: 331L; corequisite: 312. 6 hrs. lab. {Spring}

****391-392. Readings in Selected Topics. (1-3, 1-3 hrs.)‡**

Advanced topics not covered in general offerings.

Prerequisite: prior arrangement with instructor and permission of the department chairperson. {391—Fall upon demand; 392—Spring upon demand}

***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}

***423. Introductory Biochemistry. (3)**

(Also offered as Med Sci and Biol 423.) Introductory course into metabolic reactions 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.

Prerequisite: 302 or 308. {Fall, Spring}

***425. Environmental Biochemistry. (3)**

(Also offered as Med Sci 425.) Evaluation of natural and man-made environmental agents to which we are all exposed; emphasis will be placed on understanding the biochemical reactions which accompany this exposure. Topics include mutagens, carcinogens, antibiotics, pesticides, water and air pollution, food additives, radiation biology.

Prerequisite: 423 or Biol 429. {Spring}

***431. Advanced Inorganic Chemistry. (3)**

Survey of electronics and molecular structures of inorganic

compounds, coordination chemistry, bonding theory, physical methods, periodicity, and reactions.

Prerequisite: 312 or permission of instructor. {Fall}

***433. Chemical Applications of Group Theory. (2)**

The role of symmetry in chemical problems. Areas to be treated include representation theory, vibrational and electronic spectroscopy, molecular orbital theory and orbital control of chemical reactions.

Prerequisite: 312 or equivalent. {Fall}

***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: 253L or permission of instructor. 2 lectures, 6 hrs. lab. {Spring upon demand}

***455. Modern Aspects of Chemical Analysis. (3)**

Treatment of current areas of chemical analyses such as trace analysis in the environment, clinical analysis, or high pressure liquid chromatography. {Fall upon demand}

***466. Computers in Chemistry. (2)**

Introduction to the Fortran IV computer language with application to problems of chemical interest. {Spring}

495-496. Undergraduate Problems. (1-3, 1-3 hrs. each semester)

Prerequisite: permission of instructor. {495—Summer, Fall; 496—Spring}

497-498. Senior Honors Research. (1-3, 1-3 hrs each semester)

Prerequisite: permission of instructor. Senior paper based on independent research. {497—Summer, Fall; 498—Spring}

***501. Molecular Structure Theory. [Chemical Bonding Theory.] (3)**
{Fall}

***504. Chemical Dynamics. (3)**

{Spring}

***511. Mechanisms in Organic Chemistry. (3)**

Prerequisite: permission of instructor. {Fall}

***512. Mechanisms in Organic Chemistry. (3)**

Prerequisite: 511 or permission of instructor. {Spring}

***513. Organic Molecular Structure Determination. (3)**

{Fall upon demand}

***514. Synthesis in Organic Chemistry. (3)**

Prerequisite: 511 or permission of instructor. {Spring}

***515-516. Topics in Organic Chemistry. (1-3, 1-3 hrs.)†**

{515—Fall upon demand; 516—Spring upon demand}

***524. X-Ray Crystallography. (3)**

Prerequisite: 433 or permission of instructor. {Spring upon demand}

***533. Inorganic Bonding Theory. (3)**

Prerequisites: 431 and 433 or permission of instructor. {Fall upon demand}

***534. Physical Methods in Inorganic Chemistry. (3)**

Prerequisites: 431 and 433 or permission of instructor. {Spring upon demand}

***535. Advanced Coordination Chemistry. (3)**

Prerequisites: 431 and 433 or permission of instructor. {Fall upon demand}

***536. Synthesis and Mechanism in Inorganic Chemistry. (3)**

Prerequisite: 431 or permission of instructor. {Spring upon demand}

***537-538. Topics in Inorganic Chemistry. (1-3, 1-3 hrs.)†**

Prerequisite: permission of instructor. {537—Fall upon demand; 538—Spring upon demand}

***540. Advanced Analytical Chemistry. (3)**

{Spring}

***541. Separations. (3)**

{Fall upon demand}

***542. Chemical Measurements. (3)**

{Spring upon demand}

***543. Analytical Spectroscopy. (3)**

{Fall upon demand}

***544. Electrochemistry. (3)**

{Spring upon demand}

***545-546. Topics in Analytical Chemistry. (1-3, 1-3 hrs.)†**

{545—Fall upon demand; 546—Spring upon demand}

***560. Biophysical Chemistry. (3)**

Prerequisite: 312 or 315 or permission of instructor. {Spring upon demand}

***561. Quantum Chemistry I. (3)**

{Fall upon demand}

***562. Quantum Chemistry II. (3)**

Prerequisite: 561. {Spring upon demand}

***563. Thermodynamics. (3)**

Prerequisite: 312 or permission of instructor. {Fall upon demand}

***564. Statistical Thermodynamics. (3)**

Prerequisite: 312 or permission of instructor. {Spring upon demand}

***565. Kinetics. (3)**

Prerequisite: 312 or permission of instructor. {Fall upon demand}

***566. Spectroscopy. (3)**

Prerequisite: 312 or 561 or permission of instructor. {Spring upon demand}

***567-568. Topics in Physical Chemistry. (1-3, 1-3 hrs.)†**

Prerequisite: permission of instructor. {567—Fall upon demand; 568—Spring upon demand}

***585. Advanced Biochemistry I. (3)**

(Also offered as Med Sci 585.)

Prerequisites: 302 or 308; 423 or a passing grade on ACS placement exam; pre- or corequisite: 311 or 315; undergraduates—approval of instructor. {Fall}

***586. Advanced Biochemistry II. (3)**

(Also offered as Med Sci 586.)

Prerequisites: 302 or 308; 423 or a passing grade on ACS placement exam; pre- or corequisite: 311 or 315; undergraduates—approval of instructor. (585 and 586 are independent courses and may be taken in either sequence). {Spring}

***587. Advanced Topics in Biological Chemistry. (1-3) ‡**

(Also offered as Med Sci 587.)

Prerequisites: 423 and sometimes 585 or 586, depending upon topic. {Offered upon demand}

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

***623. Biochemistry of Steroids. (3)**

(Also offered as Med Sci 623.)

Prerequisites: 302 or 308, 423 or 585, or Med Sci 590-591. {Fall upon demand}

***625. Chemistry Seminar. (1)**

{Fall, Spring}

***650. Research/Readings.** (2-6 hrs., to a maximum of 27)
{Summer, Fall, Spring}

***699. Dissertation.** (3-12 hrs. per semester)

See the Graduate Programs Bulletin for total credit requirements.

COMMUNICATIVE DISORDERS

Lloyd E. Lamb, Chairperson
901 Vassar, N.E., 277-2918

PROFESSOR:

Lloyd E. Lamb, Ph.D., Purdue University

ASSOCIATE PROFESSORS:

Dolores S. Butt, Ph.D., University of New Mexico
Richard B. Hood, Ph.D., Stanford University
Bruce E. Porch, Ph.D., Stanford University
Wayne Swisher, Ph.D., University of Wisconsin

ASSISTANT PROFESSORS:

Linda L. Riensche, Ph.D., Memphis State University
Edward A. Shirkey, Ph.D., Memphis State University

LECTURER:

Phyllis S. Wilcox, M.S., Eastern New Mexico University

CLINICAL FACULTY:

ASSISTANT PROFESSOR:

Mary L. Bolton, M.S., University of Kansas

INSTRUCTORS:

Judy M. Barnes, M.S., University of New Mexico
Patti Elledge, M.S., University of Oklahoma Health Science
Jan S. Lewis, M.A., University of Kansas
Theresa B. White, M.S., University of Wisconsin-River Falls
Judy K. Williams, M.A., Northwestern University

MAJOR STUDY

Thirty-six hours in communicative disorders. Required: 302, 303, 320, 321, 430. Electives: 21 hours from 210, 310, 325, 326L, 330, 350, 358, 422, 425, 432, 435, 436, 437, 440, 450, 458, 494; Ling 292.

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 preprofessional. 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

Eighteen hours in the Department of Communicative Disorders chosen from courses listed for the major.

COMMUNICATION DISORDERS (COM DS)

105. Speech for Foreign Language Students. (1 hr. per semester, to a maximum of 3) Bolton
Clinical work for students who speak English with a foreign accent. (May be taken under CR/NC option.)

210. [426.] Introduction to Sign Language. [Beginning Sign Language.] (3) Wilcox
Fingerspelling and sign language. {Fall, Spring}

211. Orientation to Deafness. (3) Staff

The course offers an overview of the definitions, causes, and scope of deafness; an introduction to speech and hearing mechanism; and the implications of deafness on personal, family, and community life. {Fall}

220. Workshop in Communicative Disorders. (1-3, repeatable up to 6 hrs.) Staff

An introduction 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)

(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.

292L. Introduction to Linguistic Analysis. (3)

(See Ling 292L.)

***302. Communicative Disorders.** (3) Swisher

(Also offered as Spec Ed 302.) Nature of communicative disorders, including speech, hearing, and language disorders in children and adults. Methods of identification and remediation. {Summer, Fall, Spring}

***303. Phonetics.** (3) Riensche, Hudson-Edwards, Strauss

(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}

310. [429.] American Sign Language I. [Intermediate Sign Language.] [Intermediate Manual Communication.] (3) Wilcox.

A study of American Sign Language, including basic concepts and sign lexicon. Grammatical features of American Sign Language will be stressed, along with structure and syntax. The student will be expected to demonstrate to the instructor his proficiency at the end of the semester.

311. American Sign Language II. (3) Staff

A study of American Sign Language (ASL) including sign language idioms and colloquialisms used in conversational signing. The course will also provide a summary of information currently available dealing with the understanding of ASL grammatical structure and its sociolinguistic usage. {Spring}

313. Fingerspelling. (3) Staff

This course will assist the student in acquiring fluent fingerspelling ability through the use of visual and expressive drills. Videotapes of a variety of fingerspelling styles will be used to insure that the student acquires a comprehensive background. {Fall}

314. Manually Coded English. (3) Staff

The course helps to expand the student's basic vocabulary with signs which are analogous with the English language. The employment of signs for the conjugation of verbs, proper tenses, suffixes, and prefixes, and syllables are taught. New signs created to help deaf children learn English better are introduced. {Spring}

***320. Acoustics and Perception of Speech.** (3) Riensche
Principles and processes of sound generation, transmission, reception, and perception 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) Swisher

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) Staff**

Projects and demonstrations in support of theory presented in 325.

Pre- or corequisite: 325. {Spring}

***330. Speech Pathology in the Schools. (3) Staff**

An introduction to types of speech and hearing problems found in the schools. {Offered upon demand}

***350. Anatomy and Physiology of Speech and Hearing. (4) Riensche**

Structure and function of the speech and hearing mechanisms as they relate to normal and disordered communication. {Fall}

358. Pre-Clinical Training. (1) Bolton, Lamb

Introduction to basic clinical skills prerequisite for clinical practicum.

Prerequisites: 302, 303, 325, and permission of instructor. {Summer, Fall, Spring}

410. Interpreting I. (3) Staff

This course will offer an introduction to the roles and responsibilities of an interpreter. Fundamental theories, principles, and ethics of this profession will be discussed. Basic interpreting skills will be demonstrated and practiced. {Fall}

411. Interpreting II. (3) Staff

This course will stress the importance of the Registry of Interpreters for the Deaf's Code of Ethics. The student will be introduced to the various community resources available to the professional interpreter. Techniques of interpreting in platform, deaf/blind, medical, and legal situations will be demonstrated and practiced. {Spring}

413. [433.] Receptive Sign Language I. [Advanced Sign Language.] (3) Wilcox

This course offers an introduction to the principles and problems of voice interpreting for hearing-impaired individuals. It concerns the problems of interpreting the manual, oral, and written communication of hearing-impaired persons into spoken or written English equivalents. Basic voice interpreting situations will be presented for vocabulary building.

414. Receptive Sign Language II. (3) Staff

This course offers advanced study and practice of voice interpreting. Procedures are presented for determining the conceptual and vocabulary levels of the deaf individual for whom the interpreter is translating or interpreting. This lecture and demonstration course will stress word synonyms and connotations. {Spring}

416. Seminar in Sign Language Interpreting. (1-3) Staff {Fall}

418. Practicum in Sign Language Interpreting. (1-3) Staff {Upon demand, Fall, Spring}

***420. Workshop in Communicative Disorders. (1-3, repeatable up to 6 hrs.) Staff**

Not accepted toward a communicative disorders major. No prerequisites.

***422. Hearing Conservation. (3) Hood**

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. {Spring}

***427. Problems of the Hearing-Impaired. (3) Hood**

(Also offered as Spec Ed 427.) Communicative, educational, and psycho-social problems of the deaf and hard of hearing.

Prerequisite: 302 or 321 or permission of instructor. {Fall}

***428L. Aural Rehabilitation Laboratory. (1) Hood**

Projects and demonstrations in support of theory presented in 425.

Pre- or corequisite: 425. {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. {Fall}

***431L. Development of Speech and Language Laboratory. (1) Butt**

Projects or demonstrations in support of theory presented in 430.

Pre- or corequisite: 430. {Fall}

***432. [538.] Psycholinguistic Testing. (3) Butt**

{Fall}

***435. Processes of Phonation. (3) Shirkey**

The scientific study of normal and atypical processes of phonation as they affect communication.

Prerequisites: 302, 325, and 350. {Fall}

***436. Stuttering. (3) Shirkey**

Theories of stuttering and other rhythmic disorders and approaches to treatment.

Prerequisite: 302 or permission of instructor. {Fall}

***437L. Stuttering Laboratory. (1) Shirkey**

Projects and demonstrations in support of theory presented in 436.

Pre- or corequisite: 436. {Fall}

440. Undergraduate Problems. (1-3 hrs., to a maximum of 6)

Prerequisite: permission of instructor. {Summer, Fall, Spring}

***450. Neurology and Neuropathologies of Speech. (4) Swisher**

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}

***451. Aphasia and Related Disorders. (3) Porch**

Symbolic disorders of communication, including receptive and expressive speech and language problems.

Prerequisites: 302, 430, and 450, or permission of instructor. {Spring}

***458. Clinical Practice. (1-3 hrs., to a maximum of 6) Staff**

Speech pathology and audiology in the clinic.

Prerequisite: 358 or permission of instructor. {Summer, Fall, Spring}

***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}

***503. Experimental Phonetics. (3) Riensche**

***506. Research and Writing in Communicative Disorders. (3) Riensche**

***520. Hearing Science. (3) Lamb**

***525. Seminar in Voice Disorders. (3) Shirkey**

{Spring}

***526L. Voice Disorders Laboratory. (1) Shirkey**

{Spring}

- *530. *Language Disorders in Children.* (3) Butt (Spring)
- *531. *Communication Training of the Multi-Handicapped.* (3) Butt (Spring)
- *535. *Seminar in Cleft Palate.* (3) Swisher
- *536. *Seminar in Speech and Language Pathology.* (3, repeatable to maximum of 6) Staff
- *537. *Clinical Aphasiology.* (3) Porch
Prerequisite: 451 or permission of instructor. {Fall}
- *539. *Seminar: Current Concepts in Speech Pathology and Audiology.* (1 hr., repeatable to a total of 2) Lamb
- *551-552. *Problems.* (1-3, 1-3 hrs. each semester)
- *555. *Seminar in Educational Linguistics.* (1-3)†
(See: Ed Fdn, Ling, M Lang, Sp Com 555.)
- *558. *Clinical Field Study.* (3-6) Staff
- *559. *Research Field Study.* (1-3) Staff
- *560. *Clinical Audiology I.* (3) Hood
- *561. *Clinical Audiology II.* (3) Lamb
- *563. *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

Joseph Zavadil, Chairperson
Humanities 317, 277-4511

PROFESSORS:

Robert Evans, Ph.D., University of Florida, (English)
David C. McPherson, Ph.D., University of Texas, (English)
Alfred Rodriguez, Ph.D., Brown University, (Languages)
Jack E. Tomlins, Ph.D., Princeton University, (Languages)

ASSOCIATE PROFESSORS:

Patrick J. Gallacher, Ph.D., University of Illinois, (English)
Dick C. Gerdes, Ph.D., University of Kansas, (Languages)
Bruno Hannemann, Ph.D., University of California, (Berkeley) (Languages)
Patricia Murphy, Ph.D., University of Wisconsin, (Languages)
Peter Pabisch, Ph.D., University of Illinois (Languages)
George F. Peters, Ph.D., Stanford University, (Languages)
Warren S. Smith, Ph.D., Yale University, (Languages)
Jon M. Tolman, Ph.D., University of New Mexico, (Languages)
Joseph B. Zavadil, Ph.D., Stanford University, (English)

ASSISTANT PROFESSORS:

June Carter, Ph.D., University of Washington, (Seattle) (Languages)
Byron T. Lindsey, Ph.D., Cornell University, (Languages)
Antonio Marquez, Ph.D., University of New Mexico, (English)

LECTURER:

Ronald T. Swigger, Ph.D., Indiana University, (English)

Comparative literature is an interdepartmental program administered by the Department of English. 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;

Nine 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 202, 275-276; German 202; Greek 102, 301-302; Italian 275-276; Latin 201-202; Portuguese 275-276; Russian 201-202; Spanish 202. 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 15 additional hours of courses in literature, 9 of which must be comparative literature. Six 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/her 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 languages must be demonstrated, as in the comparative literature minor.

COMPARATIVE LITERATURE (COMP LIT)

223-224. *Literary Questions.* (3, 3)

Examination of basic questions in comparative literature studies: themes, movements, modes, interaction of literature with other disciplines, etc. Work will be comparative and reading list will represent a cross-section of Western European, American, Russian, and Classical literatures. Titles will vary as content varies.

260. *Introduction to the Methodology of Comparative Literature.* (3)

General introduction to the theory and practice of studies in comparative literature. The study of how to study influences, movements, reception, genres, and the interaction of literature with other subjects. Required for undergraduate major and minor.

275. *World Literature Through the Renaissance.* (3) (See Engl 275.)

276. *World Literature Since the Renaissance.* (3) (See Engl 276.)

304. The Bible as Literature. (3)

(See Engl 304.)

305. Mythology. (3)

(See Engl 305.)

306. Oral and Folk Literature. (3)

(See Engl 306.)

315. Interdisciplinary Approaches to Literature. (3)

(See Engl 315.)

***334. Spanish American Literature in Translation. (3)**

(See Span 334.)

***335. French Literature in Translation. (3)**

(See French 335.)

***336. Special Topics in German Literature in Translation.**

[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.)

***340. Topics in Russian Literature in Translation. (3)**

(Also offered as Russ 340.)

***341. Greek Mythology. (3)**

(See Greek 341.)

***343. Soviet Literature in Translation. (3)**

(Also offered as Russian 343.)

***344. Topics in Latin Literature in Translation. (3)**

(See Latin 344.)

***345. Topics in Greek Literature in Translation. (3)**

(See Greek 345.)

***380. Seminar in Comparative Literature. (1-3) Staff**

May be repeated for credit up to 6 hrs. Seminar will deal with individual authors, genres, or periods in two or more literatures. Reference to other subjects. {Spring}

387. Studies in Genre: Comedy, Epic, Satire, Tragedy, etc.

(3)†

(See Engl 387.)

406. The Folktale in English. (3)

(See Engl 406.)

410. Literary Criticism. (3)

(See Engl 410.)

411. Special Topics. (3)†

(See Engl 411.) Comparative literature credit available for some sections with the permission of the comparative literature adviser.

***450. Special Topics in German Studies.** [Special Topics in German Literature.] (3)

(See German 450.)

451. The Middle Ages. (3)

(See Engl 451.) Comparative literature credit available for some sections with the permission of the comparative literature adviser.

459. Irish Literature. (3)

(See Engl 459.) Comparative literature credit available for some sections with the permission of the comparative literature adviser.

470. Contemporary Literature. (3)

(See Engl 470.) Comparative literature credit available for some sections with the permission of the comparative literature adviser.

***475. Dante in Translation. (3)**

(See Italian 475.)

***490. Seminar in Russian Literature. (3)**

(See Russ 490.)

500. Introduction to Graduate Study in Comparative Literature. (3)**510. Criticism. (3)**

(See Engl 510.)

***511. [581.] Special Topics: History of Ideas, Literary Movements, etc. (3)**

(See Engl 511.)

***513. The Middle Ages. (3)**

(See Engl 551.)

***551. Problems. (1-6 hrs. per semester)†**

For M.A. candidates.

***580. Seminar in Modern Languages and Literatures. (1-6)†**

(Also offered as M Lang 580.)

***587. Genre: Comedy, Epic, Satire, Tragedy, etc. (3)‡**

(See Engl 587.)

***599. Master's Thesis. (1-6 hrs. per semester)**

ECONOMICS

Alfred L. Parker, Chairperson

1915 Roma NE #148, 158, 277-3141 or 5304.

PROFESSORS:

Shaul Ben-David, Ph.D., Cornell University
 Gerald Boyle, Ph.D., Syracuse University
 F. Lee Brown, Ph.D., Purdue University
 H. Stuart Burness, Ph.D., University of Kansas
 Pham Chung, Ph.D., University of Pennsylvania
 Albert Church, Ph.D., Claremont Graduate School
 Sanford Cohen, Ph.D., Ohio State University
 Ronald Cummings, Ph.D., University of Kansas
 Micha Gisser, Ph.D., University of Chicago
 Peter Gregory, Ph.D., Harvard University
 David Hamilton, Ph.D., University of Texas
 Paul Jonas, Ph.D., Columbia University
 Allen V. Kneese, Ph.D., University of Indiana
 Roger Norton, Ph.D., Johns Hopkins University
 Alfred L. Parker, Ph.D., Ohio State University

ASSOCIATE PROFESSORS:

Donald Tailby, Ph.D., Rutgers University
 Paul Therikildsen, Ph.D., University of Colorado
 Lee Zink, Ph.D., Oklahoma State University

ASSISTANT PROFESSORS:

Roger Andrae, Ph.D., Vanderbilt University
 Max Bennett, Ph.D., Johns Hopkins University
 Thomas H. Goodwin, Ph.D., University of California (Davis)
 Patricia Oslund, Ph.D., University of Kansas

Explanation of footnotes not indicated will be found on p. 316.

MAJOR STUDY

All programs leading to a major in economics require a common core consisting of Econ 200-201 (Principles of Economics), Econ 300, 303 (Micro- and Macro-economic Theory), 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. Preprofessional Economics — Preprofessional 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 180, 181); 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: An Introduction to Probability and Statistics (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 Economics of Labor Relations (320).

C. Business Economics — Students planning to enter employment in the private or public sector upon graduation are advised to select from among the following: an Introduction to Probability and Statistics (289), Money and Banking (315), Mgt. Financial Management (326), Government Control of Business (332), as well as accounting, marketing, and organization theory in the Anderson School of Management.

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 chairperson, 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.

ECONOMICS (ECON)

100. Social Science. (4)

An introduction to the social science disciplines. Emphasis on intensive skills improvement in communications, reading comprehension, study techniques and logical reasoning which are required for further study in any of the social science disciplines. Course themes may vary by department but all courses will be interdisciplinary and will emphasize skills. For students who score 13 or below in social science on the ACT or who are admitted with a social science deficiency. (Not a course to receive credit for minor or major.)

101. Introduction to Economics. (3)

Origins of capitalism, transplantation and adaptation in the New World, and new institutions in nineteenth- and twentieth-century America.

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.

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.

203. The Environmental Problem. (3)

(Also offered as Arch, Phil 203.) What the environmental problems are and how they are approached by various disciplines; how problems are defined, limits imposed on scope of problems, solutions and tradeoffs.

212. Capital Markets and Personal Investment. (3) Church
Investment options available to the individual will be analyzed in terms of economic theories of capital markets. Risk, value, returns and portfolio analysis.

229. Radical vs. Conservative Economics. (3) Church, Gisser

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}

239. Economics of Feminism. (3)

Topics include economic discrimination and the status of women in western society, feminism and alternative economic systems, economic implications of family and other traditional structures, economic rationality vs. the convenient social virtue, and economic policy for achieving feminist goals.

Prerequisite: 201 or consent of instructor. {Spring}

289. An Introduction to Probability and Statistics. [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.

301-302. Interdepartmental Studies in the Culture of the U. S. (1-3, 1-3)

(See Am St 301-302.) May be taken for departmental credit only with the consent of the chairperson.

**303. Macro-Economic Theory. (3) Gisser

Composition, fluctuations, growth, and distribution of national income.

Prerequisite: 200.

*304. Micro-Economic Topics. (3)

Micro-economic principles applied to current problems of economic policy. Pricing and employment of input factors, distribution theory and externalities.

Prerequisite: 300.

*309. Introduction to Econometrics. (3)

Introduction to basic econometric techniques with strong emphasis on applications. Problems in estimating such economic variables as consumption—income—price relationships, production functions, and in simulating economic models.

Prerequisite: 300, 303, Math 102 or equivalent.

**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.

***320. Economics of Labor Relations. (3)** Cohen, Gregory
Labor force, unions, labor-management relations, legislation, wages, and level of employment.

Prerequisites: 200, 201.

*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.

333. Market Power, Antitrust, Regulation and Public Enterprise. (3) Parker
Theory of regulation and its empirical evidence. The objective and impact of antitrust policies, direct regulation, and public ownership.
Prerequisite: 300 or consent of instructor.

***335. The Economics of Health. (3)** Bennett
A micro-economic study of resource allocation to the health industry and among health services. Topics investigated include the supply of and demand for health services such as physician, hospital, etc. The influence of private and public insurance on the private demand and supply of health services is identified through empirical studies.
Prerequisites: 200, 201, or consent of instructor.

340. American Indian Economic Development. (3) Staff
Economic development potentials and problems of American Indian Tribes using tools of economic analysis. Includes investigation by students of particular economic problems.
Prerequisites: 200 and 201 or consent of instructor.

***341. Urban Economics. (3)** Church
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)** Burness
Economics of "spaceship" earth; Causes of environmental deterioration in market as well as nonmarket economics; role of economic policy in controlling pollution with special emphasis on water, air, and solid waste residuals.
Prerequisite: 201 or consent of instructor.

***343. Seminar on Energy Administration. (3)**
(Also offered as Pub Ad 575.) Public policy and administrative issues and problems in federal and state energy agencies and programs.
Prerequisite: consent of instructor. {Spring}

***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 principle 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.

***365. American Economic Growth. (3)**
Using economic theory and data, the course analyzes the sources and patterns of American economic growth from colonial time to the present.
Prerequisites: 200, 201, or consent of instructor.

395. Seminar in Economics. (3)
Contemporary economic problems — topics will vary with student interest and with current areas of controversy.

Prerequisites: 300 and 303. Open to economic major or with permission of instructor.

***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.
Prerequisite: one year of calculus or consent of instructor.

***409. Economic Statistics. (3)** Ben-David, Brown
Prerequisites: statistics, economic theory.

***410. Selected Issues in Health Economics. (3)** Bennett
Studies of specific health problems, benefits and costs in streptococcal culturing; immunization issues in pneumococcal pneumonia, measles, polio, and influenza and econometric studies about hospital efficiency.
Prerequisite: 335.

***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.

***420. Economic Problems of Underdeveloped Countries. (3)** Tailby
Theories, policies, and practices, with emphasis on Latin American economic problems.
Prerequisites: 200, 201.

***421. Latin American Economies. (3)** Gregory
Analysis in nontechnical terms of country characteristics and recent growth experience, balance of payments, commodity price stabilization, import substitution, multinational markets, inflation, land reform, development strategies, and role of foreign assistance.
Prerequisites: 200, 201.

***422. Economic Security. (3)** Therkildsen
Public and private annuity, unemployment compensation, workmen's compensation, and medical programs.
Prerequisite: 200 or consent of instructor.

***423. Latin American Topics. (3)** Gregory
Analysis of roles of private and public sectors in mobilizing resources for growth: savings and investment determinants, fiscal and monetary policies, inflation, foreign aid, multinational corporations; employment and unemployment, choice of technology and current issues of hemispheric interest.
Prerequisite: 420 or 421.

***424. International Economics. (3)** Tailby
Trade and balance of payment 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.

***428. Labor Market Institution. (3)**
Public institutions that affect the operation of the market.

Background study and field work. Emphasis on Employment Security Office, Federal Mediation and Conciliation Service, National Labor Relations Board and other federal, state, and local agencies.

Prerequisite: 320 and/or permission of instructor.

***439. Topics in American Indian Economic Development. (1-6) Staff**

A course to offer selected topics in American Indian Economic Development, including the theory of such development and its practical application in a tribal organization.

Prerequisite: consent of instructor.

***440. Regional Analysis. (3) Zink**

Analysis of regional economies, economic models.

Prerequisites: 200, 201.

***442. Natural Resources. (3) Ben-David, Brown**

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 545.) 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 consent 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)

***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.

***460. Topics in U.S. Growth. (3)**

Using economic theory the course examines important issues in American economic development over time. Topics include among others: determinants of the spread of technological change; immigration and fertility patterns; role of government (property rights, regulation); development of factor markets.

Prerequisite: 365 or consent of instructor.

***465. Community and Regional Planning Methods. [City Planning Methods.] (3)**

(Also offered as CRP and Pol Sci 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 multidisciplinary introduction to urban studies with emphasis on planning and control.

***466. Economics for City Planning. (3)**

(Also offered as CRP 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.

***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/her particular background and relating it to international matters.

Open only to seniors.

***485. Philosophical Foundations of Economic Theory. (3) Hamilton**

(See Ec-Ph 485.)

Prerequisites: 200, 201.

***495-496. Departmental Seminar. (1-3)**

Problems in economic theory and their relationship with changing character of economy.

Prerequisite: undergraduates require approval of department.

497-498. Reading for Honors. (3)

499. Senior Honors Thesis. (4)

***500. Micro-Economic Theory. (3) Gisser, Church**

Prerequisite: 300.

***501. Advanced Micro-Theory. (3) Gisser**

Prerequisites: 407 or equivalent, 500, one year calculus, Math 314.

***503. Seminar in Economic Theory and Applied Economics. (3)†**

Prerequisite: permission of instructor.

***504. Quantative Analysis II. (3)**

***505. Macro-Economic Theory. (3)**

Prerequisite: 303.

***506. Advanced Macro-Economic Theory. (3)**

Prerequisites: 505, one year of calculus, Math 314.

***507. Programming and Growth. (3)**

Prerequisites: 407 and Math 314.

***508. Data Construction and Evaluation in Economics. (3) Brown**

Prerequisites: 289, 407.

***509L. Econometrics/Laboratory. (3) Ben-David, Brown**

Prerequisites: Math 180, 181, 314, 345, and 346.

***510. Econometrics. (3) Brown**

Corequisite: 509.

***511. History of Economic Thought. (3) Tailby**

Prerequisite: graduate status in economics or consent of instructor.

***512. Economic History. (3) Tailby**

Prerequisite: graduate status in economics or consent 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**

Prerequisites: 320 or equivalent and consent of instructor.

***521. Comparative Labor Problems. (3) Cohen**

***526. Seminar in European Economic History. (3)**

(Also offered as Hist 526.)

***531. Standards and Levels of Living. (3) Hamilton**

Prerequisite: graduate status in economics or consent of instructor.

***532. The Theory of Consumption. (3) Hamilton**

Prerequisite: graduate standing in economics or consent of instructor.

***533. Seminars in Industrial Organization. (3) Parker**

Prerequisite: 300 or consent of instructor.

***540. Mineral Economics. (3) Burness**

Prerequisite: 500 or consent of instructor.

***542. Seminar in Natural Resource Planning. (3) Ben-David**

Prerequisite: 300 or 500.

***543. Seminar in Natural Resource Planning. (3) Ben-David**

Prerequisite: 303 or 505.

***544. Special Topics in Environmental Economics. (3) Ben-David**

Prerequisite: 300 or equivalent. {Fall}

****546. Economic Education. (2 or 4) Parker**
(Also offered as Bus Ed and SATE 546.) {Summer only}

***547. Mathematical Economics. (3)**
Prerequisites: 407 and 500. {Fall}

***548. Seminar in Mathematical Economics. (3)**
Prerequisite: 547. {Spring}

***551-552. Problems. (2-3, 2-3 hrs. per semester)**

***560. Theory of Public Finance. (3) Boyle, Church, Therkildsen**
Prerequisite: consent of instructor.

***562. State and Local Finance. (3) Boyle, Church, Therkildsen**
Prerequisite: 350 or graduate status in economics or consent of instructor.

***565. Seminar in Fiscal Policy. (3) Boyle, Therkildsen**
Prerequisite: graduate status in economics.

***570. Institutional Economics. (3) Hamilton**
Prerequisite: graduate status in economics or consent of instructor.

***578. Economic Planning. (3) Jonas**
Prerequisite: 303. {Spring}

***580. International Trade Theory. (3)**
Prerequisite: 424 or consent of instructor.

***582. Theories of Economic Development and Growth Models. (3)**

***583. Seminar in Economic Development with Particular Application to Latin America. (3) Gregory**
Prerequisite: graduate status in economics or consent of instructor.

***584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen, Merlox, Needler, Schwerin**
(Also offered as Hist, Pol Sc, and Soc 584.) {Spring}

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

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 the Department of Economics or the Department of Philosophy.

This major is directed toward a deeper 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 3 hours to be selected from 320, 332, 340, 350, 422, or 424; Phil, 21 hours selected from courses chosen in consultation with your adviser; Econ-Phil 485.

MINOR STUDY

Not offered.

ECONOMICS-PHILOSOPHY (EC-PH)

***485. Philosophical Foundations of Economic Theory. (3) Hamilton, Lee**
(Also offered as Phil 485.) Philosophical backgrounds of classical and neo-classical, socialist and communist, and institutionalist economics.
Prerequisite: Econ 201. {Spring 1983 and alternate years.}

ENGLISH

Hamlin L. Hill, Chairperson
Humanities Bldg 229, 277-6347

PROFESSORS:

Morris E. Eaves, Ph.D., Tulane University
Robert O. Evans, Ph.D., University of Florida
Robert E. Fleming, Ph.D., University of Illinois
Hamlin Hill, Ph.D., University of Chicago
David C. McPherson, Ph.D., University of Texas
Hugh H. Witemeyer, Ph.D., Princeton University

ASSOCIATE PROFESSORS:

Rudolfo A. Anaya, M.A., University of New Mexico
James F. Barbour, Ph.D., University of California (Los Angeles)
Paul B. Davis, Ph.D., University of Wisconsin
William C. Dowling, Ph.D., Harvard University
Michael R. Fischer, Ph.D., Northwestern University
Gene Frumkin, B.A., University of California (Los Angeles)
Barry J. Gaines, Ph.D., University of Wisconsin
Patrick J. Gallacher, Ph.D., University of Illinois
Michael J. Hogan, Ph.D., Kansas University
David M. Johnson, Ph.D., University of Connecticut
David R. Jones, Ph.D., Princeton University
Thomas M. Mayer, Professional Writer
Ivan P. Melada, Ph.D., University of California (Berkeley)
Roy G. Pickett, Ph.D., University of Iowa
Mary J. Power, Ph.D., University of Wisconsin
David A. Remley, Ph.D., Indiana University
Patricia C. Smith, Ph.D., Yale University
James L. Thorson, Ph.D., Cornell University
Frederick B. Warner, Ph.D., University of Illinois
Mary Martha Weigle, Ph.D. University of Pennsylvania
Mary Bess Whidden, Ph.D., University of Texas
Joseph B. Zavadil, Ph.D., Stanford University

ASSISTANT PROFESSORS:

Lee Bartlett, Ph.D., University of California (Davis)
Lynn D. Beene, Ph.D., University of Kansas
David Dunaway, Ph.D., University of California (Berkeley)
Rick Eden, Ph.D., University of California (Los Angeles)
Cheryl H. Fresch, Ph.D., Cornell University
Antonio Marquez, Ph.D., University of New Mexico
Peter C. Page, Ph.D., Indiana University
Peter L. White, Ph.D., Pennsylvania State University

LECTURERS:

Sharon R. Barba, Ph.D., University of New Mexico
Harvena Richter, Ph.D., New York University
Ronald T. Swigger, Ph.D., Indiana University

PROFESSOR EMERITI:

George W. Arms, Ph.D., New York University
Edith Buchanan, Ph.D., Duke University
Ernest W. Baughman, Ph.D., Indiana University
Willis D. Jacobs, Ph.D., University of North Carolina
Joseph Kuntz, Ph.D., University of Denver
Harold W. Lavender, Ph.D., University of New Mexico
Dorothy M. Logan, M.A., University of New Mexico
Thomas M. Pearce, Ph.D., University of Pittsburgh
Katherine G. Simons, M.A., Columbia University
Ernest W. Tedlock, Jr., Ph.D., University of Southern California

Hoyt Trowbridge, Ph.D., University of Wisconsin
Dudley Wynn, Ph.D., New York University

ENGLISH MAJORS

The English major requires 33 hours beyond 102. The courses should be distributed as follows:

The Pre-Graduate Concentration (36 hours)

202—The Analysis of Literature; 294—Survey of Earlier English Literature; 295—Survey of Later English Literature; 296—American Literature or 275—World Literature through the Renaissance or 276—World Literature since the Renaissance; 351—Chaucer; 354—Milton; 352—Shakespeare Hist and Comedies or 353—Shakespeare: tragedies; one of the following: 460—Colonial and Rev. American Literature, 461—American Romanticism, 462—American Realism; two of the following: 410—Literary Criticism, 449—Old English, 440—Introduction to Linguistics, 445—History of the English Language, 451—The Middle Ages, 453—English Renaissance, 454—Seventeenth Century English Literature, 455—Restoration of 18th Century Literature, 456—English Romanticism, 457—Victorian Literature, 458—Modern British Literature, 459—Irish Literature, 485-486—The English Novel; six additional hours at the 300 or 400 level. Recommended electives for English majors: English 463, 470, 406; English 304—Bible as Literature; 305—Mythology; 306—Oral and Folk Literature.

Liberal Arts Concentration (33 hours)

English 202, 294 and 295; six hours from the following courses: 351, 352, 353, 354; two of the three authors are to be covered. Nine hours at the 400 level. Nine additional hours, with no more than three at the 200 level.

Teaching English Concentration (33 hours in English, 21 hours in Education)

English 202; 220; six hours chosen from 275, 276, 294, 295, and 296; 352 or 353; 427; 441. Nine additional hours in English from courses numbered 351-354 or 400 and above. Especially recommended are English 445, and 460-463. Education courses needed for secondary teacher certification in New Mexico: Educational Foundations 290; Junior Block, consisting of Secondary Education 361, Educational Foundation 303 and 310; either Secondary Education 461 or 463 (student teaching); Secondary Education 436 and 438.

English Major, Pre-Law Concentration (30 hours)

202; 220; Nine hours from the following: 294, 295, 296, 275, 276; three hours from: 352, 353; three hours from 460, 461, 462, 463; English 410; six additional hours at the 300 or 400 level; recommended are English 320 (Legal Writing), and 315 (Law and Literature)

Outside the department, the following courses should be taken: a course in public speaking, Philosophy 380 (Philosophy of Law and Morals), Philosophy 156 (Logic), History 378, 379 (Constitutional History of the United States).

English Major, Pre-Business Concentration (30 hours)

202; 220 or 219; nine hours from: 294, 295, 296, 275, 276; three hours from 352, 353; three hours from 460, 461, 462; a modern literature course from the following list: 458, 459, 463, 470; six additional hours at the 300 or 400 level. Recommended are 320 (Business Writing) and 315 (Business in Literature).

Creative Writing Major (33 hours)

27 hours in English and six in other creative areas such as art, music, theatre arts; English 202; three hours from: 294, 295, or 296; twelve hours from 221, 222, 321, 322, 421, 422; six hours in literature courses numbered 300 or above; English 423 (thesis).

English Philosophy Major

(See current catalog.)

DEPARTMENTAL HONORS

Students who seek honors in English should apply at the departmental office. Admission to honors requires a minimum grade-point average of 3.5 in English courses and an overall 3.2. Honors candidates must register for 497 and complete an Honors Thesis in their senior year.

MINOR STUDY

An English minor requires 18 hours of English courses numbered above 103. At least 12 of these hours must be upper-division credits. Every minor program must include one survey course (294, 295, 296), one course in Shakespeare (352, 353) and at least one 400-level course from the following list: 451, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 470, 485, 486.

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 Engl 101 or its equivalent before registering for 102, 221, or 222 and credit for 102 before registering for 201, 202, 219, 220 or any course numbered 252-296.

At least one course in literature at the 200 level is further required for admission to a literature course numbered above 300. An English major should meet this last prerequisite by taking English 202. Non-majors should normally meet the prerequisite by taking English 201.

A few courses have special prerequisites listed after the course descriptions.

ENGLISH AS A SECOND LANGUAGE OR COLLEGE ENGLISH AS A SECOND DIALECT

All classes in English as a Second Language or College English as a Second Dialect are offered in the English Tutorial Program, Marron 214. For class level placement and time scheduling students must apply in person. Classes serve international students, recent immigrants who have attended American high schools, Native American students, Hispanic students, black students, and any others whose spoken and written English differs substantially from standard College English. These English classes are offered for college credit as noted below. Non-credit, full-time English classes are offered in the Intensive English Institute.

ENGLISH (ENGL)

UNDERGRADUATE COURSES

I. Expository Writing

100. Writing Standard English. (3)

Intensive study of grammar, syntax, punctuation, and usage. Concentrated practice in writing paragraphs. For students who score 18 or below in English on the ACT. Does not satisfy A&S group requirements. {Fall, Spring}

101. Writing with Readings in Exposition. (3)

Expository writing and reading. Concentrates on organizing and supporting ideas in writing. {Summer, Fall, Spring}

102. Analytic Writing. (3)

Intensive practice writing essays that analyze expository and literary readings.

Prerequisite: C or better in 101 or ACT of 25 or higher.
{Summer, Fall, Spring}

210. Introduction to the Film. (3)
(See Film 210.)

218. Library Research and Term Paper Writing. (3)
A thorough introduction to the materials available in the library and how to use them in developing carefully researched and formally prepared papers.
Prerequisite: 102.

219. Technical Writing. (3)
Practice in the writing and editing of technical, engineering and scientific reports and articles.
Prerequisite: 102. {Fall, Spring}

220. Expository Writing. (3)
An intermediate course with emphasis on rhetorical types, structure, and style.
Prerequisite: 102 or its equivalent. {Fall, Spring}

298. Workshop in Literature or Writing. (1-3)†
Various topics in Literature, Grammar, Advanced Writing, Stylistics, or Rhetoric. Intensive study. Topics vary.

320. Advanced Expository Writing. (3)
Prerequisite: 219 or 220. {Spring}

***323. Writing for Graduate Students. (3)** Staff
Instruction and practice in expository writing for graduate students preparing to write term papers and theses. Intended for non-English majors.

***498. Advanced Workshop in Literature or Writing. (1-3 per semester, to a maximum of 6)†**
Various Topics in Literature, Grammar, Writing, Stylistics, or Rhetoric. Intensive study, usually offered off-campus. Topics vary.

II. Creative Writing

221. Creative Writing: Prose Fiction. (3)
A \$7.00 workshop fee is required.
Prerequisite: 101 or its equivalent. {Fall, Spring}

222. Creative Writing: Poetry. (3)
A \$7.00 workshop fee is required.
Prerequisite: 101 or its equivalent. {Fall, Spring}

321. Creative Writing: Short Fiction, Novel. (3)††
Intermediate course with generally equal emphasis on writing and reading. A \$7.00 workshop fee is required.
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. A \$7.00 workshop fee is required.
Prerequisite: 222 or permission of instructor.

***421. Creative Writing: Workshop in Prose Fiction. (3)††**
Advanced workshop devoted primarily to student writing. A \$7.00 workshop fee is required.
Prerequisites: 221, 321, or permission of instructor.

***422. Creative Writing: Workshop in Poetry. (3)††**
Advanced workshop devoted primarily to student writing. A \$7.00 workshop fee is required.
Prerequisites: 222, 322, or permission of instructor.

423. Creative Writing Thesis. (3)
Open only to senior majors in creative writing. {Fall, Spring}

***424. Creative Writing Workshop Script. (3)†**
(Also offered as TA 456.) Advanced workshop devoted to student preparation of working scripts for film or television.
Prerequisite: instructor approval. {Fall}

III. Literature and Language

201. The Study of Literature. (3)
An introduction to the study and appreciation of literature for non-English majors. Shows how understanding writer's techniques increases the enjoyment of their works; relates these techniques to literary conventions; teaches recognition, analysis, discussion of important themes.

202. The Analysis of Literature. (3)
First course required of all English majors. Concentrates on methods of literary analysis and critical writing.
Prerequisite: 102 or its equivalent. {Fall, Spring}

206. Topics in Popular Literature. (3)
Reading and analysis of popular literary forms such as the spy novel, the detective novel, science fiction, best-sellers, and fantasy.

211. Topics in Literature. (3)
Surveys a specific type or area of literature; e.g., the American novel, the satiric novel, southern fiction, the western novel, American poetry, feminist literature, Chicano literature, Native American literature, Afro-American literature. Primarily for non-majors.
Prerequisite: 201.

240. Traditional Grammar. (3)
A study of the basic analysis of English sentences offered by traditional grammar. The course presents terminology and methods for identifying parts of speech, functional units of sentences, and basic sentence patterns.

252. Introduction to Shakespeare. (3)
An introduction to Shakespeare's works, in which one or two plays of each sort — tragedies, histories, comedies — will be studied.
Prerequisite: 201.

270. An Introduction to Modern Literature. (3)
An introduction to American and European literature of the 20th century, concentrating on such major authors as Eliot, Faulkner, Fitzgerald, Yeats, Joyce, Ibsen, Camus, and Chekhov.

275. World Literature Through the Renaissance. (3)
Masterpieces of European and Asiatic literature including the Bible.

276. World Literature Since the Renaissance. (3)
Masterpieces of European literature.

277. Great Books. (3)
Discussion of the University of Chicago Great Books and their values to modern readers. Designed for non-majors.

285. American Life and Thought III. (3)
(See Am St 285.)

286. Introduction to the Novel. (3)
Several classic novels—books like *Pride and Prejudice*, *Huckleberry Finn*, and *Madame Bovary* — provide a basis for studying the characteristics of the novel as a literary form.
Prerequisite: 201.

287. Introduction to the Short Story. (3)
The development of the modern short story from its beginnings in the nineteenth century to the present. Technique and theme will be studied in representative stories by American and European writers.
Prerequisite: 201.

294. Survey of Earlier English Literature. (3)
From Old English to 1798. A study of the principal literary and intellectual movements, and selected writers and literary works from Beowulf through Johnson.

†† May be repeated once for credit.

295. Survey of Later English Literature. (3)

From 1798 to present. Study of principal literary and intellectual movements, and selected writers and literary works.

296. American Literature. (3)

A general survey to the present. Especially recommended for English majors.

301. Interdepartmental Studies in the Culture of the United States. (1-3)

(Also offered as Amer St 301.) Subjects, varying from semester to semester, will be topical in 301 (as "Present Predicaments" and "Politics of the Transcendentalist"). **May be repeated for credit as subject matter varies, with permission of American Studies undergraduate adviser or of the chairperson of the student's major department.** (Summer, Fall, Spring)

302. Interdepartmental Studies in the Culture of the U.S. (1-3)†

(Also offered as Amer St 302.) Subjects, varying from semester to semester, 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 chairperson of the student's major department.** (Summer, Fall, Spring)

***303. English Phonetics. (3)**

(See Sp Com 303.)

304. The Bible as Literature. (3) Staff

Literary aspects of the Old and New Testaments. Examines the literary forms within the Bible: epic, parable, pastoral, allegory, proverb, etc. Stresses the importance of the Bible as a source for English and American literature.

305. Mythology. (3)

An introduction to the major traditions of European and American mythology. Basic themes and motifs; the quest, creation, birth, marriage, heroes, heroines and death. Provide background for the study of later literature.

306. Oral and Folk Literature. (3)

Historical and comparative study of tales, legends, songs, proverbs, riddles, humor, and popular beliefs in American culture and in other cultures such as those of the North American Indian, the African, and the European peasant.

308. The Jewish Experience in American Literature and Culture. (3)

(Also offered as Am St 308.) A comprehensive survey of the cultural and historic relationship between Jews and American culture and character as a whole.

315. Interdisciplinary Approaches to Literature. (3)

Combines the study of literature with the study of outside materials from history, sociology, or other disciplines. Examples include Business in Literature, the Literature of Baseball, Non-Fiction Novels, Religion and Literature, Law and Literature, Literature of the Depression.

***334. Spanish American Literature in Translation. (3)**

(See Spanish 334.)

***335. French Literature in Translation. (3)**

(See French 335.)

***336. Special Topics in German Literature in Translation. (3)**

(See German 336.)

***337. Spanish Literature in Translation. (3)**

(See Spanish 337.)

***338. Russian Literature in Translation. (3)**

(See Russian 338.)

***341. Greek Mythology. (3)**

(See Greek 341.)

***344. Topics in Latin Literature in Translation. (3)†**

(See Latin 344.)

***345. Topics in Greek Literature in Translation. (3)†**

(See Greek 345.)

351. Chaucer. (3)**352. Shakespeare: Histories and Comedies. (3)****353. Shakespeare: Tragedies. (3)****354. Milton. (3)****360. Individual Authors. (3)†**

Study of one or two or more authors. Titles of individual sections vary as content varies.

387. Studies in Genre: Comedy, Epic, Satire, Tragedy, etc. (3)†

Study of best or of typical examples of any one genre, such as comedy, epic, satire, tragedy.

397. Regional Literature. (3)

The study of a limited body of writers whose work is identified with a particular geographical region. Authors covered will differ, but representative examples are Frank Waters, Willa Cather, Rudolfo Anaya, Walter Van Tilburg Clark.

406. 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.

410. Literary Criticism. (3)

Study of the major critical attitudes toward literature or intensive study of selected individual critics or critical approaches.

Prerequisite: 6 hours in literature.

411. Special Topics. (3)†**427. The Teaching of English. (3)**

Study of ways to teach literature, writing, and grammar in elementary, middle, and high schools, emphasizing the practical rather than the theoretical.

***440. Introduction to Linguistics. (3)**

(Also offered as Ling 440.) Broad overview of the fields of linguistics, principles and practices of linguistic analysis, sociolinguistics, psycholinguistics, and educational linguistics. Oriented primarily to the needs of present and prospective teachers.

***441. English Grammars. (3)**

Prerequisite: 440 or consent of instructor.

***445. History of the English Language. (3)**

Etymology, morphology, phonetics, and semantics of English; relation between linguistics and cultural change.

***449. Old English. (3)**

Elementary grammar, translations of prose and poetry.

***450. Old English Literature: Beowulf and Other Topics. (3)**

Prerequisite: 449 or permission of instructor.

451. The Middle Ages. (3)††

Titles of individual sections will vary as content varies.

453. The English Renaissance. (3)††

Titles of individual sections will vary as content varies.

454. Seventeenth-Century English Literature. (3) ††

Titles of individual section will vary as content varies.

455. Restoration and Eighteenth-Century Literature. (3)††

Titles of individual sections will vary as content varies.

††May be repeated once for credit.

456. English Romanticism. (3)

Titles of individual sections will vary as content varies.

457. Victorian Literature. (3)

Titles of individual sections will vary as content varies.

458. Modern British Literature. (3)

Titles of individual sections will vary as content varies.

459. Irish Literature. (3)

Titles of individual sections will vary as content varies.

***460. Colonial and Revolutionary American Literature. (3)**

Titles of individual sections will vary as content varies.

461. American Romanticism. (3)

Titles of individual sections will vary as content varies.

462. American Realism. (3)

Titles of individual sections will vary as content varies.

463. Modern American Literature. (3)

Titles of individual sections will vary as content varies.

464. American Humor. (3)

American humorists from 1830 to present.

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.

***475. Dante in Translation. (3)**

(See Italian 475.)

***480. Philosophy and Literature. (3)**

(See Engl-Phil 480.)

485. Fiction before 1800. (3)

Readings of major works of British fiction written before 1800. Investigation of ways in which novel achieved generic form and the development of certain techniques.

486. Fiction of the Nineteenth Century. (3)

Reading of major works of British fiction written since 1800. Emphasis will be upon the emergence of modern novel, refinement of techniques, central ideas.

490. Senior Honors Thesis. (3)

Open only to students admitted to honors in English. To be taken in the semester when the senior thesis is completed.

497. Individual Study. (1-3 hrs. per semester, to a maximum of 6)

Permission of the instructor is required before registering. The student should present a plan of study to the instructor.

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, Spring}

***501. Interdepartmental Seminar in the Culture of the United States. (3)**

(Also offered as Amer St 501.)

***510. Criticism. (3)**

{Spring}

511. Special Topics: History of Ideas, Literary Movements, etc. (3)†**521. Creative Writing—Prose Fiction. (3)†**

Prerequisite: 422 or permission of instructor. May be repeated for credit as content varies.

***522. Creative Writing—Poetry. (3)†**

Prerequisite: 422 or permission of instructor. May be repeated for credit as content varies.

***524. Creative Writing Workshop Scripts. (3)†**

Prerequisite: instructor approval. {Fall}

***527. Studies in Rhetoric for Teachers. (3)**

(Also offered as SATE 527.) {Fall}

***528. Studies in Reading and Literature for Teachers. (3)**

(Also offered as SATE 528.) {Spring}

***537. Teaching Composition. (3)**

{Fall}

***538. Teaching Introductory Literature. (2)**

{Fall}

***540. Language. (3)**

{Fall}

***551. The Middle Ages. (3)††**

{Fall}

***553. The Renaissance. (3)††**

{Fall}

***554. The Seventeenth Century. (3)††**

{Fall}

***555. The Eighteenth Century. (3)††**

{Spring}

***556. The Nineteenth Century. (3)††**

{Fall, Spring}

***560. American Literature. (3)††**

{Spring}

***570. The Twentieth Century. (3)††**

{Spring}

587. Genre: Comedy, Epic, Satire, Tragedy, etc. (3)†**590. Problems and Methods of Literary Study. (3)**

{Spring}

***595. Colloquium. (4)†**

{Fall, Spring}

***597. Problems for the Master's Degree. (1-3 hrs. per semester)**

Permission of the Departmental Graduate Director required prior to registration.

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

610. Studies in Criticism. (4)†**640. Studies in Language. (4)*****650. Studies in British Literature. (4)†*****660. Studies in American Literature. (4)†*****680. Special Studies: Types, Backgrounds, Forces. (4)†*****697. Problems for the Doctor's Degree. (1-3 hrs. per semester)*****698. Independent Study. (1-3 hrs. per semester, for maximum of two consecutive semesters)**

{Fall, Spring}

***699. Dissertation. (3-12 hrs per semester)**

See the Graduate Programs Bulletin for total credit requirements.

††May be repeated once for credit.

ENGLISH-PHILOSOPHY (ENG-PH)

The combined major in English and philosophy is an interdepartmental major administered jointly by the two departments. Students interested in this program should consult the Philosophy Department office.

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.

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. Engl-Phil 480.

MINOR STUDY

Not offered.

*480. Philosophy and Literature. (3) English and Philosophy Staffs

(Also offered as Phil 480.) Selected philosophical movements and their relationships to literary masterpieces.

Prerequisites: 6 hours of literature and 3 hours of philosophy from the courses specified as requirements for the program. May be repeated for credit as subject matter varies, with permission of the instructor.

EUROPEAN STUDIES

See International Studies

GEOGRAPHY

Rodman E. Snead, Chairperson
Bandelier West 117, 277-5041

PROFESSORS:

Elinore M. Barrett, Ph.D., University of California, Berkeley
Iven V. Bennett, Ph.D., Boston University
Rodman E. Snead, Ph.D., Louisiana State University

ASSOCIATE PROFESSOR:

Stanley A. Morain, Ph.D., University of Kansas

ASSISTANT PROFESSORS:

Bradley T. Cullen, Ph.D., Michigan State University (East Lansing)
Dennis E. Fitzsimons, Ph.D., University of Kansas

Stuart White, Ph.D., University of Wisconsin
Jerry L. Williams, Ph.D., University of Oregon

PROFESSOR EMERITUS:

Robert D. Campbell, Ph.D., Clark University

Explanation of footnotes not indicated will be found on p. 316.

MAJOR STUDY

A total of 34 hours in geography plus Geol 101. In addition to Geog 101, 102, and 285L, 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, 360, 364, 365, 366, 367, 374, 391, 393, 395, 472, 475.

Regional geography—3 hours selected from courses numbered 301 to 338.

The rest of the courses for the major must be selected from any other departmental offerings. For those students who wish to emphasize particular aspects of geography, the following geography courses and distributed minors are recommended:

Climatology

Recommended courses in geography:

105L, 261, 303, 351, 352, 353, 361, 373, 462, 482, 483, 491.

Recommended distributed minor to include:

Math 162, 163, 345, 346; Physcs 103, 113L, 160-161, 163L.

Economic—Urban

Recommended courses in geography:

261, 263, 361, 364, 365, 367, 462, 464.

Recommended distributed minor:

Econ 201, 341, 342, 364, 365, 440, 460, 466; Engr 350, 382, 390, Comp Sc 150.

Geomorphology

Recommended courses in geography:

105L, 373, 481, 483.

Recommended distributed minor to include:

Geol 102, 105L, 106L, 225, 317L, 455L, 462, 482L; Physcs 103.

Cartography

Recommended courses in geography:

105L, 261, 285L, 361, 373, 385L, 462, 464, 482.

Recommended distributed minor to include:

Art St 121, 277; CS 490; Engr 382; Civ Engr 281L, 282L; Geol 455L.

Remote Sensing

Recommended courses in geography:

105L, 285L, 351, 356, 361, 373, 385L, 462, 481, 482, 505, 582 and any additional regional courses.

Recommended distributed minor to include:

Anth 120, 366; Biol 110; Econ 201, 342; Civ Engr 332; Geol 455L; Math 162, 345, 446.

Also recommended: Econ 341; Civ Engr 431.

Urban and Regional Land-Use Planning

Recommended courses in geography:

261, 263, 285L, 353, 356, 361, 364, 365, 366, 367, 373, 374, 464.

Recommended distributed minor:

Am St 360; CRP 265, 464; Econ 201, 342, 465, 466; Engr 337, 338, 350, 382; Pol Sc 470.

MINOR STUDY

Geog 101, 102, and 15 additional hours, including one of the following: 263, 351, 381.

GROUP REQUIREMENTS

Geog 481 is accepted as a nonlaboratory science in fulfillment of the physical science (Group 4) requirement of the College of Arts and Sciences; all other geography courses are accepted toward fulfillment of the social science (Group 5) requirements in that College.

GEOGRAPHY (GEOG)

INTRODUCTORY COURSES**101. Physical Geography. (3) Staff**

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. Human Geography. (3) Staff

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 interaction with the physical earth. {Summer, Fall, Spring}

105L. Physical Geography Laboratory. (1) Staff

Laboratory exercises designed to complement 101. Basic applied problems in the spatial processes of the physical environment. Map construction and reading, weather and climatic analysis, classification of vegetative and soil associations, landform distribution analysis.

Corequisite: 101. 2 hrs. lab. {Fall, Spring}

106L. Human Geography Laboratory. (1)

Weekly exercises in basic applied projects concerned with mapping and interpreting human patterns and processes. Topics will complement lectures in 102 and include population, agriculture, settlement, political and economic distributions.

201. World Regional Geography. (3) Staff

An introduction to the regional geography of the world. Both physical and human aspects are studied along with current economic and political problems.

261. Spatial Organization. (3) Cullen

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. {Fall 1984}

263. Economic Geography. (3) Cullen

A systematic analysis of spatial economic patterns. Introduction to models of economic space and theories of spatial economic interaction. Analysis of effects of resource attributes and distributions upon economic activities. Examination of cultural-economic regions. {Fall}

273. Map Reading and Interpretation. (3) Fitzsimons

Development of basic skills of map reading through classroom exercises on maps such as: street and highway; topographic; cognitive; thematic; and computer generated.

285L. Cartography. (4) Fitzsimons

The graphical basis of cartography: an introduction to map design and construction. Exercises in basic drafting and lettering techniques, map projections, and in the problems of

map design, data collection, data preparation, and graphic representation. Fees required.

Pre- or corequisite: 101. {Fall}

REGIONAL GEOGRAPHY

212. People and Land in Sub-Saharan Africa. (3) Williams
(Also offered as Anth 212.) Regional geography of Sub-Saharan Africa followed by ethnographic and/or cultural-physical spatial topics from the areas of North Africa, West Africa, East Africa, South Central Africa, and Southern Africa.

***301. South America. (3) Staff**

Discussion of the physical and cultural landscapes of South America, including patterns of settlement and resource use by aboriginal, colonial, and modern peoples. {Fall 1983 and alternate years}

***302. Mexico and the Caribbean. (3) Baret**

Discussion of the physical and cultural landscapes of Mexico, Central America, and the islands of the Caribbean, including patterns of settlement and resource use by aboriginal, colonial, and modern peoples. {Fall 1984 and alternate years}

***303. North America. (3) Bennett**

Distribution in the United States and Canada of climate, landforms, soils, vegetation, population, economic activities, and other physical and human phenomena. The changing interrelations of these phenomena from one region to another is emphasized. {Spring}

***304. The Southwest. (3) Bennett**

Distribution in the southwestern United States of climate, landforms, soils, vegetation, population, economic activities, and other physical and human phenomena. The changing interrelation of these phenomena from one area to another is emphasized. {Fall}

***332. Western Europe. (3) Staff**

Regional geography of Europe from the Atlantic eastward through Finland, Germany, Austria, and Italy. A description, analysis, and synthesis in spatial association of the physical and human attributes of this area. {Fall}

***336. The Middle East. (3) Snead**

Regional geography of southwestern Asia from Turkey through Afghanistan and southward to the tip of the Arabian Peninsula. Physical and cultural aspects are studied along with current economic and political problems. Numerous maps and slides. {Fall 1983}

***337. The Indian Subcontinent. (3) Snead**

Regional geography of south central Asia including India, Pakistan, Bangladesh, Nepal, Bhutan, and Sri Lanka. Physical and cultural aspects of this diverse region are studied along with current economic and human problems. Numerous maps and slides. {Spring}

***338. Southern Africa—Environment and Land Use. (3) Williams**

A topical perspective of Africa south of the Equator (East Africa, Central Africa, South Africa) which will incorporate both physical and cultural characteristics.

ADVANCED COURSES IN PHYSICAL GEOGRAPHY***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 instructor. {Fall}

***352. Regional Climatology. (3) Bennett**

The classification and world distribution of temperature re-

gimes, air mass types, precipitation areas, and climatic regions.

Prerequisite: 351 or 101 or permission of instructor. {Spring 1984 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 1983 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 1983}

***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 focus on processes of soil genesis, morphology and descriptions, aspects of soil fertility, and man's impact on the soil resource.

Prerequisite: 101. {Fall 1984}

***481. Geomorphology. (3) Snead**

(Also offered as Geol 481.) Origin, development, and classification of landforms, with detailed consideration of gradation processes. Open to geography majors and minors who have completed Geol 101. {Spring 1983 and alternate years}

***483. Physical Geography of North America. (3) Snead**

Detailed study of the physiographic regions of North America—the United States, Canada, and Mexico. Major emphasis is on surface landforms and associated physical phenomena with a consideration of soils, vegetation, and Pleistocene climatic influences.

Prerequisite: 481 or Geol 482L or permission of instructor.

ADVANCED COURSES IN HUMAN GEOGRAPHY

***360. Population Geography. (3) Williams**

Spatial analyses of basic population characteristics including migration and mobility, urbanization, food supply and environmental alteration. Population exercises and projects will be assigned. {Fall 1983 and alternate years}

***364. Transportation Geography. (3) Cullen**

Analysis of spatial principles of transportation, including theories of interaction, network structure, and the role of transport in space economy. {Spring}

***365. Urban Geography. (3) Williams**

Urbanization as a spatial process. Perception of the modern city. Ecological and environmental constraints to urbanization. Selected field projects applied to the local environment. {Fall}

***366. Land Use Practice and Planning. (3) Williams**

An examination of land-use policy in the mid-Rio Grande Valley. Lectures interlaced with field exercises where the student maps various land-use characteristics to be correlated with present maps of planning and regulatory policy. {Spring 1984 and alternate years}

***367. Urban Spatial Patterns. (3) Williams**

An analysis of internal forces which influence the morphology of the city. Review of internal and regional urban location models with applications to cities in New Mexico. Elements of urban and regional land use mapping are studied through student field projects. {Spring 1983 and alternate years}

***374. [474.] Settlement in New Mexico. (3) Williams**

Origins of settlement in New Mexico. Patterns of development leading to the present distribution. Features, including types, structures, and orientations, as expressions of various cultural systems. {Fall 1984 and alternate years}

***391. Problems in Arid Lands. [Arid Lands.] (3) Snead**

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.

***393. Food Production Systems. (3) Staff**

Systems which man has evolved to supply plant and animal food, emphasizing their relation to ecological and cultural conditions, human nutrition, and human population. {Spring}

***395. Man and Nature in America. (3) Staff**

Attitudes toward the natural environment as they have evolved in the United States; resulting patterns of resource exploitation; development and impact of the conservation movement. {Fall}

***402. Geographic Education. (3) Williams**

Methods of presenting geographic techniques and materials in the classroom. Development of mapping exercises and field projects for students in New Mexico. Geographic methods as a tool for enhancing social studies teaching. {Summer 1983 alternate summers}

***472. Conservation. (3) Campbell**

Conservation as a basic and necessary feature of systems design; implications of conservation in such world systems as energy and food production, and in such local systems as heating and transportation; conservation and the future.

***475. 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 1984}

ADVANCED COURSES IN GEOGRAPHICAL METHODOLOGY

***361. Quantitative Methods in Geography. (3) Cullen**

Use of probability theory and descriptive statistics in geographic applications, models, and theories. {Spring 1984}

***373. Air Photo Interpretation. [Map Reading Air Photo Interpretation.] (3) Morain, Snead**

Techniques of analysis of aerial photographs for geographic study and research. Course also introduces remote sensing. Prerequisite: 101. {Fall}

***385L. Advanced Cartography. (4) Fitzsimons**

The technical basis of cartography: advanced map design and production. Historical development of cartography. Advanced drafting techniques, the graphic representation of qualitative and quantitative data, and introductory computer graphics. Fee required.

Prerequisite: 285L. {Spring}

***453. Inter-Disciplinary Asian Studies. (3)**

(Also offered as Hist, Phil, Pol Sc 453.) Cross-cultural and interdisciplinary investigations of problems and methodologies current in Asian Studies.

***462. Advanced Quantitative Methods in Geography. (3) Cullen**

Nonstochastic mathematical techniques and spatial statistics for the analysis of locational structure.

Prerequisite: 361 or permission of instructor. {Spring 1985}

***464. Location Theory. (3) Cullen**

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.

Recommended: 261 or 263.

***471. Man-Environment Systems. (3) Staff**

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.

***482. Remote Sensing. (3) Morain**

Techniques of remote sensing of environment using infrared, radar, microwave, and multispectral sensors.

Prerequisite: 373 or Geol 455L or consent of instructor.

***505. Field Methods. (3) Staff**

Prerequisite: 285L or permission of instructor.

SEMINARS, WORKSHOPS, AND PROBLEMS**129. Workshop in the Principles of Physical Geography. (4)**

Fundamental aspects of physical geography, its concepts, methods, and tools, and the technique of their application and utilization. Lecture, demonstration and individual participation.

***478. 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. **Open only to seniors.**

491-492. Problems. (1-3, 1-3 hrs. per semester) Staff

Supervised individual study and field work. {Summer, Fall, Spring}

***493-494. Internship in Applied Geography. (1-6, 1-6) Staff**

Written field analysis of a project coordinated between the student, faculty, and private or public manager. Credit to be determined by supervising faculty.

***501. Seminar in the History and Philosophy of Geography. (3) Cullen**

{Fall 1983 and alternate years}

511. Seminar in Physical Geography. (3) Staff**512. Seminar in Environmental Problems. (3) Barrett {Fall}*****521. Seminar in Regional Geography. (3) Staff*****551-552. Problems. (1-3, 1-3 hrs. per semester) Staff*****555. Inter-Disciplinary Seminar: Asia. (3)**
(Also offered as Hist, Pol Sc 555.)***560. Seminar in Human Geography. (3) Staff*****566. Seminar in Land-Use Planning. (3) Williams**
{Spring 1985 and alternate years}***571. Seminar in Man-Environment Systems. (3) Staff*****582. Seminar in Remote Sensing. (3) Morain*****585. Seminar in Cartography. (3) Fitzsimons**
Prerequisite: 285 or 385.***599. Master's Thesis. (1-6 hrs. per semester)****PROFESSORS:**

Roger Y. Anderson, Ph.D., Stanford University
Douglas G. Brookins, Ph.D., Massachusetts Institute of Technology
Wolfgang E. Elston, Ph.D., Columbia University
Klaus Keil, Ph.D., Johannes Gutenberg University, Mainz, Germany
Lee A. Woodward, Ph.D., University of Washington

ASSOCIATE PROFESSORS:

Jonathan F. Callender, Ph.D., Harvard University
Rodney C. Ewing, Ph.D., Stanford University
Albert M. Kudo, Ph.D., University of California (San Diego)
Barry S. Kues, Ph.D., Indiana University
S. G. Wells, Ph.D., University of Cincinnati

ASSISTANT PROFESSORS:

Jeffrey A. Grambling, Ph.D., Princeton University
Stephen P. Huestis, Ph.D., University of California, (San Diego)
Kenneth D. Mahner, Ph.D., Stanford University
Crayton J. Yapp, Ph.D., California Institute of Technology

FACULTY ASSOCIATES:

Edward C. Beaumont, M.S., University of New Mexico
Frank D. Gorham, B.A., University of Missouri
Spencer Lucas, Ph.D., Yale University
William C. Luth, Ph.D., Pennsylvania State University
John W. Shomaker, M.S., University of New Mexico
Lawrence W. Teufel, Ph.D., Texas A & M

PROFESSORS EMERITI:

J. P. Fitzsimmons, Ph.D., University of Washington
Vincent C. Kelley, Ph.D., California Institute of Technology
Stuart A. Northrop, Ph.D., Yale University
Sherman A. Wengert, Ph.D., Harvard University

MAJOR STUDY

For the degree of Bachelor of Arts: Geol 101, 105L, 311L, 312L, 313L, 314L, 317L, 319L, 401, 490 and 7 additional hours in geology courses numbered above 300, Chem 121L, 122L, 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, all of which must be numbered above 299, in any one of the following departments: Anthropology, Biology, Chemistry, Geography, Mathematics, Physics, or any department in the College of Engineering. Alternatively the distributed minor may be satisfied with Math 264, Physcs 262 and one additional course above 299 in the above departments.

For the degree of Bachelor of Science: Geol 101, 102, 105L, 106L, 311L, 312L, 313L, 314L, 317L, 318L, 319L, 401, 420L, 490, and any two of the following: Geol 405L, 410, 411L, 417L, 426L, 427, 441L, 471L, 481L, 487L. In addition, Chem 121L, 122L, Math 162, 163, 264, 345, Physcs 160, 161, 262, and English 219.

Students wishing to specialize in related fields such as geochemistry, paleontology or geophysics may make limited substitutions in their program with the prior approval of the department chairperson.

Students completing the B.S. 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 chairperson no later than two full semesters prior to graduation. Geology 493 and 495 are required, as is a written senior thesis which will be orally defended. Eligibility is not limited to students in the College of Arts and Sciences.

MINOR STUDY

Geol 101, 105L, 311L or 317L, and 13 additional hours, no more than 4 of which may be taken at the 100-299 level. It

GEOLOGY

Rodney C. Ewing, Chairperson
Northrop Hall 141, 277-4204

should be noted that Chem 121L is pre- or corequisite for Geol 311L, Chem 122L is pre- or corequisite for Geol 312L, and Math 162 and Physcs 160 or instructor's permission is required for Geol 317L.

Undergraduates with the proper prerequisites may take Geol 401 for as many as 4 credits, but no more than 2 credits may be applied to the undergraduate requirements for a minor or major in geology. For graduates, no more than 2 credits in Geol 401 may be applied to the 24 credits of course work required for the M.S. degree, and no more than 2 credits may be applied to the requirements for the Ph.D. degree beyond the M.S. requirements.

MINOR STUDY IN PALEOECOLOGY

See p. 132.

GEOLOGY (GEOL)

101. Physical Geology. (3) Staff

Materials composing the earth, work of agencies, both external and internal, modifying its surface, and rock-forming processes. {Summer, Fall, Spring}

102. Historical Geology. (3) Staff

History of the earth and the evolution of continents and ocean basins; evolution of life.

Prerequisite: 101; corequisite: 106L. {Spring}

103. Earth Resources and Man. (3) Brookins, Elston, Ewing
Geologic occurrences of fuels and minerals and their influence on domestic and world affairs.

Prerequisite: 101. {Summer, Fall, Spring}

104. Life on Earth. (3) Kues

Origin and evolution of life and some aspects of paleoecology.

Prerequisite: 101. {Fall}

105L. Physical Geology Laboratory. (1)

Minerals, rocks, and topographic and geologic maps; field trips.

Corequisite: 101. 2 hrs. lab. {Summer, Fall, Spring}

106L. Historical Geology Laboratory. (1) Staff

Paleogeographic reconstructions; geometry of plate tectonics; evolution of the western United States.

Prerequisite: 105L; corequisite: 102. 2 hrs. lab. {Spring}

107L. Earth Resources and Man Laboratory. (1) Staff

Ore specimens, exploration and utilization techniques; occasional field trips.

Corequisite: 103. 2 hrs. lab. {Summer, Fall, Spring}

108L. Life on Earth Laboratory. (1) Kues

Fossils and sedimentary rocks; field trips.

Corequisite: 104. 2 hrs. lab. {Fall}

209. The Earth Environment. (3) Anderson, Kues

(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}

215. Interior of the Earth. (3) Huestis, Mahrer

Earthquakes and seismic risk, including New Mexico earthquakes; propagation of seismic waves; earth's magnetism, gravity, and thermal state; internal constitution of the earth. Prerequisite: 101 or permission of instructor. {Spring}

225. Oceanography. (3) Huestis, Kudo

The ocean as a physical and chemical feature and a dynamic process. {Summer, Spring}

265. 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.

Prerequisites: 101 or 102, or permission of instructor. {Spring 1983 and alternate years}

*311L. Mineralogy I. (4) Ewing, Keil

Introduction to crystallography, crystal chemistry and basic crystal structures and their relation to physical and chemical properties of materials. Laboratory will include hand specimen mineral identification.

Prerequisites: 101, 105L; pre- or corequisite: Chem 121L. 2 lectures, 6 hrs. lab. {Fall}

**312L. Mineralogy II. (3) Ewing, Grambling

Systematic review of the structure, chemistry, physical and optical properties of rock-forming minerals. Laboratory will include optical mineralogy and microscopic identification of non-opaque minerals.

Prerequisite: 311L; pre- or corequisite: Chem 122L. 2 lectures, 3 hrs. lab. {Spring}

**313L. Petrology I. (3) Callender, Grambling, Kudo, McFadden

Introduction to classification, identification, occurrence and origin of igneous and metamorphic rocks. Laboratory will integrate hand-specimen identification and petrography.

Prerequisite: 312L, Chem 122L. 2 lectures, 3 hrs. lab. {Fall}

**314L. Petrology II. (3) Callender, Grambling, Kues, McFadden

Introduction to classification, identification, occurrence and origin of metamorphic and sedimentary rocks. Laboratory will integrate hand-specimen identification and petrography.

Prerequisite: 313L, 317L. 2 lectures, 3 hrs. lab. {Spring}

**317L. Structural Geology. (4) Callender

Nature and origin of rock structures and deformations; map and stereographic problems; stress and strain.

Prerequisites: 105L, Math 162, Physcs 160 or permission of instructor. 3 lectures, 3 hrs. lab. {Fall}

**318. Applications of Mathematics in Earth Science. (3) Huestis

Selected mathematical techniques of geology and geophysics, including Fourier analysis, optimization, and geological applications of probability and statistics; introduction to FORTRAN programming with examples from the Earth Sciences. Prerequisites: Math 163, 345; Physcs 161. {Fall}

**319L. Field Geology and Reports. (4) Callender, Wells

Principles and techniques of field mapping; content and arrangement of reports; layout and preparation of illustrations. Prerequisites: 314L, 317L. 1 lecture and 1 full day in field each week. {Fall}

**333L. Environmental Geology. (3) Anderson, Wells

Interrelationship of earth processes and man. Concepts and case histories in resource and land use, land stability, hydrology, and waste management.

Prerequisite: 101 or 209. 3 hrs. lab. {Spring 1984 and alternate years}

*401. Seminar. (1)†† Staff

Current topics in geology.

Prerequisites: 314L, 317L. {Fall, Spring}

*405L. Thermodynamics and Physical Foundations of Geochemistry. (4) Yapp

Thermodynamics and application to geologic systems; phase equilibria, phase rule, ideal and nonideal solutions.

Prerequisites: 313L, Math 264; corequisite: 314L. 3 lectures, 3 hrs. lab. {Spring}

***410. Fundamentals of Geochemistry. (3) Brookins, Yapp**
Geochemistry of igneous, metamorphic, and sedimentary rocks. Geochemical methodology.

Prerequisite: 314L. 3 lectures. {Spring}

***411L. Invertebrate Paleontology. (4) Kues**

General principles and familiarization with diagnostic features of fossils. Introduction to environmental implications.

Prerequisite: 8 hrs. of geology or biology. 2 lectures, 6 hrs. lab. {Spring}

***412L. Index Fossils. (3) Kues**

Principles of biostratigraphy; characteristics of fossils and assemblages diagnostic of each geologic period; evolution of paleocommunities through time.

Prerequisite: 411L or permission of instructor. 2 lectures, 6 hrs. lab. {Fall}

***417L. [527L.] Advanced Structural Geology. (3) Callender**

Principles of plate tectonics, regional geology, mountain building and evolution of lithosphere.

Prerequisites: 317L and either 426L or 427, or permission of instructor. 2 lectures, 3 hrs. lab. {Spring}

***420L. Advanced Field Geology. (4) Callender, Woodward**

Geological mapping; special field problems.

Prerequisite: 319L. 1 full day in field each week plus 1 hr. lecture during week. {Spring}

***426L. Exploration Geophysics. (4) Mahrer**

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) Huestis**

(Also offered as Physics 327.) Structure, constitution, and deformation of earth as determined by gravity, magnetics, seismology, heat flow. Related aspects of plate tectonics.

Prerequisites: 101, Math 264, Physcs 161. {Spring}

***431L. Palynology—Micropaleontology. (4) Anderson**

Studies of the morphology, methods of identification, ecology and applications of pollen, spores, nanofossils, foraminifera and other microfossils.

Prerequisite: 105L, some biology strongly recommended. 3 lectures, 3 hrs. lab. {Fall 1983 and alternate years}

***439. Paleoclimatology. (3) Anderson, Yapp**

(Also offered as Paleo 439.) History of the Earth's climate. Examination of methods in climatic reconstruction and mechanisms of climatic change. Emphasis on Pleistocene and Holocene climatic records.

Prerequisite: 105L. 3 lectures. {Fall 1983 and alternate years}

***441L. Stratigraphy and Sedimentology. (4) Staff**

Provenance, dispersal, deposition, diagenesis, classification of sediments; principles of stratigraphy; depositional systems and basin analysis.

Prerequisite: 314L. 3 lectures, 3 hrs. lab. {Fall}

***442. Petroleum Geology. (3) Staff**

Inductive 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. {Offered upon demand}

***443L. [542L.] Subsurface Geology. (3) Woodward**

Pre- or corequisite: 317L. 1 lecture, 6 hrs. lab. {Offered upon demand}

****450. Geology of New Mexico. (3) Callender**

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. {Offered upon demand}

***455L. Photogeology and Air Imagery Analysis. (3) McFadden, Wells**

Remote sensing of geology and topographic features; photogrammetric computations; stereoscopy; preparation of

planimetric, topographic, and geologic maps from air photos and imagery.

Prerequisites: 101, 105L, Math 162, or permission of instructor. 2 lectures, 3 hrs. lab. {Spring 1983 and alternate years}

***462. Hydrogeology. (3) McFadden, Wells**

Occurrence of groundwater with emphasis on water movement, water quality and hydrologic properties of earth materials; processes of surface waters with emphasis on runoff and hydrographic analyses; geochemistry of groundwater.

Prerequisites: 105L, Math 162, or permission of instructor. {Fall 1984 and alternate years}

***471L. Mineral Deposits. (4) Elston**

Origin, classification, occurrence, and exploration of mineral deposits.

Prerequisites: 314L, 317L. 3 lectures, 3 hrs. lab. {Fall}

***472. Quantitative Hydrogeology. (3) McFadden, Wells**

Handling of quantitative hydrologic data needed for analysis of ground-water systems under induced stress.

Prerequisite: 462. 3 lectures. {Offered upon demand}

***475. Uranium Deposits. (3) Brookins**

Geology and geochemistry of uranium deposits in igneous, metamorphic and sedimentary rocks. Distribution and abundance of uranium in rocks. Thorium-uranium and other elemental behavior during magmatic, metamorphic, weathering and sedimentologic processes.

Prerequisite: permission of instructor. {Spring 1983}

***481L. Geomorphology and Surficial Geology. (4) Wells**

(Also offered as Geog 481.) Origin and development of landforms with emphasis on weathering, soils, hillslope processes, fluvial systems and surficial geology; occasional field trips.

Prerequisites: 101 and 105L or permission of instructor. 3 lectures, 3 hrs. lab. {Fall 1983 and alternate years}

***482L. Geomorphology of the United States. (3) Wells**

Detailed study of the physiographic provinces and sections of the United States; emphasis on western United States.

Prerequisite: 481L or permission of instructor. {Offered upon demand}

***483L. Quantitative Geomorphology. (3) Wells**

Field investigations of geomorphic processes and landscape development with detailed consideration of fluvial, hillslope, alluvial fan and pediment systems. Emphasis on quantitative treatment of field data and application to environmental problems.

Prerequisite: 481L or permission of instructor. 1 lecture, 4 hrs. lab. {Spring 1984 and alternate years}

***484. Soil Genesis. (3) McFadden**

Processes of physical and chemical weathering; influence of soil parent materials, climate, topography and time on soil formation; application of soil studies to geologic problems.

Prerequisites: 101, 481L or permission of instructor. 3 lectures. {Fall 1984 and alternate years}

***485L. Soil Stratigraphy and Morphology. (3) McFadden**

Application of soils studies to stratigraphic analysis and mapping of Quaternary deposits and geomorphic surfaces; survey of soil classifications; field description of soil profiles; development of soil chronosequences and catenas.

Prerequisites: 484, 481L or permission of instructor. 2 lectures, 4 hours lab. {Fall 1983 and alternate years}

***487L. Advanced Mineralogy. (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: 311L, Chem 122L. 2 lectures, 6 hrs. lab. {Spring 1983 and alternate years}

***490. Geologic Presentation. (1) Staff**
Student reviews of geologic literature and critique.
Prerequisite: senior standing. {Fall, Spring}

491-492. Problems. (1-3, 1-3)

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: 314L. 3 lectures. {Fall 1984 and alternate years}

***502L. High-temperature Geochemistry. (3) Kudo**
Pre- or corequisites: 314L, 405L. 2 lectures, 3 hrs. lab. {Spring 1983 and alternate years}

***504. Geochronology. (3) Brookins**
Prerequisite: 314L; 405L recommended. {Fall 1984 and alternate years}

***505L. Stable Isotope Geochemistry. (3) Yapp**
Prerequisite: consent of instructor. {Spring 1984 and alternate years}

***506L. Structure Analysis by X-ray Crystallography. (4) Ewing**
Prerequisites: Math 264 and permission of instructor. 2 lectures, 6 hrs. lab. {Spring 1984 and alternate years}

***510. Advanced Mineral Deposits. (3) Elston**
Prerequisite: 471L. {Spring 1984 and alternate years}

***512L. Petrography of Opaque Ores. (3) Keil**
Prerequisites: 313L, 471L. 1 lecture, 6 hrs. lab. {Fall 1984 and alternate year}

***513L. Meteoritics and Cosmochemistry. (3) Keil**
Prerequisite: 314L or permission of instructor. 2 lectures, 3 hrs. lab. {Spring}

***516. Selected Topics in Geomorphology. (3) McFadden, Wells**
{Offered upon demand}

***517L. Instrumental Methods in Geochemistry. (2-4)†‡ Keil, Yapp**
Prerequisite: permission of instructor. 1 or 2 lectures, 3 or 6 hrs. lab. {Offered upon demand}

***518L. Microprobe Analysis and Scanning Electron Microscopy. [Microprobe Analysis.] (3) Keil**
Prerequisite: permission of instructor. 2 lectures, 3 hrs. lab. {Spring}

***519L. Selected Topics in Geochemistry. (2-4)‡ Staff**
Prerequisite: permission of instructor. {Spring}

***520. Selected Topics in Geobiology. (3)†‡ Kues, Lucas**
Prerequisite: permission of instructor. {Spring}

***521L. Metamorphism. (4) Callender, Grambling**
Prerequisites: 314L, 405L. 3 lectures, 3 hrs. lab. {Spring 1984 and alternate years}

***522. Selected Topics in Geophysics. (3) Huestis, Mahrer**
Prerequisite: permission of instructor.

***523. Topics in Tectonics. [Tectonics of Sedimentary Basins.] (3) Callender, Staff**
Prerequisites: permission of instructor. {Offered upon demand}

***525L. Comparative Tectonics. (4) Woodward**
Prerequisite: 317L. 2 lectures, 3 hrs. lab. {Fall}

***528. Regional Tectonics. (3) Woodward**
{Spring 1983 and alternate years}

***531L. Igneous Petrology. (4) Kudo**
Prerequisites: 313L. 3 lectures, 3 hrs. lab. {Fall}

***537L. Stratigraphic Analysis. (3) Staff**
Prerequisites: 317L, 441L. 2 lectures, 3 hrs. lab. {Offered upon demand}

***540. Advanced Stratigraphy—Sedimentology. (3) Anderson, Staff**
(Also offered as Paleoe 540.)
Prerequisite: permission of instructor. {Spring}

***544L. Sedimentary Petrology. (4) Staff**
Prerequisites: 314L and 441L. 2 lectures, 6 hrs. lab. {Spring 1984 and alternate years}

***547-548. Seminar. (2-3, 2)**

***551-552. Problems. (1-3, 1-3 hrs. each semester)**

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

GERMAN

See Modern and Classical Languages.

GREEK

See Modern and Classical Languages.

HISTORY

Janet Roebuck, Chairperson
Mesa Vista 1104, 277-2451

PROFESSORS

William M. Dabney, Ph.D., University of Virginia
Richard N. Ellis, Ph.D., University of Colorado
Richard W. Etulain, Ph.D., University of Oregon
Frank W. Iklé, Ph.D., University of California (Berkeley)
Robert W. Kern, Ph.D., University of Chicago
Edwin Lieuwen, Ph.D., University of California (Berkeley)
Charles McClelland, Ph.D., Yale University
Gerald D. Nash, Ph.D., University of California (Berkeley)
Janet Roebuck, Ph.D., University of London

ASSOCIATE PROFESSORS

Peter J. Bakewell, Ph.D., Cambridge University
Michael L. Conniff, Ph.D., Stanford University
Peter R. Kolchin, Ph.D., Johns Hopkins University
Steven P. Kramer, Ph.D., Princeton University
David R. Maciel, Ph.D., University of California (Santa Barbara)
Jonathan Porter, Ph.D., University of California (Berkeley)

Noel H. Pugach, Ph.D., University of Wisconsin
 Howard N. Rabinowitz, Ph.D., University of Chicago
 Richard G. Robbins, Ph.D., Columbia University
 Donald E. Skabelund, Ph.D., University of Utah
 Ferenc M. Szasz, Ph.D., Rochester University

ASSISTANT PROFESSORS

Richard M. Berthold, Ph.D., Cornell University
 William Roberts, Ph.D., Johns Hopkins University
 M. Jane Slaughter, Ph.D., University of New Mexico
 Jake W. Spidle, Ph.D., Stanford University
 Charlie R. Steen, Ph.D., University of California (Los Angeles)
 Donald D. Sullivan, Ph.D., University of Colorado

PROFESSOR EMERITUS:

Donald C. Cutter, Ph.D., University of California (Berkeley)

Explanation of footnotes not indicated will be found on p. 316.

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, 496 courses may be repeated once for credit to fulfill field requirements.

MINOR STUDY

The planned program outlined below is designed to supplement a student's work in his/her 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 requirements include a minimum of five semester courses, at least three of which must be concentrated in European 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 distributed 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 distributed minors.

DEPARTMENTAL HONORS

The Department of History has an honors program which a student may enter with the recommendation of his/her 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.

HISTORY (HIST)

100. Social Science. (4)

Introduction to the Social Science disciplines. Emphasis on intensive skills improvement in communication, reading comprehension, study techniques and logical reasoning which are required for further study in any of the Social Science disciplines. Course themes may vary by department, but all courses will be interdisciplinary and will emphasize skills. For students who score 13 or below in Social Science on the ACT or who are admitted with a Social Science deficiency.

101-102. Western Civilization. (3, 3) Berthold, Kern, Kramer, McClelland, Robbins, Roebuck, Skabelund, Slaughter, Steen, Spidle, Sullivan

101—ancient times to 1648; 102—1648 to present. {Summer, Fall, Spring}

108-109. History of the Americas. (3, 3)

108—survey of the history of North and South America from the age of discovery to 1821 European exploration, settlement, and exploitation of colonial America under the Spanish, French, and English; 109—survey of the cultural, social, political, and economic history of North and South America from 1821 to modern times.

110. "The Whole Works": The Making of the Modern World. (3)

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.

123. Races: Iberia and the Americas. (3) Bakewell, Conniff, Kern

Development of Spanish and Portuguese culture from their origins through the development of the Iberian cultures in the Americas. The approach is mainly historical, but art, music and literature are included and related to the evolution of society, politics and economics.

150. Introduction to Latin America. (3)

(Also offered as Latin Am St. Soc. Pol Sci; M&CL 150.) This is an inter-disciplinary introduction to the geography, culture, economy, literature, society, politics, history, and international relations of the region. A lecture by faculty members from different departments will be followed by a discussion section each week.

No prerequisites.

161-162. History of the United States. (3, 3) Dabney, Etulain, Kolchin, Nash, Pugach, Rabinowitz, Roberts, Szasz
 Survey of the economics, political, intellectual, and social development of the United States, including the place of the U.S. in world affairs. 161—from 1607 to 1877; 162—from 1877 to the present. {Summer, Fall, Spring}

163-164. History of the United States. (3, 3) Dabney, Kolchin, Nash, Pugach, Rabinowitz, Roberts, Szasz

Survey of the economic, political, intellectual, and social development of the United States, including the place of the U.S. in world affairs. 163—from 1607 to 1877; 164—from 1877 to the present. For students with ACT scores of 25 or higher.

220. Studies in History. (1-3)† Staff

This course will vary from instructor to instructor but will offer a review of particular historical issues designed for the non-specialist. For content of particular courses, see schedule of classes and contact Department. {Fall, Spring}

251. Traditional Eastern Civilizations. (3) Iklé, Porter

The origin and development of the traditional societies and cultures of Indian, Southeast Asia, China, and Japan.

252. Modern Eastern Civilizations. (3) Iklé, Porter

The emergence of modern Asia from the impact of western colonialism and imperialism to nationalism, modernization and revolution.

\$260. History of New Mexico. (3)

Survey from Cabeza de Vaca to 1912.

280. The United States-Mexico Border. (3) Maciel

Traces the historical, socio-economic and cultural development of the border states in the U.S. and Mexico from 1848 to the present. {Fall}

281. History of Colonial Latin America. (3) Bakewell

From 1492-1821. Outlines the high culture of pre-Conquest Middle and South America—Maya, Aztec, Inca— and the history of Spain and Portugal to 1500; features of Latin American history from the rediscovery of America by Columbus in 1492 to the final achievement of independence in 1824. {Fall}

282. Modern Latin American History. (3) Conniff, Lieuwen

Surveys the nations of Latin America from their independence until the present. Emphasizes the process of nation-building, governance, socio-economic integration, and coping with modernization. Special attention given to great leaders of Latin America. {Spring}

283. La Raza: A History of Mexican-Americans. (3) Maciel

An understanding of the Chicano in our society; the course is an examination of history and culture.

***301. History of the Jewish People to 1492. (3) Pugach**

Survey of Jewish history in Ancient and Medieval times, stressing major religious, intellectual, political and social developments. Course traces the transformation of the Hebrews into the Jews and Israelite religion into Judaism. Highlights the Rabbinic era and the diaspora experience in the Islamic and Christian worlds. {Fall}

***302. Modern History of the Jewish People. (3) Pugach**

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 consideration of American Jewish community, modern anti-semitism, and rise of the state of Israel. {Spring 1984 and alternate years}

***303. History of World Communism. (3) Kern**

From Marx to the present.

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.

***305. History of Christianity to 1517. (3)**

The history of Christianity from its beginnings in Palestine to the eve of the Protestant Reformation. Primary focus will be on the rich variety of forms—doctrinal, liturgical and institutional—that Christianity assumed through the Medieval centuries. Also of concern will be its contributions and significance as a civilizing force. {Fall}

***306. History of Christianity, 1517 to Present. (3) Skabelund, Sullivan**

The development of Christianity from the Protestant Reformation into the modern world, including biography, doctrine, liturgy, institutions and religious practice, together with the interaction of Christianity with society at large. {Spring}

***308. Modern European Society. (3) Roebuck**

Evolution of society from the agrarian eighteenth to the industrial twentieth century. Changes in the living and working conditions of the major social groups necessitated by advances in agriculture, industry, and commerce will be studied. Focus will be on the response of the major social groups

to the challenge of this turbulent era and on the major social problems of modern Europe.

309. Historiography. (3) Dabney, Kern, Kramer, Spidle

Development of historical thought and writing. {Summer, Fall}

***310. International Labor History. (3) Kern**

The history of labor in Europe, the United States, and Latin America from 1835 to the present; a look at a variety of trade unions, such as the Grand National, the unions of the First and Second Internationals, syndicalism, and modern variants.

***311. The Ancient Near East. (3) Berthold**

A political and social survey of civilization in Egypt and Mesopotamia from its birth in Sumer in the fourth millennium to the destruction of the Achaemenid Persian empire by Alexander.

***313. Greece. (3) Berthold**

A political and social survey of the Greek people from the Mycenaean world through the long autumn of Hellenistic age and the arrival of the Romans.

***314. Rome. (3) Berthold**

A political and social survey of the Roman people from their origins on the Tiber through the glories of Empire to the final collapse of classical society in the sixth century.

***315. History of Women from Ancient Times to the Enlightenment. (3) Slaughter**

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.

***316. Women in the Modern World. (3) Slaughter**

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.

***317. History of Science to 1543. (3) Skabelund**

The history of science, mainly internal, from ancient Babylonia and Egypt through the European Renaissance.

***318. History of Science, 1543-1800. (3) Skabelund**

The history of science, mainly internal, during the Scientific Revolution of the sixteenth and seventeenth centuries and the eighteenth-century Enlightenment.

***319. History of Science, 1800 to the Present. (3) Skabelund**

History of science, mainly internal, during the "classical" period of the nineteenth century and the "second scientific revolution" of the twentieth.

***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.

***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.

***322. The High Middle Ages. (3) Sullivan**

The maturing of medieval civilization: Gregorian reform, the Crusades, the rise of the university, and the Gothic cathedral.

***323. Renaissance Era, 1300 to 1520. (3) Sullivan**

The decline of medieval civilization and the transition to a new phase of European history.

\$ May be taught off-campus centers.

- *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.
- *327. History of Technology. [Technical Factors in History.] (3) Skabelund**
Picks up topics commonly omitted from other courses: the environmental, technological, and scientific factors in history, mostly Western, from antiquity to the present.
- *328. Modern France since 1815. (3) Kramer**
The development of French society and culture since the French Revolution.
- *330. History of the Women's Rights Movement. (3) Slaughter**
A detailed study of the movements for women's rights in the U.S. and in Europe in the nineteenth and twentieth centuries. The topics approach will emphasize the movement's relation to and impact on broader historical questions, e.g., feminism and socialism, feminism and World War I. Student involvement in discussion and project presentations is required.
- *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.
- *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.
- *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, economic, and military life.
- *334. Modern Europe, 1815-1890. (3) Kern**
Restorations and revolutions, nationalism, unification and industrialism; the "generation of materialism."
- *335. Modern Europe, 1890-1939. (3) Kern, Roebuck, Kramer**
The origins of World War I, World War II and the search for peace.
- *336. Europe since 1939. (3) Kramer**
Study of the transformation of Europe after World War II as experienced on the political, economic, social and cultural level.
- *338. The City in History. (3) Roebuck**
(Also offered as Arch and Soc 338.) An overview of 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.
- *340. Military History of Modern Europe. (3) Roberts**
- *341. Medieval France to 1559. (3) Steen**
Study of the evolution of French social, political, and religious institutions from Roman times to outbreak of the Wars of Religion.
- *342. Baroque France, 1560-1815. (3)**
Study of creation of France as modern state with emphasis on social and political developments that led to French Revolution.
- *343. History of England to 1688. (3) Roebuck**
Survey of medieval foundations, Tudor era, and seventeenth-century social and political revolutions.
- *344. History of Modern England since 1688. (3) Roebuck**
Emphasis on social, political, and intellectual developments.
- *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.
- *346. The History of Italy 1815-Present. (3)**
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.
- *347. Old Russia from the Ninth to the Seventeenth Century. (3) Robbins**
Survey of the Kievan, Mongol, and Muscovite periods. Emphasis on political and social developments.
- *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.
- *349. Russia in the Era of Reform and Revolution: 1855 to Present. (3) Robbins**
From the Great Reforms of the 1860s to the fall of Khrushchev. Emphasis on political and social changes.
- *350. Traditional China. (3) Porter**
Emergence and development of Chinese civilization to its height in the thirteenth century, including cultural, political, social, and economic themes.
- *351. Early Modern China. (3) Porter**
The development of early modern society and the impact of the West from the thirteenth to the twentieth century.
- *352. History of Japan. (3) Iklé**
Social, political, and economic institutions from historical beginnings to modern times.
- *353. Southeast Asia. (3) Iklé, Porter**
Early civilization, the impact of colonialism and nationalism to the present.
- *354. Diplomatic History of East Asia. (3) Iklé**
Emphasis upon diplomatic relations between Asia and the West.
- *355. Revolutionary China. (3) Porter**
Political, social, economic and cultural history of China in the revolutionary period from 1911 to the present.
- *356. History of the Near East. (3) Iklé**
From ancient Mesopotamia to the present.
- *357. History of Africa since 1800. (3) Spidle**
Survey of the African continent during colonial and national periods.
- *358. Traditional India. (3)**
Survey of Indian history and civilization from the historical beginning to the Mughal period.
- *359. Modern India. (3)**
Survey of modern India from the rise of the Mughals to the present.
- *360. History of New Mexico. (3) Ellis**
Survey from Cabeza de Vaca to the present.
- *361. 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.

***362. American Urban History since 1870. (3)** Rabinowitz
Continuation of 361, emphasizing the emergence, development, and role of the modern city.

***363. The Old South. (3)** Kolchin

The South from the beginning of colonization to the outbreak of the Civil War. Emphasis on slavery and its impact on southern society.

***364. Political History of the United States. (3)** Roberts
Study of American politics from 1787 to the present. Emphasis on national politics with special attention to the presidency and changes in the political systems.

***366. Blacks in Urban America. (3)** Rabinowitz
Interdisciplinary examination of the transformation of America's blacks from a rural to a predominantly urban people. Special emphasis given to the post-Civil War period.

***367. The Federal Era, 1789-1837. (3)** Dabney
Study of the impact of the American Revolution on the post-war society, the creation of the new nation, crises of the 1790s, origin of modern political parties, Jeffersonian America, the War of 1812, and the movement westward.

***368. New South Since 1865. (3)** Rabinowitz
Emphasis on the social, political and economic aspects of Reconstruction and the first New South, progressivism, race relations, the New Deal, civil rights movement, Southern culture and contemporary politics as they affect the region and the nation.

***369. American Indian History. (3)** Ellis
Survey of American Indian history from white contact to the present.

***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.

***373. History of the American Frontier. (3)** Ellis
Anglo-American expansion from the seventeenth century to the 1890s.

***374. The Trans-Mississippi West. (3)** Ellis

***375. Military History of the United States. (3-4)** Roberts
Survey of U.S. military and naval history from colonial times to present, with emphasis upon technological, managerial, and political developments that have affected the armed services.

***376. History of American Economic Growth. (3)** Nash
A survey of the extraordinary expansion of the American economy from colonial beginnings to the present day including consideration of technology, business, labor, agriculture, and environmental changes.

***378. Constitutional History of the United States. (3)** Dabney
The American Constitution from English origins through the Civil War and Reconstruction. The continuing effort to fashion a frame of government broad enough to embrace diverse peoples of different races, religious, national origins and value systems.

***379. Constitutional History of the United States. (3)** Dabney
Sequel to Hist 378. A century-long struggle to resolve the conflicting liberties of the people and requirements of an ordered society. Examination of the occasional collisions of the cherished rights of property and personal freedom.

***380. History of the Southwest, Spanish Period. (3)**
Spanish exploration and occupation of the Southwest; colonial government and missions.

***381. History of the Southwest, Mexican and American Period. (3)**

Historical survey of the American Southwest covering the period from the first entrance of the Anglo-Americans during the Mexican era to the present.

***383. Society and Development in Latin America, 1492-Present. (3)** Bakewell, Conniff

Overview of social and economic trends in Latin America, stressing labor systems, social structure, trade, demography, and industrialization.

***384. Inter-American Relations. (3)** Conniff

Relations among the American nations since 1810, and with other world powers. Stresses U.S. role in the region after 1900, as well as tendencies to curb that influence. Guerilla warfare, revolutionary networks, and Third World ideology covered.

***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.

387. Blacks in Latin America. (3)

(Also offered as Afro-Am St 387.) Survey of the history and assimilated culture of the black man in Latin America since colonial times.

***389-390. Latin American Philosophy. (3, 3)**

(Also offered as Soc, Phil 389-390.) 389—pre Columbian thought through independence ideologies. 390—positivism through contemporary thought.

***393. Spanish South America to 1824. (3)** Bakewell

The native cultures in pre-Conquest times; the conquest of the Incas and the colonial settlement of the remainder of Spanish South America; economic, social and cultural developments of colonial times, concentrating on the central Andean region, but with accounts of varying development in other areas; the origins and accomplishment of independence in the early 19th century.

***395. Spain and Portugal to 1700. (3)** Kern
Spanish and Portuguese history to 1700.

***396. Spain and Portugal since 1700. (3)** Kern
Spanish and Portuguese history since 1700.

***397. Mexico to 1821. (3)** Bakewell

Origins of native Mexican civilization; high cultures—Maya, Toltec, Aztec; Spain and the Spanish conquest of Mexico; colonial life, government, achievements; Independence of Mexico.

***398. Mexico since 1821. (3)** Lieuwen

***399. Contemporary Mexico: 1940 to the Present. (3)** Maciel

Mexico's growth development and crisis in recent times. Cultural trends, societal growth, economic development, political structures, international relations.

***401. Quantification in History. (3)**

Introduction to statistics and computer analysis for historians. Emphasis on ability to read and criticize quantitative studies by historians. No prior knowledge of statistics or higher mathematics required.

***410. The Historian and the Museum. (3)**

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.

***411. Archival Administration for Historians. (3)**

An introduction into the nature of archival administration,

problems of archival work, and relations between archivists and historians.

***412. Introduction to Editing Historical Journals. (3)**

Nature and problems of editing historical journals. Appraisal, evaluation, revision, and preparation for publication, including practical experience.

***428. European Intellectual History, Enlightenment to 1860. (3) Kramer**

The Enlightenment synthesis: Romanticism, positivism, socialism, liberalism; Voltaire, DeSade, Rousseau, Burke, Herder, Kant, Comte, Mill, Darwin, Marx.

***429. European Intellectual History, 1860 to the Present. (3) McClelland**

The anti-positivist reaction; the decadent period and the crisis in values, scientific revolution; existentialism; Dostoevski, Nietzsche, Heisenberg, Freud, Bergson, Kierkegaard, Sartre, Buber.

***438. European Diplomatic History. (3) Spidle**
Since 1815.

***442. Germany, 1871 to 1971. (3) McClelland**

Bismarck to Brandt, a survey of German history from unification to contemporary times, with special emphasis on Weimar and Hitlerian Germany.

***443. Modern Eastern Europe. (3) McClelland**

***450. Christians and Spices: The Western Impact on Asia. (3) Porter**

The era of European expansion in Asia from Vasco da Gama to circa 1900; sources of European expansion, the early struggles and conquests, colonial systems, and imperialism.

***453. Inter-Disciplinary Asian Studies. (3)**

(Also offered as Phil, Geog, Pol Sc 453.) Cross-cultural and interdisciplinary investigations of problems and methodologies current in Asian Studies.

456. Islam. (3)

A study of Islamic civilization—its ideological, cultural, political and socio-economic development from the 7th century to the present.

***461. The American Colonies, 1607-1763. (3) Dabney**

The settlement of English America. The transference of institutions and attitudes from Britain, Europe, and Africa to North America, and what happened to them when they encountered the new environment and the native population.

***462. The American Revolution. 1763-1789. (3) Dabney**

The separation of British America from the mother country; why it was undertaken, how it was achieved, what its significance was. The effort to gather a scattered and diverse people under one constitutional government.

***465. The Era of Sectional Conflict, 1820 to 1860. (3) Kolchin**

The impact of nationalism and sectionalism upon American life from the *Missouri Compromise* to the election of Lincoln.

***466. The Civil War Era. (3) Kolchin**

The United States from 1848 to 1868. Topics covered include slavery, anti-slavery, and the coming of the Civil War; social, political, and economic aspects of the war; emancipation and Reconstruction.

***467. United States in the Gilded Age, 1865-1900. (3) Rabinowitz**

Emphasizes changes in society in terms of impact on Americans at the time and legacy to the 20th century, includes Reconstruction, immigration, industrialization, urbanization, and America's rise to the world power.

***468. Twentieth Century America, 1898-1932. (3) Nash**
From 1898 to the time of the great depression.

***469. Twentieth Century America, 1932-Present. (3) Nash**
From the time of the great depression to the present.

***470. Philosophy of History. (3)**

(Also offered as Phil 470.) Nature, structure, and presuppositions of history and historical methods.

***475. American Culture and Society, 1607-1860. (3) Szasz**

***476. American Culture and Society since 1860. (3) Szasz**

***481. The Modernization of South America. (2-3) Lieuwen**
Economic development, social change, and political crises since 1850.

***482. The Mexican Revolution. (2-3) Lieuwen**

Emphasis upon theory and interpretation. 3 hrs. credit with term paper.

***483. Twentieth-Century Social Revolutions in Latin America. (2-3) Lieuwen**

3 hrs. credit with term paper.

***484. The Cuban Revolution, 1959 to Present. (3) Valdes**
(Also offered as Soc 484.) Background to revolution since 1898; emphasis on period since 1959.

***485. Intellectual History of Latin America. (3) Lieuwen**

***486. Southern South America. (3) Conniff**

Argentina, Chile, Uruguay, and Paraguay from colonization to the present. Most emphasis on late 19th and 20th centuries, when these nations led the region's development. Deals with the rise of the export economies, populist movements, militarism, and socio-economic stagnation.

***488. The Andean Republics. (3) Bakewell, Conniff**

Peru, Bolivia, and Ecuador from the early 19th century to the present. Politics, society, economy. Hist 282 is a desirable preparation for this course. Reading knowledge of Spanish advantageous.

***489. Brazil, 1500 to the Present. (3) Conniff**

A survey of Latin America's largest and most populous country from colonial times to the present, with stress on the development of a multiracial society and a dynamic economy. Major themes are the Golden Age, the Bragança Empire, the Populist Era, and the Future World Power.

***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.

Department requirements provide that the following seminars may be repeated only once.

***500. Seminar in Historical Research Methods. (3) McClelland, Nash, Porter, Szasz**

***504. Seminar in Ibero-American Studies. (3)† Herron, T. Holzapfel, Lieuwen, Nason, Tomlins**
(Also offered as Ib-Am, Port and Span 504.)

***510. Seminar and Studies in History. (3)**

***520. Seminar and Studies in Ancient History. (3) Berthold**

***521. Seminar and Studies in Medieval History. (3) Sullivan**

- *526. Seminar in European Economic History. (3)**
(Also offered as Econ 526.)
- *532. Seminar and Studies in Early Modern European History. (3)** Steen
- *537. Seminar in European Imperialism. (3)** Spidle
- *540. Seminar and Studies in European Intellectual History. (3)** McClelland
- *542. Seminar and Studies in Modern European History. (3)** McClelland
- *544. Seminar in the History of Women. (3)** Slaughter
- *545. Seminar and Studies in British History. (3)** Roebuck
- *547. Seminar and Studies in Modern Russian History. (3)** Robbins
- *548. Seminar and Studies in Iberian History. (3)** Kern
- **549. History Education. (3)** Zepper
(Also offered as SATE 549.)
- **550. Seminar in History Education. (3)**
(Also offered as SATE 550.)
Prerequisite: 549.
- *551-552. Problems. (1-3, 1-3 hrs. per semester)**
- *554. Seminar and Studies in Far Eastern History. (3)** Iklé, Porter
- *555. Interdisciplinary Seminar: Asia. (3)**
(Also offered as Geog, Pol Sci 555.)
- *562. Seminar and Studies in Early American History. (3)** Dabney
Pre- or corequisite: 462.
- *563. Seminar and Studies in U.S. Urban History. (3)** Rabnowitz
- *564. Seminar and Studies in American Intellectual and Social History. (3)** Szasz
- *565. Seminar and Studies in Southern History. (3, to a maximum of 6)‡**
- *566. Seminar and Studies in Civil War Period. (3)** Kolchin
- *568. Seminar and Studies in Recent American History. (3)** Nash
- *570. Seminar and Studies in United States Diplomatic History. (3)** Pugach
- *573. Seminar in American Western History. (3)** Ellis
- *574. Seminar in American Indian History. (3)** Ellis
- *579. Seminar in Southwest History. (3)**
- *581. Seminar in Colonial Latin American History. (3)** Bakewell
- *582. Seminar in Recent Latin American History. (3)** Lieuwen
- *584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3)** Lieuwen, Merx, Needler, Schwerin
(Also offered as Econ, Pol Sci, and Soc 584.)
- *589. Seminar and Studies in Brazilian History. (3)** Conniff
(Also offered as Ib-Am 504.)
- *599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.
- *699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

IBERO-AMERICAN STUDIES

Michael L. Conniff, Director
Mesa Vista 1118, 277-2736

Jon Tolman, Associate Director
Latin American Institute, 277-2961

Explanation of footnotes not indicated will be found on p. 316.

An interdepartmental program in the languages, literature, and history of Spanish America and Brazil leading to the degree of Doctor of Philosophy. For details, consult the Graduate Programs Bulletin.

IBERO-AMERICAN (IB-AM)

***504. Seminar in Ibero-American Studies. (3)‡** Bakewell, Carter, Conniff, Gonzales-Berry, T. Holzappel, Lieuwen, Reyna, Sainz, Tolman, Tomlins
(Also offered as Portuguese, Spanish 504, Hist 504 and 589.)
{Fall, Spring}

***584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3)‡**
Carter, Gonzales-Berry, Lieuwen, Merx, Needler, Reyna, Sainz, Schwerin
(See Econ, Hist, Pol Sci, and Soc 584.) {Spring}

***651-652. Problems. (1-3, 1-3 hrs. per semester)**

***699. Dissertation. (3-12 hrs. per semester)** Bakewell, Carter, Conniff, Gerdes, Gonzales-Berry, T. Holzappel, Lieuwen, Reyna, Sainz, Tolman, Tomlins, Ulibarri
See the Graduate Programs Bulletin for total credit requirements.

ITALIAN

See Modern and Classical Languages.

INTERNATIONAL STUDIES

ASIAN STUDIES

Jonathan Porter, Chairperson
Mesa Vista 1111, 277-5907

ADVISORY COMMITTEE:

Jonathan Porter, History
Rodman Snead, Geography
James Spuhler, Anthropology
Fred Gillette Sturm, Philosophy
Pearl Wu, Modern Languages.

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, anthropology, or languages. It is recommended that the student take appropriate language courses. 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 History 303; Geography 336, 337; History 251, 252, 350, 351, 352, 354, 355, 356, 358, 359, 370, 371, 456, plus 495 and 496 when topic is appropriate; Chinese 101, 102, 201, 202; Mod Lang 457 when topic is Japanese; Philosophy 263, 334, 335, 336, 337, 348, plus 247, 347, 441, 442, 447 when topic is appropriate, 453; Political Science 450.

EUROPEAN STUDIES

Eighteen hours of work in approved courses will be required for the interdisciplinary European Studies minor. Approved courses are listed in the European Studies catalog. These 18 hours should be distributed as follows:

3 hours in history; 3 hours in philosophy and literature (English, comparative literature, and modern and classical languages); and 3 hours in social sciences (anthropology, geography, political science, and sociology);

9 hours of electives from the approved list of courses; no more than 6 of the 18 hours may be below the 300 level; no more than 9 of the 18 hours may be in any one department; no more than 3 hours may be in approved undergraduate readings or individual studies courses.

In addition, students must take two years of a major European language other than English or have a certifiable reading knowledge of such a language.

NOTE: The list of approved courses, or European Studies catalog, is a compilation of all undergraduate courses offered by UNM which are devoted mostly to European orientations. These include, in addition to those offered in the College of Arts and Sciences, certain courses in the Schools of Fine Arts, Business, and Law.)

RUSSIAN STUDIES

Natasha Kolchevska, Chairperson
Ortega Hall 351A, 277-2434

COMMITTEE IN CHARGE

PROFESSOR

Paul Jonas, Ph.D., Columbia University, (Economics)

ASSOCIATE PROFESSOR

Richard Robbins, Ph.D., Columbia University, (History)

ASSISTANT PROFESSORS

Natasha Kolchevska, Ph.D., University of California (Berkeley), (Modern Languages)

Byron Lindsey, Ph.D., Cornell University, (Modern Languages)

Philip Roeder, Ph.D., Harvard University, (Political Science)

LECTURER

Gerald Slavin, Ph.D., University of New Mexico, (Advisement)

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 be-

yond a reading knowledge is required. The major requires no minor field for graduation. The program also offers a minor.

MAJOR IN RUSSIAN STUDIES

The major in Russian Studies requires 56 semester hours. (No minor is required of the student majoring in Russian Studies). Majors must complete both the Core Courses and one field specialization as follows:

The Core—(35 semester hours)

Russian Language—20 hours

Russian 101-102. Elementary Russian. (4-4)

Russian 201-202. Intermediate Russian. (3-3)

Russian 301. Advanced Russian. (3)

Russian 302. Contemporary Russian. (3)

Russian Geography—(3 semester hours)

Program change under revision.

Russian History—(6 semester hours)

History 348. Romanov Russian to 1855. (3)

History 349. Russian in the Era of Reform and Revolution 1855 to Present. (3)

The Contemporary Soviet System—(6 semester hours from the following:

Economics 455. The Soviet Economic System. (3)

Political Sci 357. Government and Politics of the Soviet Union. (3)

Political Sci 449. Soviet Foreign Policies. (3)

Field Specialization.—(21 semester hours)

I. Russian Language and Civilization

II. Soviet Studies

III. Soviet Studies/International Security Affairs

IV. Soviet Studies/International Commerce

MINOR IN RUSSIAN STUDIES

The minor in Russian Studies requires 23 semester hours; 14 hours of Russian language and 9 hours of Russian civilization.

JOURNALISM

Robert H. Lawrence, Chairperson
Journalism 208, 277-2326

PROFESSOR:

Anthony G. Hillerman, M.A., University of New Mexico

ASSOCIATE PROFESSORS:

Charles K. Coates, B.A., University of Virginia

Robert H. Lawrence, M.A., University of New Mexico

ASSISTANT PROFESSORS:

Frederick V. Bales, Ph.D., University of Texas

D. Clark Edwards, M.A., University of Missouri

H. Ivan Innerst, M.S., University of California (Los Angeles)

Burt Wittrup, B.A., University of New Mexico

MAJOR STUDY

Advertising students are encouraged to consider a joint M.B.A. program, combining journalism and appropriate business courses. Consult adviser.

News-editorial sequence: 33 hours, including 251, 252, 301, 311, 312, 322, 375, 475, 494.

Television-radio sequence: 33 hours, including 251, 270, 271, 301, 322, 340, 341, 470, 494.

Note: No more than 33 hours of journalism without special permission.

MINOR STUDY

21 hours, including 251, 252, 312, 375 or 340.

JOURNALISM (JOURN)

101. Introduction to Mass Communication. (3)

The meaning of mass media in society, with emphasis on their processes and effects. Does not count toward major.

110. The Evolution of Television. (3)

(Also offered as Sp Com, TA 110.) Development of television in the areas of news, performing arts, ethnics, taste, technology, and as industry. Social, cultural, and political impact of television on contemporary America, western civilization, and the world. Does not count toward a major. (Spring, Fall)

111. Technical Introduction to Television. (3) Staff

A technical introduction to the operation of the television equipment encountered on this campus and, to the degree possible, in commercial operations. Includes basic electronics and optics as well as studio operations. Culminates in demonstration tape. Does not count toward a major. Prerequisite or corequisite: TA, Journ, Sp Com 110.

251. News Writing and Reporting I. (3) Staff

Emphasis on news elements, writing techniques, and story structure. A strong command of language and typing skills recommended. Open to students with 24 hours of university credit or declared journalism majors with 15 hours university credit and a GPA of 2.0, who have passed CST. (Summer, Fall, Spring)

252. News Writing and Reporting II. (3) Staff

Continuation of 251 with stronger emphasis on gathering of information, reporting methods and advanced writing skills for the media. Prerequisite: completion of 251 with grade of C or higher. (Fall, Spring)

253. Newspaper Practice. (1-3)† Staff

Open to staff members of *The Lobo*. May be taken three times. (Fall, Spring)

254. Broadcast Practice. (1)† Staff

Open to staff members of KUNM-FM. May be taken three times. (Fall, Spring)

261. News Photography. (3) Lawrence

Camera and darkroom techniques for newspapers and magazines; editing of photos, including preparation of cutlines; production of all varieties of photos for publication, including photo stories.

Prerequisites: 251 and permission of instructor. Journalism majors given preference. (Summer, Fall, Spring)

270. Introduction to Broadcast Journalism. (3) Staff

Writing news for the ear and writing to film and videotape. Familiarization with broadcast services of AP and UPI. Study of formats for radio and television reporting and news programs.

Prerequisites: 110 or permission of instructor, with 251 a prerequisite. (Fall, Spring)

271. Broadcast News Reporting. (3) Staff

Reporting for radio and television. Includes practice in on-air delivery and use of tape recorders and sound mixing and

editing facilities; reporting with pictures, including fundamentals of shooting and editing videotape.

Prerequisite: 270, 251 with grades of C or higher. (Fall, Spring)

277. Graphic Design. (3)

(Also offered as Art St 277.) Graphic design in communication.

Prerequisite: Art St 121. (Fall)

288. Spanish for Professionals. (3)

(Also offered as Span 277-278.) Specially designed course for professionals in the fields of medicine, law, business, office management. Attention given to specialized professional vocabularies.

301. History of Journalism in the United States. (3) Lawrence

American journalism from the pre-colonial beginnings through modern times.

Prerequisite: permission of instructor. (Fall)

302. Persuasive Writing. (3) Hillerman

Writing the editorial essay, the column, and other interpretive matters.

Prerequisites: 252 and permission of instructor. (Spring)

312. Copy-Editing and Makeup II. (3) Staff

Practice in editing and presenting news copy by headlines, typography, page makeup, and video display terminal.

Prerequisite: permission of instructor. 2 lectures, 2 hrs. lab. (Fall, Spring)

322. Law of the Press. (3) Staff

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) Staff

How to write and sell non-fiction and fiction to magazine today.

Prerequisite: permission of instructor. (Fall, Spring)

340. Broadcast News Programs. (3) Staff

Practice in editorial aspects of producing radio and television news programs, with emphasis on television. Students organize, write, edit and anchor news programs, including original portapack news reports.

Prerequisite: 271 with grade of C or higher. (Fall, Spring)

341. Television News Programs. (3) Staff

Continuation of 340, with practice in regular production of longer and more elaborate news programs and reports and an introduction to the newsroom duties of assignment editors and news and feature editors.

Prerequisite: 340 with a grade of C or higher. (Fall, Spring)

361. Photojournalism II. (3-6) Staff

Continues 261 with greater emphasis on camera reporting, weekly news assignments, scaling photos for reproduction, advanced black and white darkroom techniques. For majors only.

Prerequisite: Permission of instructor. (Spring)

375. Intermediate Reporting. (3) Staff

Emphasis on reporting complex affairs, the news feature story, developing and covering beats and specialized interests.

Prerequisite: 252 with grade of C or higher. (Fall, Spring)

399. Practicum in Journalism. (3) Staff

Supervised internship with a medium of mass communications.

Prerequisites: permission of instructor and 9 hours of journalism, including 375 for print media, 340 for radio, 341 for television broadcasting, and 401 for advertising. May be repeated for total of 6 hours. (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}

405. Public Affairs Programming. (3) Staff

Practice in interviewing techniques, researching of topics and personalities, production of panel-interview programs, and scrutiny of local public affairs programs.

Prerequisite: 341 with grade of C or better. {Offered upon demand}

406. Special Programming. (3) Staff

Practice in remote, live programming, including surveying of locations, planning, reporting, anchoring, continuity writing, and preparation of prerecorded materials for such programs.

Prerequisite: 341 with a grade of C or better. {Offered upon demand}

469. Media Management. (3) Staff

The functions of management in the communications field, with emphasis on departmental problems, laws, personnel, and changing technology.

Prerequisites: 312 and 322. {Offered upon demand}

470. News Documentaries. (3) Staff

Reporting, writing, narrating and production of radio documentaries and reporting, writing, narrating, shooting and editing of television news series reports and documentary segments.

Prerequisite: 341 with grade of C or higher. {Spring}

475. Advanced Reporting. (3) Staff

Interpretive reporting of public affairs with emphasis on investigation of subject matter, presentation, and publication.

Prerequisites: 375 with grade of C or higher and senior standing. {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}

496. Individual Study. (1-3 per semester, to a maximum of 6)**499. Public Affairs Seminar. (1-3)** Staff

Study and discussion of domestic and foreign news developments; in-depth examination of government policies and operations and international affairs that are prominent in the news; backgrounds to today's headlines, with reference to coverage of public affairs news.

Prerequisites: senior standing and permission of instructor. {Offered upon demand}

PROFESSORS:

Philip K. Bock, Anthropology
Sanford Cohen, Economics
Ronald Cummings, Economics
Pedro David, Sociology
Peter Gregory, Economics
Tamara Holzapfel, Modern Language
George Huaco, Sociology
Robert Kern, History
Robert A. Lenberg, Management
Edwin L. Lieuwen, History
Marshall R. Nason, Modern Languages (Emeritus)
Martin C. Needler, Political Science
Jeremy Sabloff, Anthropology
Karl Schwerin, Anthropology
Mary Elizabeth Smith, Art History
Frederick Sturm, Philosophy
Jack Tomlins, Modern Languages
John A. Yeakel, Management

ASSOCIATE PROFESSORS:

Peter Bakewell, History
Elinore M. Barrett, Geography
Richard Barrett, Anthropology
Garland Bills, Linguistics
Matthieu Casalis, Philosophy
Michael Conniff, History
Dick C. Gerdes, Modern Languages
David Maciel, History
Gilbert W. Merck, Sociology
James L. Ray, Political Science
Karen Remmer, Political Science
Robert Santley, Anthropology
Donald Tailby, Economics
Jon Tolman, Modern Languages
Nelson P. Valdés, Sociology

ASSISTANT PROFESSORS:

Anita Alvarado, Anthropology
June Carter, Modern Languages
Flora Clancy, Art
Erlinda Gonzales-Berry, Modern Languages
Mary Grizzard, Art
Fernando Robles, Management
Mari Lyn Salvador, Anthropology
Susan Tiano, Sociology
Stewart White, Geography

INTERDISCIPLINARY COMMITTEE ON LATIN AMERICAN STUDIES

Peter Bakewell, History
Erlinda Gonzales-Berry, Modern & Classical Languages
Peter Gregory, Economics
Robert A. Lenberg, Management
Karen Remmer, Political Science
Jeremy Sabloff, Anthropology
Susan B. Tiano, Sociology
Jon M. Tolman, Modern & Classical Languages, Chairperson

This is an interdepartmental program academically supervised by the Interdisciplinary Committee on Latin American Studies, appointed by the Dean of Arts and Sciences; and administered by the Associate Director for Academic Programs of the Latin American Institute. The program provides a solid foundation in language skills and area competence that can be valuable in business, public service, or further professional training.

MAJOR STUDY

A minimum of 36 hours, including the required courses outlined in A, B, and C below, are needed for a major in Latin American Studies. Students will work closely with the Associate Director for Academic Programs at the Latin American Institute in planning their program of study and must receive approval for all course work related to the major.

A. Languages of Latin America: Spanish 301-302, Portuguese 275-276. The language requirements may be waived if a student can demonstrate an equivalent proficiency in the language to the Interdisciplinary Committee on Latin Amer-

LATIN

See Modern and Classical Languages.

LATIN AMERICAN STUDIES

Jon M. Tolman, Associate Director for Academic Programs
Latin American Institute, 801 Yale N.E., 277-3245

ican Studies. If requirements are waived, the student will take Spanish 357 and 358 and 6 hours of Brazilian literature.

B. Students will complete four of the following courses: Anth 314, Econ 421, Geog 301-302, Hist 383, Pol Sc 356, Soc 350, Span 357-358.

C. Majors will complete 12 hours from the list of Approved Electives for Latin American Studies.

A listing and description of Latin American content courses currently being offered can be obtained from the Latin American Institute, 801 Yale N.E.

DUAL MAJOR

Under the "Three-Two" M.B.A. Program a student may take a dual major in Latin American studies and economics and continue for a M.B.A., completing the entire program in five years. Details are available at the Anderson School of Management or at the Latin American Institute.

Masters of Community and Regional Planning (MCRP) and Masters of Arts in Latin American Studies is a dual degree (MCRP/MALAS) jointly administered by the Director, Planning Program of the School of Architecture and Planning and by the Associate Director for Academic Programs of the Latin American Institute. Details are available at the Graduate Studies Office.

MINOR STUDY

A minimum of 24 hours, including Spanish 301-302 (or Span 357-358) or Portuguese 275-276 (or 6 hours of Brazilian Literature); 3 courses selected from Anth 314, Econ 421, Hist 383, Pol Sci 356, Soc 350, and Span 357; and 9 hours from the courses identified as Approved Electives. consult with the Associate Director for Academic Programs at the Latin American Institute for approval for all course work to be counted toward the minor.

DISTRIBUTED MINOR FOR LATIN AMERICAN STUDIES MAJOR

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 but which do not count toward the major.

HONORS IN LATIN AMERICAN STUDIES

Students seeking honors in Latin American Studies should consult with the Associate Director for Academic Programs and submit a letter of application to the Honors Program during their junior year. Latin American Studies 497 and 499 are required. The Senior Honors Thesis will be orally defended.

LATIN AMERICAN (LT-AM)

APPROVED ELECTIVES

150. Introduction to Latin America. (3) Black, Needler (Also offered as History, Mod Lang, Pol Sci, and Soc 150.) This is an inter-disciplinary introduction to the geography, culture, economy, literature society, politics, history, and international relations of the region. A lecture by faculty members from different departments will be followed by a discussion section each week. No prerequisites.

250. Latin America Through Film. (3) Merx, Remmer (Also Offered as Soc and Pol Sc 250.) Interdisciplinary introduction to Latin American studies through documentary films, lectures, reading discussion.

355. Governments and Politics of Latin America. [Latin American Politics and Society.] (3) Needler (Also offered as Soc and Pol Sc 355.)

497. [498.] Independent Studies. [Individual Reading and Research.] (1-3, to a maximum of 6) Prerequisite: permission of department chairperson. For undergraduates only.

499. Seniors Honors Thesis. (3) Prerequisites: Candidacy for honors in Latin American Studies.

***525. Proseminar in Latin American Politics.** [Proseminar in Latin American Politics and Society.] (3) Needler (Also offered as Soc and Pol Sc 525.)

***551-552. Problems.** (1-3, 1-3 hrs. each semester)

***578. Latin American Development Studies.** (3) Staff (Also offered as CRP 578.) {Spring}

***584. Interdisciplinary Seminar on Problems of Modernization in Latin America.** (3) Lieuwen, Merx, Needler (See Econ, Hist, Pol Sci, and Soc 584.)

***599. Masters Thesis.** (1-6 hrs. per semester)

Related Courses

Anth 284, 306, 313, 337, 361, 384, 386, 420, 430; Art Hi 343, 411, 412, 450, 483; Econ 420, 421, 423; Geog 300, 302; Hist 280, 281, 282, 380, 384, 387, 397, 398, 399, 481, 482, 483, 484, 485, 486, 488, 489; Phil 387, 389-390; Pol Sc 300, 321 345, 355, 363, 455; Port 307, 421, 446, 457, 458, 461, 462; Soc 221, 361, 450, 484; Span 307, 346, 357-358, 371, 430, 431, 432, 433, 434, 435, 436, 438, 439.

LINGUISTICS

Alan Hudson-Edwards, Chairperson
Humanities Bldg. 526, 277-6353

PROFESSORS:

Vera P. John-Steiner, Ph.D., University of Chicago
John W. Oller, Jr., Ph.D., University of Rochester
Robert H. White, Ph.D., University of Arizona

ASSOCIATE PROFESSORS:

Garland D. Bills, Ph.D., University of Texas (Austin)
Dean G. Brodkey, Ed.D., University of California (Los Angeles)
Dolores S. Butt, Ph.D., University of New Mexico
Jean M. Civikly, Ph.D., Florida State University
Guillermina Engelbrecht, Ph.D., Arizona State University
Larry P. Gorbet, Ph.D., University of California (San Diego)
Alan J. Hudson-Edwards, Ph.D., Yeshiva University
Leroy I. Ortiz, Ph.D., University of New Mexico
Roy G. Pickett, Ph.D., University of Iowa

ASSISTANT PROFESSORS:

Jean E. Newman-Charlton, Ph.D., University of Toronto
Steven L. Strauss, Ph.D., City University of New York
Rodney W. Young, Ph.D., University of New Mexico (Director, Testing Division)

PROFESSOR EMERITUS:

Robert W. Young, Honorary LL.D., University of New Mexico
Associated faculty in other departments.

MAJOR IN THE COLLEGE OF ARTS AND SCIENCES

The B.A. major in Linguistics requires a minimum of 36 hours numbered above 200 (24 in required courses, 12 in approved

electives) and four semesters of a foreign language or the equivalent. Required courses are: Ling 292L, 303, 317, 318, 351, 367 or 362, 417, 418. The 12 hours in approved electives may be selected from courses in linguistics or from the following courses (others may be approved by the Department): Com Ds 325, 326L, El Ed 481, SATE 430, 442; Engl 427; French 405, 440; German 405, 445; Navajo 401; Spanish 340, 341, 342, 441, 443, 444; Phil 352, 356, 357, 445; Psych 463, 467; Sp Com 323, 350, 423. Ling 470 is strongly recommended for those planning to pursue graduate study in linguistics.

MINOR IN THE COLLEGE OF ARTS AND SCIENCES

The minor requires at least 21 hours of linguistics courses numbered above 200: 292L, 303, 317, 318, and 9 additional hours selected from the requirements or approved electives for the major.

MAJOR OR MINOR IN THE COLLEGE OF EDUCATION

For the composite major in communication arts, the program leading to certification in TESOL, and teaching of reading in the secondary school, see "Department of Secondary Education" in the College of Education section of this catalog. For the composite minor in bilingual education, see "Department of Elementary Education" in the College of Education section.

LINGUISTICS (LING)

101. Introduction to the Study of Language. (3) Bills, Hudson-Edwards, Oller, Strauss
Broad overview of the nature of language: language structure, biology of language, language learning, language and thought, bilingualism, social and regional variation, educational implications. Intended to fulfill breadth requirements in any college. 101 and Anth 110 may not both be counted for credit. {Fall, Spring}

110. Language, Culture, and Man. (3) Gorbet
(See Anth 110.)

***127. Workshop in Practical Linguistics.** (1-4)
Does not normally count toward the major or minor in linguistics. {Offered upon demand}

***227. Workshop in Practical Linguistics.** (1-4)
Does not normally count toward the major or minor in linguistics. {Offered upon demand}

292L. Introduction to Linguistic Analysis. (3) Bills, Hudson-Edwards, Oller, Strauss
Basic concepts and technical vocabulary of language as a structured system: phonology, morphology, syntax, semantics. Emphasis on descriptive linguistics; some attention to language change and variation. Presumes no prior knowledge of linguistics. 3 lectures, 1 hr. lab. {Fall, Spring}

***303. English Phonetics.** (3) Hudson-Edwards, Riensche, Strauss
(Also offered as Sp Com and Com Ds 303.) Study of speech sounds, especially English, and application to teaching speech and English and to speech and language remediation, especially with problems of articulation, pronunciation, rhythm, and dialects. {Fall, Spring}

***317. Phonological Analysis.** (3) Strauss
(Also offered as Anth 317.) Phonetic principles and phonological theory, descriptive analysis of phonological systems,

transcriptional practice and problems from selected languages.

Prerequisite: 292L. {Fall}

***318. Grammatical Analysis.** (3) Bills, Gorbet
(Also offered as Anth 318.) Principles of morphological and syntactic analysis and the theory of grammar, descriptive analysis of grammatical structures, problems from selected languages.
Prerequisite: 292L. {Spring}

***351. Language in Society.** (3) Hudson-Edwards
Cross-cultural view of speech varieties as they reflect social organization. Topics include: social dialects, societal multilingualism, language contact, language attitudes, language policy and planning.
Prerequisite: an introductory linguistics course. {Spring}

***353. Bilingual Education: History and Theory.** (3)
(Also offered as Ed Fdn 353.) Survey of multilingual education throughout the world; principles and practices.
Prerequisite: an introductory linguistics course.

***359. Language and Culture.** (3) Gorbet
(Also offered as Anth 359.)
Prerequisite: an introductory linguistics course. {Fall}

***362. Language Testing.** (3) Oller
(Also offered as Ed Fdn 362.) Survey of language testing procedures with special applications in multilingual and bilingual programs.
Prerequisite: an introductory linguistics course; some knowledge of statistics recommended. {Fall}

***367. Introduction to Psycholinguistics.** (3) Newman-Charlton
(Also offered as Psych 367.) Theoretical and methodological issues in psycholinguistics, including comprehension, speech perception and production, language acquisition, bilingualism, brain and language, reading.
Prerequisite: 292L or Psych 101 or 102. {Fall}

***405. North American Indian Languages.** (3) Gorbet
(See Anth 405.)
Prerequisite: 292L or 317 or 318.

***410. Topics in Anthropological Linguistics.** (3)†
(See Anth 410.)

***413. Linguistic Field Methods.** (3) Gorbet
(See Anth 413.)
Prerequisites: 317 and permission of instructor.

***417. Phonological Theory.** (3) Strauss
(Also offered as Anth 417.) Survey of problems in theoretical phonology with emphasis on generative phonology, formalization of rules, and universals.
Prerequisite: 317. {Spring}

***418. Grammatical Theory.** (3) Gorbet
(Also offered as Anth 418.) Survey of problems in theoretical grammar. Topics range from syntax to pragmatics.
Prerequisite: 318. {Fall}

***430. Development of Speech and Language.** (3) Butt
(See Com Dis 430.)
Prerequisite: 292L or Com Dis 280. {Fall}

***440. Introduction to Linguistics.** (3) Oller, Pickett
(Also offered as Engl 440.) Broad overview of the fields of linguistics; principles and practices of linguistic analysis, sociolinguistics, psycholinguistics, and educational linguistics. Oriented primarily to the needs of present and prospective teachers. {Fall, Spring}

† Normally offered through Continuing Education only.

***441. English Grammars. (3)** Beene, Hogan, Pickett
(See Engl 441.)

Prerequisite: 440 or equivalent. {Spring}

***446. Introduction to Comparative Linguistics. (3)**

(Also offered as Anth 446.) Theories and methods of comparative and historical linguistics, emphasizing change in English, Indo-European, and Native American languages.
Prerequisite: 317.

***451. Mathematical Theory of Formal Languages. (3)**
(See Cp Sci 451.)

***452. Sociolinguistic Variation. (3)** Hudson-Edwards

Linguistic variability in relation to social status and situational context; attitudinal correlates of language stratification and sociolinguistic change in progress.
Prerequisite: 351.

***453. Societal Bilingualism. (3)** Hudson-Edwards

Differential use of languages in multilingual societies; attitudinal correlates of use; language maintenance and shift in relation to other social change; language loyalty and group identification.
Prerequisite: 351. {Fall}

***470. History of Linguistics. (3)** Hudson-Edwards, Oller

(Also offered as Anth 470.) Survey of methods and assumptions in the scientific study of language from antiquity to present; emphasis on twentieth-century precursors of modern linguistics.
Prerequisites: 317 and 318. {Fall}

***480. Second Language Pedagogy. (3)** Oller

(See SATE and M Lang 480.) {Fall}

***482. Teaching English as a Second Language. (3)** White
(See El Ed and SATE 482.)

Pre- or corequisite: 292L or 440 and permission of instructor.
{Spring}

***490. Topics in Linguistics. (1-3)†**

Special topics motivated by expertise of instructor and interest of students. {Offered upon demand}

495. Undergraduate Problems. (1-6 hrs. per semester)

For original individual study project approved by instructor. Maximum of 6 hrs. creditable to linguistics major or minor.
Prerequisite: permission of instructor.

***510. Topics in Anthropological Linguistics. (3)†**
(See Anth 510.)

***552. Seminar in Multilingual Education. (3)†**
Prerequisite: 353.

***554. Seminar in Linguistic Theory. (3)†**
(Also offered as Anth 554.)

***555. Seminar in Educational Linguistics. (1-3)†**
(Also offered as Ed Fdn 555.) {Offered upon demand}

***559. Seminar in Sociolinguistics. (3)†** Hudson-Edwards

***562. Seminar in Language Testing. (3)** Oller
(Also offered as Ed Fdn 562.)

***563. Seminar in Language Acquisition. (3)** John-Steiner
(Also offered as Ed Fdn 563.)

Prerequisites: an introductory linguistics course and a course in developmental or cognitive psychology. {Spring}

***569. Seminar in Psycholinguistics. (3)†**
(Also offered as Psych 569.)

Prerequisite: permission of instructor.

***595. Graduate Problems. (1-6 hrs. per semester)**
Prerequisite: permission of instructor.

***599. Master's Thesis. (1-6 hrs. per semester)**

MATHEMATICS AND STATISTICS

Chairperson to be appointed.

Humanities Building 419, 277-4643

PROFESSORS:

Richard C. Allen, Ph.D., University of New Mexico
Stoughton Bell, Ph.D., University of California (Berkeley)
Robert F. Cogburn, Ph.D., University of California (Berkeley)
Ralph E. DeMarr, Ph.D., University of Illinois
Donald W. Dubois, Ph.D., University of Oklahoma
Gustave E. Efronson, Ph.D., Harvard University
Roger C. Entringer, Ph.D., University of New Mexico
Bernard Epstein, Ph.D., Brown University
Archib G. Gibson, Ph.D., University of Colorado
Richard J. Griego, Ph.D., University of Illinois
Reuben Hersh, Ph.D., New York University
Abraham P. Hillman, Ph.D., Princeton University
Lambert H. Koopmans, Ph.D., University of California (Berkeley)
Walter T. Kyner, Ph.D., University of California (Berkeley)
Merle Mitchell, Ph.D., George Peabody College for Teachers
Cleve B. Moler, Ph.D., Stanford University
Donald R. Morrison, Ph.D., University of Wisconsin
Cornelis W. Onneweer, Ph.D., Wayne State University
Pramod K. Pathak, Ph.D., Indian Statistical Institute
Steven A. Pruess, Ph.D., Purdue University
Clifford R. Qualls, Ph.D., University of California (Riverside)
David A. Sanchez, Ph.D., University of Michigan
Art Steger, Ph.D., University of California (Berkeley)
Alexander P. Stone, Ph.D., University of Illinois
William J. Zimmer, Ph.D., Purdue University.

ASSOCIATE PROFESSORS:

Jeffrey R. Davis, Ph.D., Washington University
James A. Ellison, Ph.D., California Institute of Technology
Richard M. Grassel, Ph.D., University of New Mexico
Theodore Guinn, Ph.D., University of California (Los Angeles)
Liang-Shin Hahn, Ph.D., Stanford University
Richard C. Metzler, Ph.D., Wayne State University
Ronald M. Schrader, Ph.D., Pennsylvania State University
Stanly L. Steinberg, Ph.D., Stanford University
Carla Wofsy, Ph.D., University of Wisconsin

ASSISTANT PROFESSORS:

Edward J. Bedrick, Ph.D., University of Minnesota
Mutlari Buys, Ph.D., New York University
Evangelos A. Coutsias, Ph.D., California Institute of Technology
Howard D. Fegan, Ph.D., Oxford University
John C. Neu, Ph.D., California Institute of Technology

LECTURER III:

Laura M. Cameron, M.A., University of Texas

LECTURERS II:

Frank Kelly, Ph.D., University of Oklahoma
Patrick James Miller, M.A., University of New Mexico
Glenn Pfeifer, Ph.D., University of Nebraska
Timothy B. Straney, M.Ed., Bowling Green State University; M.S.,
Youngstown State University

PROFESSOR EMERITUS:

James V. Lewis, Ph.D., University of California (Berkeley)

New appointments to be made.

Explanation of footnotes not indicated will be found on p. 316.

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

♦ 120	♦ 121
	♦ 123
	♦ 150

Elementary education students not prepared for Math 111 will begin with Math 100.

Business sequence

121 ♦ 180

Calculus for social sciences

121 ♦	
123 ♦	180 ♦ 181
150 ♦	

Calculus for biological sciences

121 ♦	
123 ♦	182 ♦ 183
150 ♦	

Mathematics major sequence

150 ♦ 162		
123 & 162	♦ 163 ♦ 264 ♦	See below for advanced courses
162 ♦		

Selections from 400-level courses.

Engineering sequence

150 ♦ 162 ♦		♦ 316 ♦ 312
123 & 162		♦ 264 ♦ 311
162 ♦	♦ 163 ♦	♦ 314 ♦ 313

Elementary education sequence

111 ♦ 112 ♦ 215

PLACEMENT

A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course. Students who plan to take their first mathematics course at UNM must follow the placement procedure set out by the Department of Mathematics and Statistics. The only exceptions are Math 101 (A Survey of the Art), which does not require placement testing, and Math 111 in which placement testing is done in class. On the basis of placement scores, advisers will determine the best mathematics course for the student. Placement testing will be given during preregistration and registration periods. A beginning student who wishes to take Math 163 or a higher course must have departmental permission.

MAJOR STUDY

The following is required of all majors:

- 162, 163, 264, 295 (a 1 hour course) 321 (linear algebra), 361 (advanced calculus); the last two courses are not required in Math Education. Note: Honors calculus—172-173, if taken, replaces 162, 163, 264.
- A course of study filed in the Math Office. As soon as major is declared an adviser will be assigned by the department based on the student's interest.
- Knowledge of a computing language. Math 155 (CS 155) will satisfy this requirement.
- Completion of 27 hours in courses numbered above 300.
- Completion of one of the options below.

MATHEMATICS OPTION

Requires 322, 311 or 362, 345 or 441, at least one of 362, 421. Plus completion of at least one of the following combinations.

Algebra and number theory sequence: Two of 421, 319, 419.

Analysis sequence: Two of 362, 431, 460.

Applied math sequence: 316-375.

Combinatorics and graph theory sequence: 317-318.

Differential equations sequence: Two of 316-462-463.

Probability and statistics sequence: 441 and either 442 or 443.

The remaining hours required under d) are at the student's option but must be approved by the adviser. At least 6 hours must be in courses numbered above 400.

The following example of a math program satisfies all these requirements, the asterisk indicates an approved option numbered above 300.

162-163-264-321-322- * -441-443.

155-295-361-362- *—*.

The following example also completes all requirements and still allows the student to easily switch to the Applied Math option as late as the beginning of the senior year.

162-163-264-316-321-375-361-362

155-295-441-443-322- *.

APPLIED MATHEMATICS OPTION

The program must include 316, 311 or 362, 375, 345 or 441, one of 462, 463, 464.

STATISTICS OPTION

For students not planning graduate work in statistics: 345, 346, 347 are required. The remaining hours must include at least 2 of 340, 441, 444, 445, 446, 447, 448, 449, 452.

For students planning on graduate work in statistics: 441, 443, 445 are required. The remaining hours must include at least 3 of 340, 464, 442, 444, 446, 447, 448, 449, 452.

MATH EDUCATION OPTION

321 or 314, 305, 306, 338, 345. At least 12 hours from 311, 319, 308, 310, 307, 331, 375, 322, 406, or other courses approved by the math education adviser.

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 the departmental chairperson as early as possible for details of the mathematics honors program.

Note: Undergraduates who intend to do graduate work in mathematics should take Math 322 and 362. It is also advisable for such students to study one of the languages: French, German, or Russian.

MINOR STUDY

264 and 12 hours in courses numbered above 300. **Credit option may not be used for minor study.** A distributed minor is not allowed.

RESTRICTIONS

- Students are not allowed credit for both Math 121 and Math 150.
- Students are not allowed credit for both Math 150 and Math 123.
- Students are not allowed credit for any two of 162, 172, 180, and 182.
- Students are not allowed credit for any two of 163, 173, 181 and 183.
- Students are not allowed credit for both Math 173, and Math 264.
- Students are not allowed credit for both Math 314 and Math 321.
- Students are not allowed credit for both Math 317 and 327.

8. Students who have credit for any courses numbered 121 and above may not take Math 100 or 120 for credit.
9. Students who have credit for any courses numbered 162 and above may not take Math 120, 121, 123, or 150 for credit.
10. A student may not take an exam to validate credit in Math 101, 102, 120, 121, 123, 150, 155, 162, 180, 182, 245, or 316. Special permission from the Chairperson is required for validation of any other course by exam.

MATHEMATICS (MATH)

I. INTRODUCTORY COURSES

100. Arithmetic and Introductory Algebra. (3)

Arithmetic and introductory algebra for students who are not prepared to begin at the intermediate algebra level. Placement is by University Skills Program procedures (see also the Mathematics Placement procedures in the current schedule of classes). Offered by General College only. {Fall, Spring}

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: adequate score on placement test or a grade of C or better in Math 120. {Summer, Fall, Spring}

§120. Intermediate Algebra. (3)

As preparation for 121 or 150. Covers linear equations and inequalities, polynomials, factoring, exponents and radicals, fractional expressions and equations, and quadratic equations.

Prerequisites: High School Algebra I and adequate ACT Mathematics score, or a C or better in Math 100. Not open to students with credit for mathematics courses numbered 121 or above. Not acceptable for credit toward graduation. {Summer, Fall, Spring}

§121. College Algebra. (3)

Algebra as preparation for 180. Includes study of equations, inequalities, graphs, functions, exponential and logarithmic functions, systems of equations and inequalities, and polynomials.

Prerequisite: adequate score on placement test or a grade of C or better in Math 120. Not open to students with credit for courses numbered 150 and above. {Summer, Fall, Spring}

§123. Trigonometry. (2)

Definition of the trigonometric functions, radian and degree measure, graphs, basic trigonometric identities and inverse trigonometric functions.

Prerequisite: satisfactory score on placement test of 120 or 121. {Summer, Fall, Spring}

§150. Algebra and Trigonometry. (4)

Algebra and trigonometry as preparation for 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}

155. Introduction to Computer Programming. [Problem Solving with the Computer.] (4)

(Also offered as CS 155.) An introduction to the art of computing. The object of the course is an understanding of the relationship between computing and problem solving. Programs will be written in PASCAL.

Prerequisite: 150.

§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, introduction to space geometry, partial derivatives.

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, numerical integration, simple differential equations, improper integrals, mean value theorem.

Prerequisite: C or better in 162 or permission of department chairperson. {Summer, Fall, Spring}

§172. Honors Calculus I. (5)

An honors course covering the material of Math 162 and the first half of 163. Open only to students with an ACT Mathematics score of 27 or better. {Fall}

§173. Honors Calculus II. (5)

An honors course covering the material of the last half of 163 and all of 164.

Prerequisite: 172 or permission of instructor. {Spring}

§180. Elements of Calculus I. [Calculus for the Social Sciences I.] (3)

Brief review of functions, graphs; limits; derivative as a rate of change, applications to graphing, maxima, minima, and to motion; integral as antiderivative and as a sum, applications, exponential and logarithmic functions.

Prerequisite: adequate score on placement test, or grade of C or better in 121 or 150. {Summer, Fall, Spring}

§181. Elements of Calculus II. [Calculus for the Social Sciences II.] (3)

Integrals; methods of integration; numerical integration; relations between integral and derivative; logarithmic and exponential functions, applications to growth and decay; applied differential equation; Taylor's polynomials and remainder; partial derivatives and multiple integrals; brief review of trigonometry, trigonometric functions, applications.

Prerequisites: C or better in 180 and some knowledge of trigonometry or 123 (123 can be taken simultaneously with 181). {Fall, Spring}

182. Calculus for the Life Sciences I. (3)

Functions and graphs; linear relations in the life sciences; growth rates—average and instantaneous; differentiation; curve tracing and optimization; exponential growth and decay; logarithmic functions; periodic phenomena in the life sciences; trigonometric functions.

Prerequisite: Adequate score on placement test or grade of C or better in 121 or 150. (123 can be taken simultaneously with 182).

183. Calculus for the Life Sciences II. (3)

Poiseuille's law for fluid flow; the integral as a sum and as an area; the fundamental theorem of calculus; integration techniques; differential equations; logistic growth; separation of variables; modelling with differential equations; linear

§See restrictions.

regression and curve fitting; approximation techniques and Taylor polynomials.
Prerequisite: 182.

191-192. Freshman Seminars. (1, 1)

An honors course consisting of background and supplementary material with emphasis on solving challenging problems drawn from freshman-level mathematics. For students concurrently enrolled in 162, 163.
Prerequisite: permission of instructor. {191—Fall, 192—Spring}

245. Fundamentals of Probability and Statistics. (3)

(Also offered as Mgt 290.) Sample spaces, random variables, probability densities, expectation, variance correlation, estimation, confidence intervals, hypothesis testing, power. Specific applications will include t-tests, one way analysis of variance, simple linear regression and correlation. Applications to business will be emphasized.
Prerequisite: 180 or equivalent.

264. Calculus III. (4)

Vector representation of curves and surfaces, partial derivatives, gradient, tangent planes, directional derivative, multiple integrals, cylindrical and spherical coordinates, applications, Taylor polynomials and error, power series.
Prerequisite: C or better in 163 or permission of department chairperson. {Summer, Fall, Spring}

291-292. Sophomore Seminars. (1-3, 1-3 hrs. per semester)

An honors course in solving challenging problems drawn from sophomore-level mathematics.
Prerequisite: permission of instructor. {Offered upon demand}

295. Introduction to the Mathematical Professions. (1)

Description of professional opportunities and responsibilities in pure mathematics, applied mathematics, statistics, and mathematics education. Use of information resources for mathematics; programmable calculators, computers, library materials. Offered on CR/NC basis.
Prerequisite: One year of Calculus. {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 chairperson.

111. Mathematics for Elementary and Middle School Teachers I. [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, mathematical terminology; elements of number theory; problem solving.
Prerequisite: satisfactory score on arithmetic skills test administered in class. {Summer, Fall, Spring}

112. Mathematics for Elementary and Middle School Teachers II. [Mathematics for Elementary School Teachers II.] (3)

The properties of the rational number system; extension to the irrationals; decimal and fractional representation of real numbers; intuitive geometry and measurement.
Prerequisite: 111. {Summer, Fall, Spring}

215. Mathematics for Elementary and Middle School Teachers III. [Mathematics for Elementary School Teachers III.] (3)

Topics from probability and statistics, geometry, and algebra; some applications of mathematics; elements of logic; enrichment topics for the classroom.
Prerequisites: 111 and 112. {Summer, Fall, Spring}

†305. Early Mathematics from an Historical Perspective. (3)

A survey of mathematical developments prior to 1600; emphasis on solution of problems; comparison of early with modern methods of solutions.
Prerequisite: 264 or permission of instructor. {Spring}

†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)

This course has a highly theoretical approach. It uses definitions and axioms to solve problems and prove theorems related to point set topology. Most of the work is non-numerical and is geometrical in nature. {Offered upon demand}

†308. Theory and Practice of Problem Solving. (3)

An experience in mathematical invention and discovery at the level of high school geometry and algebra. Problems range from easy to difficult. Course may be counted toward a major or minor. {Offered upon demand}

†310. Applications of Mathematics. (3)

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 prospective and in-service teachers of mathematics.
Prerequisite: one year of calculus and permission of instructor. {Fall}

****†339. Topics in Mathematics for Elementary and Middle School Teachers. [Topics in Mathematics for Elementary School Teachers.] (1-3)†**

Presents mathematical topics of concern to elementary and mid-school teachers. Open only to in-service and prospective teachers.
Prerequisite: permission of instructor. {Offered upon demand}

†350. Topics in Mathematics for Secondary Teachers. (1-3)†

Presents mathematical topics of concern to secondary teachers. Open only to in-service and prospective teachers.
Prerequisites: permission of instructor. {Offered upon demand}

III. UPPER-LEVEL UNDERGRADUATE COURSES

311. Vector Analysis. (3)

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 chairperson. {Summer, Fall, Spring}

****†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.
Prerequisites: 264 and 316. {Summer, Fall, Spring}

†These courses are available for graduate credit for the Master's in Education.

****313. Advanced Engineering Mathematics II. (3)**

Theory of functions of a complex variable with applications to physical and engineering problems.

Prerequisite: 264. Recommended: 311. {Spring}

§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 transformations. Non-mathematics graduate students will be required to complete a term project to receive graduate credit.

Prerequisites: 163 and knowledge of FORTRAN. 264 and Engr 120L are recommended. {Summer, Fall, Spring}

****317. Elementary Combinatorics. [Discrete Mathematics.] (3)**

A study of permutations, combinations, binomial coefficients, Pascal's triangle, characteristic relations (and their solutions by generating functions, iteration, summation, characteristics polynomials, and induction), introductory graph theory.

Prerequisite: one year of calculus. {Fall, Spring}

****318. Graph Theory. [Introduction to Graph Theory.] (3)**

Trees, connectivity, coverings, planarity, colorability, digraphs. The emphasis will be on graph theoretic modeling.

Prerequisite: permission of instructor. {Offered upon demand}

****319. Theory of Numbers. (3)**

Divisibility, congruences, primitive roots, quadratic residues, diophantine equations, continued fractions, partitions, number theoretic functions. {Spring}

§321. Linear Algebra. (3)**

Linear transformations, matrices. Eigenvalues and eigenvectors of linear transformations. Inner product spaces.

Prerequisites: 264. {Fall, Spring}

****322. Abstract Algebra. (3)**

Groups and rings, homomorphisms, permutation groups, quotient structures, ideal theory.

Prerequisite: 264. {Fall}

****327. Discrete Structures. (3)**

For computer engineers, this course studies sets relations, functions, induction, graphs, isomorphisms, posets, lattices, Boolean algebras, and a little group theory.

Prerequisite: one year calculus. {Fall, Spring}

****331. Survey of Geometry. (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 Poisson distributions, the normal distribution, and the DeMoivre-Laplace limit theorem, probability generating functions.

Corequisite: 163 or permission of instructor. {Spring}

****345. Statistical Methodology. (3)**

An introduction to probability; Bayes Theorem, probability densities, expectation, variance, correlation. An introduction to applied statistics; estimation, confidence intervals, hypothesis testing significance, power. Applications of standard statistical procedures, such as t-tests, one way analysis of variance, and linear regression, to problems from several fields will be given.

Prerequisite: 163, 181, or equivalent. {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). {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: 102 or equivalent. {Fall}

****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 311 is recommended for 362. {361—Fall, 362—Spring}

****375. Introduction to Numerical Computing. (3)**

(Also offered as CS 375.) An introductory course covering such topics as interpolation, integration, solution of linear and nonlinear 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: 163 and some ability at FORTRAN programming. {Fall, Spring}

391. Advanced Undergraduate Honors Seminar. (1-3 hrs. each semester, to a maximum of 8)

Advanced problem solving. Especially recommended for students wishing to participate in the Putnam Intercollegiate Mathematical Competition.

Prerequisite: permission of instructor.

393. Honors Topics in Mathematics. (3)†

Selected topics from analysis, algebra, geometry, statistics, model building, interdisciplinary studies, and problem solving. {Fall, Spring}

***405. Linear and Integer Programming. (3)**

(Also offered as CS 405.) Linear Programming: Conversion of problems to linear programs, geometrical interpretation, simplex method and duality, degeneracy and cycling. Integer programming by use of cutting planes. Advanced topics: sparse matrix implementation, problems with special methods of solution.

Prerequisites: Math 314 and CS 155.

***406. Later Mathematics from an Historical Perspective. (3)**

A survey of mathematical developments after 1600; emphasis on solution of problems.

Prerequisite: 305 or permission of instructor. {Offered upon demand}

****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

§See restrictions.

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)**

Ordinary and exponential generating functions. Enumeration to techniques applicable to difference equations, differential equations, finite groups, and computer science.

Prerequisite: 317 or permission of instructor. {Offered upon demand}

***418. Graph Theory. (3)**

Trees, connectivity, coverings, planarity, colorability, digraphs. The emphasis will be on proofs of theorems.

Prerequisite: 318 or permission of instructor. {Alternate Springs}

***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)**

Group theory, algebraic field extensions and Galois theory for fields of characteristic zero.

Prerequisites: 321, 322. {Offered upon demand}

***430. Tensor Analysis. (3)**

Tensors, exterior differential calculus, Stokes' theorem and applications to physics and engineering.

Prerequisite: 311 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: 311 or 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 discrete and continuous distributions with application. Joint distributions, conditional probability and expectation, independence. Laws of large numbers and the central limit theorem. Moment generating functions.

Prerequisite: 264 or equivalent. {Fall}

***442. Applied Markov Models. (3)**

Markov chains and processes with applications. Classification of states. Decompositions. Stationary distributions. Probabilities of absorption, the gambler's ruin and mean time problems. and queuing chains. Introduction to continuous time Markov processes. Construction and analysis of pure jump processes.

Prerequisite: 441 or permission of instructor. {Spring}

***443. Statistical Inference. (3)**

Transformations of univariate and multivariate distributions to obtain the special distributions important in statistics. Concepts of estimation and hypothesis testing in both the large sample and small sample cases with emphasis on the statistical properties of the more commonly used procedures, including the students t-tests and confidence intervals. F-tests and chi-square tests. Performance of procedures under non-standard conditions—robustness.

Prerequisite: 441. {Spring}

***444. Multidimensional Contingency Table Analysis. (3)**

The log linear model as a model for the interdependencies among several categorical variables. Strategies for fitting the model and testing goodness of fit for complete and incomplete tables. Specific applications. Data sets are analyzed either by hand calculations or using computer packages.

Prerequisite: an introductory statistics course such as Math 345 or permission of instructor. {Alternate Fall}

***445. Applied Regression Analysis. (3)**

Simple regression and multiple regression. Residual analysis and transformations. Matrix approach to general linear models. Stepwise procedures, logit analysis, nonlinear least squares, robust regression, ridge regression. Computer applications.

Prerequisite: 345 or permission of instructor. {Fall}

***446. Sampling Theory and Practice. (3)**

Basic methods of survey sampling: simple random sampling, pps-sampling, cluster sampling, systematic sampling and general sampling schemes; estimation based on auxiliary information; stratified sampling; two-stage and multi-stage sampling schemes; assessment and control of non-sampling errors; design of complex samples and case studies.

Prerequisite: 345 or permission of instructor. {Alternate Spring}

***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. {Spring}

***448. Nonparametric Methods. (3)**

Statistical problems and their nonparametric solutions. Rank order tests, sign tests, chi-square tests, and Kolmogorov-Smirnov tests. Tolerancy intervals and nonparametric estimation. Relative efficiency of nonparametric inference.

Prerequisite: 345, and 441 or permission of instructor. {Alternate Fall}

***449. Topics in Probability and Statistics. (3)†**

***452. Time Series Analysis. (3)**

Introduction to time domain and frequency domain models of time series. Data analysis with emphasis on spectral analysis. Topics such as multivariate models; linear filters; linear prediction; forecasting and control.

Prerequisite: Math 441 or permission of instructor. {Offered upon demand}

***453. Reliability Theory. (3)**

Statistical failure models. Distributions. Hazard rate. Estimation and testing hypotheses for failure models. Bayes methods. Accelerated life testing. System reliability.

Prerequisite: Math 345. {Offered upon demand}

***454. Introduction to Stochastic Methods in Computer Science. (3)**

(Also offered as CS 406.) Introduction to stochastic processes and Markov chains. Applications to queueing, networking, performance analysis, availability and reliability analysis, and system testing.
Prerequisites: 340. Recommended: CS 357.

***455. Mathematical Logic. (3)**

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}

***460. Introduction to Analysis. (3)**

Metric spaces, completeness. Riemann-Stieltjes integrals. Distribution theory on $[0,1]$. Complex function theory.
Prerequisites: 321, 362. {Fall}

***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: 361 or permission of instructor. {Spring}

***464. Applied Matrix Theory. (3)**

Determinants; theory of linear equations; matrix analysis of differential equations; eigenvalues, eigenvectors, and canonical forms; variational principles; generalized inverses.
Prerequisite: 321 or 314 or permission of instructor. {Offered upon demand}

***465. Applications of Differential Equations. (3)**

The construction, analysis and interpretation of mathematical models in the natural sciences using a case study approach. Topics for study will be chosen so as to illustrate some fundamental techniques for gaining insight into the qualitative and quantitative content of differential equations, e.g., asymptotics; dimensional analysis; regular, singular and multiple scale perturbation expansions; matching method of averaging; bifurcation analysis; stability and phase plane analysis. {Alternate Fall}

***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}

***468. Stochastic Differential Equations. (3)**

Basic theory of stochastic differential equations with applications. The presentation will be at a level accessible to scientists, engineers and applied mathematicians.
Prerequisites: 316, 441 and some familiarity with elementary PDE's. {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}

***475. Numerical Analysis I. (3)**

(Also offered as CS 475.) Numerical solution of linear and nonlinear systems of equations; the algebraic eigenvalue problems; round-off error.
Prerequisites: 314 or equivalent and some knowledge of FORTRAN programming. {Fall}

***476. Numerical Analysis II. (3)**

(Also offered as CS 476.) Approximation of functions, integration and numerical solution of ordinary differential equations.
Prerequisites: 316 or 361 or equivalent and some knowledge of FORTRAN programming. {Spring}

***481. Linear Spaces. (3)**

Linear spaces, normed linear spaces, Hilbert spaces, linear operators, spectral analysis, application 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. Offered only on a CR/NC basis.
Prerequisites: 361-362, 321-322. {Fall}

***498. Problems. (1-3 hrs. per semester, to a maximum of 6)**

Admission by approval of department chairperson.

***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 chairperson.

IV. GRADUATE COURSES

Satisfactory completion of 311, 321 and 361, or evidence of equivalent preparation, is required for admission to any of the following courses. The courses 322 and 362 or equivalent are recommended.

518. Selected Topics in Combinatorics and Graph Theory. (3)**519. Selected Topics in Number Theory. (3)†*****522. Structure Theory of Fields. (3)**

Prerequisites: 421. {Offered upon demand}

***523. Commutative Algebra. (3)**

Prerequisite: 421 or 522. {Offered upon demand}

***524. Valuation Theory. (3)**

Corequisite: 523. {Offered upon demand}

***528. Nash Rings. (3)**

Corequisite: 523 or equivalent. {Offered upon demand}

529. Selected Topics in Algebra. (3)†**533. Algebraic Topology. (3)**

Prerequisite: 322, 421, or 522.

***536. Differential Geometry. (3)**

Prerequisite: 322, 430 or 434.

539. Selected Topics of Geometry and Topology. (3)†**541. Probability Theory. (3)**

Prerequisite: 563.

***543-544. Advanced Statistical Inference. (3, 3)**

Prerequisite: 541.

***545. Analysis of Variance and Experimental Design. (3)**

Prerequisite: 445.

***546. Statistical Design of Experiments. (3)**

Prerequisite: 443 or 545.

- *547. **Multivariate Analysis.** (3)
Prerequisites: 443 and 545.
- *548. **Statistical Laboratory.** (1)
Prerequisite: 445.
- *549. **Selected Topics in Probability Theory.** (3)†
- *551-552. **Problems.** (1-3, 1-3 hrs per semester)†
- *554. **Stochastic Optimization in Computer Science.** (3)
(Also offered as CS 506.)
Prerequisites: CS 406. Recommended: CS 403.
- *557. **Selected Topics in Numerical Analysis.** (3)†
(Also offered as CS 557.)
- *559. **Selected Topics in Statistics.** (3)†
- *561-562. **Functions of a Complex Variable.** (3, 3)
Prerequisite: 362.
- *563-564. **Functions of a Real Variable, Measure, Integration.** (3, 3)
Prerequisite: 362; 460 recommended.
- *565. **Harmonic Analysis.** (3)
Prerequisites: 561, 563.
- *566. **Pattern Recognition.** (3)
(Also offered as CS 566.)
Prerequisite: Calculus and elementary probability, knowledge of some programming language.
- *569. **Selected Topics in Analysis.** (3)†
- *570. **Singular Perturbations.** (3)
Prerequisites: Strong background in ODE's and experience in PDE's. {Alternate Falls}
- *571. **Ordinary Differential Equations.** (3)
Prerequisite: 472. {Offered upon demand}
- *573. **Partial Differential Equations.** (3)
Prerequisite: 463.
- *575. **Dynamic Optimization.** (3)
Prerequisites: 314, 316; recommended: 362.
- *576. **Advanced Numerical Analysis—Eigenvalues.** (3)
Prerequisites: 475-476.
- *577. **Advanced Numerical Analysis—Partial Differential Equations.** (3)
Prerequisites: 475, 476, and 462.
- *578. **Advanced Numerical Analysis—Partial Differential Equations.** (3)
Prerequisites: 463, 475, and 476.
- *579. **Selected Topics in Applied Mathematics.** (3)†
- *581-582. **Functional Analysis.** (3, 3)
Prerequisites: 362; recommended 460 or 481. {Offered upon demand}
- *583-584. **Linear Analysis.** (3, 3)
Prerequisite: Math 361, 312, 314, 316, or equivalent with consent of instructor. {Offered upon demand}
- *589. **Selected Topics in Functional Analysis.** (3)†
- *598. **Practicum.** (1-6)
- *619. **Seminar in Number Theory.** (1-3)†
- *629. **Seminar in Algebra.** (1-3)†
- *639. **Seminar in Geometry and Topology.** (1-3)†
- *649. **Seminar in Probability and Statistics.** (1-3)†
- *650. **Reading and Research.** (1-6)†
- *669. **Seminar in Analysis.** (1-3)†
- *679. **Seminar in Applied Mathematics.** (1-3)†

*689. **Seminar in Functional Analysis.** (1-3)†

*699. **Dissertation.** (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

MODERN AND CLASSICAL LANGUAGES

Tamara Holzapfel, Chairperson
Ortega Hall 235, 277-5907 and 5616

PROFESSORS:

Pelayo H. Fernández, Ph.D., Salamanca University
Angel González, M.A., Universidad de Oviedo
Tamara Holzapfel, Ph.D., University of Iowa
Alfred Rodríguez, Ph.D., Brown University
Gustavo Sainz, Universidad Nacional Autónoma de México
Claude-Marie Senninger, Ph.D., University of Paris
Jack E. Tomlins, Ph.D., Princeton University
Sabine R. Ulibarri, Ph.D., University of California (Los Angeles)
Julian E. White, Jr., Ph.D., University of North Carolina

ASSOCIATE PROFESSORS:

John J. Bergen, Ph.D., University of California (Los Angeles)
Garland D. Bills, Ph.D., University of Texas (Austin)
E. Truett Book, Ph.D., University of Paris
Dick C. Gerdes, Ph.D., University of Kansas
Bruno Hannemann, Ph.D., University of California (Berkeley)
Robert Holzapfel, Ph.D., University of Iowa
Robert C. Jespersen, Ph.D., Stanford University
Patricia Murphy, Ph.D., University of Wisconsin
Peter K. Pabisch, Ph.D., University of Illinois
George F. Peters, Ph.D., Stanford University
Jose R. Reyna, Ph.D., University of California (Los Angeles)
Warren S. Smith, Ph.D., Yale University
Jon M. Tolman, Ph.D., University of New Mexico

ASSISTANT PROFESSORS:

Edward Benson, Ph.D., Brown University
June C. D. Carter, Ph.D., University of Washington
Erlinda Gonzáles-Berry, Ph.D., University of New Mexico
Sam L. Guyler, Ph.D., Cornell University
Shaw N. Gynan, Ph.D., University of Texas at Austin
Natasha Kolchevska, Ph.D., University of California (Berkeley)
Byron T. Lindsey, Ph.D., Cornell University
Diana Robin, Ph.D., University of Iowa

LECTURER:

Gerald M. Slavin, Ph.D., University of New Mexico

GROUP REQUIREMENTS

Literature courses in translation are not accepted for 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 had previous exposure to a language and plan to continue the study of the same language are strongly urged to seek advanced placement by consulting with the appropriate adviser or taking a placement examination. Students who achieve advanced placement may obtain credit by the "Challenge" procedure for any courses below the level of the one in which they enroll.

PERIOD MINOR

Students majoring in any foreign language may take the period minor described under Comparative Literature offerings on p. 86.

MODERN LANGUAGES (M LANG)

No major or minor study offered.

101-102. Elementary Topics in Foreign Languages. (3, 3)‡

105. Reading and Writing Keresan. (3)

For native speakers of the particular language only. (Note: Normally offered through Continuing Education only.)

150. Introduction to Latin America. (3)

(Also offered as Latin Am St, Hist, Soc, and Pol Sci 150.) This is an inter-disciplinary introduction to the geography, culture, economy, literature, society, politics, history, and international relations of the region. A lecture by faculty members from different departments will be followed by a discussion session each week. (Spring)

201-202. Intermediate Topics in Foreign Languages. (3, 3)‡

223-224. Literary Questions. (3, 3)
(See Engl 223-224.)

292L. Introduction to Linguistic Analysis. (3)
(See Ling 292L.)

***457. Special Topics in Languages Studies. (3)‡**

***478. Seminar in International Studies. (3)** Slavin
(Also offered as Econ, Geog, 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/her particular background and relating it to international matters. Open only to seniors.

***480. Second Language Pedagogy. (3)**
(Also offered as SATE 480.)

497. Undergraduate Problems. (1, to a maximum of 6)
Permission of instructor required.

***515. Medieval Paleography. (3)** White

***516. Old Provençal-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. (1-6 hrs. per semester)**
Permission of instructor required:

***555. Seminar in Educational Linguistics. (1-3)‡**
(Also offered as Ed Fdn 555.) (See Ling 555.)

***580. Seminar in Modern Languages and Literature. (1-6)‡**
(Also offered as Comp Lit 580.)

AMERICAN INDIAN LANGUAGES

APACHE

§§105-106. Reading and Writing Apache. (3, 3)

For native speakers of Apache only. Emphasis on develop-

ment of literary skills and use of Apache language and culture in the classroom. (Offered through Continuing Education and on-site Teacher Training Project.)

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 for 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. 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 a maximum of 6)

Permission of instructor required.

***551. Graduate 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 or Ecuadorian Quechua. Working knowledge of Spanish is desirable. {Fall 1984}

ZUNI

No major or minor study offered.

§105. Reading and Writing Zuni. (3)

For native speakers of Zuni.

CHINESE (CHIN)

101-102. Elementary Chinese. (3, 3) Staff
{101—Fall, 102—Spring}

201-202. Intermediate Chinese. (3, 3) Staff

201 or equivalent is prerequisite for 202. {201—Fall, 202—Spring}

§Offered through Continuing Education at Dulce.

§Offered at the University of New Mexico Gallup Branch only and on-site Teacher Training Project.

203. Chinese Conversation. (1)

Extra practice in speaking Chinese for students enrolled in Chinese 201 and 202. (Fall, Spring)

497. Undergraduate Problems. (1, to a maximum of 6)

Prerequisite: permission of instructor.

CLASSICS**MAJOR STUDY**

The total number of required course hours is 33. Anyone planning to major in Classics should consult as soon as possible with the Classics adviser to work out a projected schedule of courses; the adviser's final approval of such a schedule is required.

The student will choose A or B below, depending on whether he or she wishes to emphasize Latin or Greek.

A. 9 hours of Latin courses numbered above 200, including 303 or 304; 12 hours of Greek courses numbered above 250 (may include one Greek course taught in English translation).

B. 12 hours of Latin courses numbered above 200, including 303 and 304; 9 hours of Greek courses numbered above 250 (may include one Greek course taught in English translation).

And (in addition to A or B above): one course (3 hours) in Greek or Roman history and 9 additional hours of courses at 200 level or above, selected from the following areas: Greek or Roman Art History, Ancient History, Old World Archaeology, Ancient Philosophy, and Biblical Studies.

MINOR STUDY

Not offered.

COMPARATIVE LITERATURE

The major in comparative literature is an interdepartmental major administered by the Department of English. See p. 86.

FRENCH**MAJOR STUDY**

30 hours in French courses numbered above 290, including 301, 302, 345, 346, 351, 352, 405, and one 400 level literature course, and two years of college work in another foreign language (or reading knowledge).

SECOND MAJOR STUDY

Students who present two majors (French and another field) are required to take 24 hours in French courses numbered above 290, including 301, 302, 405, and either 345-346 or 351-352.

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 should consult the lower-division coordinator. This consultation is for advisement; students are placed only with their full agreement. French 101, however, is ordinarily reserved for students who have not studied French.

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 one-hour conversation course (103-104) and/or a one-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.

FRENCH (FRENCH)

101-102. Elementary French. (3, 3) Book and Staff
{Fall, Spring}

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.

150. Contemporary France. (3)
Study of the social, political, economic, intellectual, literary, and artistic environment in France today. Taught in English. No knowledge of the French language is required. Team taught by members of the French staff with participation of guest lecturers.

201. Intermediate French I. [Intermediate French.] (3) Benson, Book, Staff
Review of grammar and sound structure, conducted mostly in French.

202. Intermediate French II. [Intermediate French.] (3) Benson, Book, Staff
Conclusion to the presentation of grammar, introduction to reading of French literature. By the end of the course, classes will be conducted entirely in French.

203. Intermediate French Conversation. (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.

204. Living French: Film, Radio, and Journalism. (3)
Development of competence in understanding and speaking French through the study of a feature film, French radio broadcasts, and journal and newspaper articles. Conducted in French. To be taken concurrently with or after French 202.

207. Introduction to Translation. (3) Staff
May be taken concurrently with or after 202. Fundamental principles of translating: how to approach a text and assess its contents, style and particular problems; how to go beyond literal translation and work towards an accurate, polished translation.

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 hrs. (or equivalent) of another language.

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.

***307. Intermediate Translation. (3)**

Study of principles and techniques of translating through comparative stylistics.

Prerequisite: 301 and 302.

***335. French Literature in Translation. (3) Murphy**

Does not count for the French major or minor.

***345-346. French Civilization. (3, 3) Murphy, Staff**

345—origins to French Revolution; 346—French Revolution to the present. 346 conducted in French.

Prerequisite: 202 or the equivalent.

***351-352. Survey of French Literature. (3, 3) Murphy, Senninger, White**

351—origins to 1800; 352—1800 to present.

***365-366. French Reading for Graduate Students. (3, 3)**

Accelerated course for graduate reading requirements. 365 emphasizes fundamentals of grammar; 366 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor.

***405. French Phonology. (3) Book**

Phonetic and phonemic system of French. Required for the undergraduate major.

***411. The Early Renaissance. [French Poetry of the Renaissance.] (3) Benson**

The literature composed during the first half of L'Âge d'Or's "long" sixteenth century: the works of Villon, Louise Labe, and Rabelais in their entirety as well as Du Bellay's *Regrets* and selections from contemporary poets.

***412. The Late Renaissance. [French Non-Poetic Literature of the Renaissance.] (3) Benson**

The literature of the second half of the sixteenth century, with special emphasis on Ronsard's love poetry and on Montaigne's *Essays*, of which the third book will be read in its entirety.

***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 Eighteenth 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 SATE 440). Practicum; observation and criticism of classroom methods in use. Required of all teaching assistants. {Fall}

***441. French Prose Fiction of the Nineteenth Century. (3)**

The most representative novels of the Romantics, Realists, and Naturalists.

***442. French Dramatic Literature of the Nineteenth Century. (3) Senninger**

Survey of the drama from the melodrama and neoclassicism through the Théâtre d'art of Paul Fort.

***443. Practicum in Nineteenth-Century French Theatre. (1-3) 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.

***451. French Prose of the Twentieth Century. (3) Book**

Selected novels from Gide and Proust through the nouveau roman.

***452. Twentieth-Century Theater. (3) Book**

Study of the fourteen 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 Twentieth-Century French Theatre. (1-3) 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) Senninger**

460—to 1800; 461—since 1800.

***490. Seminar in French Literature. (3)†**

Combination undergraduate-graduate seminar. Topics include French or Francophone literature, especially that of Quebec.

Prerequisites: 351-352.

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**

***504. French Stylistics and "Explication de Textes". (3)** Exceptional undergraduates may enroll with permission of instructor and Graduate Dean.

***505. Introduction to Research Methods. (3) Senninger**

Required for the M.A. degree.

***510. History of French Literary Criticism. (3)**

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 Nineteenth-Century French Literature. (3)†*****551. Graduate 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. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

COURSES OFFERED AT THE TAOS FRENCH SUMMER SCHOOL OF NEW MEXICO

The courses listed below are offered only through the Taos French Summer School. Credits earned for these courses may be counted toward the French major in any of the three options, depending on course content. For information about the Summer School contact the French Section office.

370. Advanced Language Instruction and Conversation. (2-4) Staff

Intensive language work at an advanced level, stressing controlled conversation.

*380. Lectures and Discussions on French Studies. (1-4) Staff

Topic will vary. Team taught course presenting a multidisciplinary approach to problems relating to French literature and culture.

385. Seminars in French Studies. (1-4) Staff

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies. Topics will deal with specific problems in French literature, culture, and language.

390. Workshop in French Studies. (1-2) Staff

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies. Informal discussions on topics relating to French culture; practical language work.

*470. French Stylistics. (1-4) Staff

Intensive study of French prose styles. Extensive writing practice.

*485. Advanced Seminars in French Studies. (1-4) Staff

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies. Topics will deal with specific problems of French literature, culture, and language on an advanced level.

*585. Graduate Seminars in French Studies. (1-4)

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies.

GERMAN

MAJOR STUDY

A student may select one of the following three options with the approval of the German adviser:

1. Language Emphasis. 27 hours in German above 300 plus two years, or the equivalent, of college work in another foreign language. German hours to be distributed as follows:

Language:	301, 302, 405, plus 6 additional hours of course work in German language
Literature:	307
Culture:	345
Electives:	6 additional hours of course work in German above 300 (one approved linguistics course may be substituted for 3 hours of German)

2. Literature Emphasis. 33 hours above 300, to be distributed as follows:

Literature:	307, plus 15 additional hours of literature courses, at least 9 of which must be in German. 6 hours may be fulfilled by upper-division literature courses in another foreign language, English, comparative literature, or literature in translation.
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Language:	301, 302
Culture:	345
Electives:	6 hours of additional course work in German above 300

3. Culture Emphasis. 33 hours, to be distributed as follows:

Culture:	345 plus 12 hours of additional course work in German culture, including approved courses in other departments.
Language:	301, 302
Literature:	307, plus 3 additional hours of course work in German literature which may be fulfilled by German 336.
Electives:	6 hours of additional course work in German above 300.

MINOR STUDY

15 hours in German courses numbered above 300.

ADVISEMENT AND PLACEMENT

Students who have had previous exposure to German in high school or elsewhere should consult with a member of the German faculty for placement advisement. Normally German 101 is reserved for students who have not studied German.

LANGUAGE COURSES

GERMAN (GERMAN)

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 two-hour conversation course (103-104) and/or a one-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, 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. (Fall, Spring)

103-104. Elementary German Conversation. (2, 2) Jespersen, Staff

Supplementary course to German 101-102 for students interested in additional practice in speaking. Students not concurrently taking 101-102 must obtain permission of instructor to enroll. Offered on CR/NC basis only.

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.

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 of 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) Staff
Continues development of reading, writing, speaking, and listening at the second-year level.

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. Offered on CR/NC basis only.

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)†
Informal study and singing of German folksongs. May be repeated to a maximum of 3 hours credit. Offered on CR/NC basis only.

ACCELERATED, UPPER-DIVISION, AND GRADUATE LANGUAGE COURSES

German 202 or equivalent is prerequisite for all courses below except 275-276 and 365-366.

275-276. Accelerated Beginning German. (3, 3) Staff
Intensive course for language majors and language enthusiasts. 101-102 and 275-276 may not both be counted for credit.

***301-302. Advanced German. (3, 3) Barrett, Hannemann, Pabisch**
Written and oral work for the third-year student, using a variety of literary and cultural material.

***303. Advanced German Conversation. (1)†**
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. Offered on CR/NC basis only.

304. Theatre Workshop. (2) Barrett, Staff
Production of a play in German.

365-366. German Reading for Graduate Students. (3, 3) Holzapfel, Pabisch
Accelerated course for graduate reading requirements. 365 emphasizes fundamentals of grammar; 366 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates must have permission of instructor to enroll.

***405. Advanced Grammar and Phonology. (3) Pabisch**

***445. Teaching of German. (3) Jespersen, Peters**
(Also offered as SATE 445.) Includes practice teaching in UNM elementary German courses. Intended for prospective German teachers but may also be taken by others who are interested in a teaching experience. Does not count for the German major or minor.
Prerequisite: by permission only.

446. The Art of Translating. (3) Jespersen, Peters
Study of methods of translating from German into English. Practical work in translation.

LITERATURE COURSES

307. Introduction to German Literature. (3) Hannemann, Peters
307 is a prerequisite for all literature courses listed below, except 336.

***336. Special Topics in German Literature in Translation. (3)†**
Topics will deal with individual authors, genres, or periods. May count for a major but not for a minor.

***451. [351.] The Age of Goethe. (3)**

***452. [352.] Nineteenth-Century German Literature. (3)**

***453. [353.] Twentieth-Century German Literature. (3)**

***454. [452.] The Drama. (3)**

***455. [453.] Lyric Poetry. (3)**

CULTURE COURSES

***345. Introduction to German Civilization. (3)**
Survey of German geography and of historical and cultural developments.

***401. Contemporary German Cultures. (3) Staff**
Study of present-day society and culture in the German-speaking countries using current materials.

GENERAL COURSES

***450. Special Topics in German Studies. (3)† Staff**
Topics will deal with specific problems in German language, literature, or culture.

480. Senior Colloquium in German. (1)† Staff
One-hour informal courses for advanced students, dealing with special topics relating to language, literature, or culture.

497. Undergraduate Problems. (1, to a maximum of 6)
Prerequisite: permission of instructor.

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)**
Prerequisite: permission of instructor.

***599. Master's Thesis. (1-6, per semester)**

COURSES OFFERED AT THE DEUTSCHE SOMMERSCHULE VON NEW MEXICO

The courses listed below are offered only through the Taos German Summer School. Credits earned for these courses may be counted toward the German major, with the restriction that at least 12 hours of the German major must be earned on the UNM main campus. For information on the Summer School contact the German Section office.

370. Advanced Language Instruction and Conversation. (2-4) Staff
Intensive language work at an advanced level, stressing controlled conversation.

***380. Lectures and Discussions on German Studies. (2-4) Staff**
Topic will vary. Team-taught course presenting a multidis-

cipline approach to problems relating to German literature and culture.

385. Seminars in German Studies. (2-4) Staff

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies. Topics will deal with specific problems of German literature, culture, and language.

390. Workshops in German Studies. (1) Staff

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies. Informal discussions on topics relating to German culture; practical language work.

***410. German Stylistics. (2-4) Staff**

Intensive language work designed to introduce students to the complexities of oral and written style.

***470. Advanced German Stylistics. (2-4) Staff**

Intensive study of German prose styles. Extensive writing practice.

***485. Advanced Seminars in German Studies. (1-4) Staff**

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies. Topics will deal with specific problems of German literature, culture, and language on an advanced level.

***585. Graduate Seminars in German Studies. (2-4) Staff**

Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies.

GREEK (GREEK)

MAJOR STUDY

See Classics.

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.) {101—Fall, 102—Spring}

103. Greek Lab Session. (1)

To be offered every term concurrently with Greek 101 as a lab or practice session for the beginning student; only for those wishing an extra hour credit.

104. New Testament Greek. (1-6)†

Introduction to New Testament Greek. Most of the work will be done independently by the student working with a Terak computer. Student may repeat the course for credit up to a maximum of six hours. Six hours is the equivalent of one year of Greek.

***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)‡ Smith**

Topic will deal with individual authors, genres, or periods.

497. Undergraduate Problems. (1, to a maximum of 6)

Prerequisite: permission of instructor.

***551. Graduate Problems. (1-6 hrs. per semester)**

Prerequisite: permission of instructor.

ITALIAN (ITAL)

No major or minor study offered.

275-276. Beginning Italian (Accelerated). (3, 3)

Prerequisite: 6 hrs. (or equivalent) of another language. {Fall, Spring}

***307. Introductory Readings in Prose. (3)**

Prerequisite: 276 or equivalent.

***308. Introductory Readings in Poetry. (3)**

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)

Prerequisite: permission of instructor.

***551. Graduate Problems. (1-6 hrs. per semester)**

Prerequisite: permission of instructor.

LATIN (LATIN)

MAJOR STUDY

See Classics.

MINOR STUDY

12 hours in courses numbered above 200.

PLACEMENT—ELEMENTARY AND INTERMEDIATE COURSES

Normally students with two years of 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)

{Fall, Spring}

103. Latin Lab Session. (1)

To be offered every term concurrently with 101 as a lab or practice session for the beginning student; only for those wishing an extra one hour credit.

201-202. 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.

***344. Topics in Latin Literature in Translation. (3)‡ Smith**

Topic will deal with individual authors, genres, or periods.

***351. Accelerated Latin. (3)**

Essentials of basic Latin grammar, morphology, and vocabulary, with emphasis on etymology and a comparative study of Latin and its relationship to the Modern Romance Languages and English.

***352. Accelerated Latin—Reading. (3)**

The evolution from Classical Latin to Medieval Vulgar Latin and its relationship to the Modern Romance Languages and English; the reading of selected Classical and Medieval texts.

497. Undergraduate Problems. (1, to a maximum of 6)

Prerequisite: permission of instructor.

***551. Graduate Problems. (1-6 hrs. per semester)**

Prerequisite: permission of instructor.

PORTUGUESE (PORT)

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 language. {Fall, Spring}

277-278. Portuguese Drill. (2, 2)

Corequisite: 275-276. {Fall, Spring}

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)

{Spring}

*421. Modern Brazilian Drama. (3)

Representative plays from the eighteenth century to the present.

*446. Luso-Brazilian Civilization. (3)

*451. Survey of Portuguese Literature. (3) Tomlins

Representative readings from the medieval *Cancioneiros* to Modernism and later trends.

*452. Contemporary Portuguese Literature. (3) Tomlins

Investigation of the impact of the European vanguard on twentieth-century Portuguese letters; lyric poetry and Neo-Realism in the novel.

*457. Brazilian Poetry from the Colonial Period to Modernism. (3) Tolman, Tomlins

Arrival of European Renaissance and Baroque modes on Brazilian soil: Neo-Classicism, Arcadism, Romanticism, Parnassianism, and Symbolism.

*458. Brazilian Poetry from Modernism to the Present. (3)

Tolman, Tomlins

Impact of European vanguard; antecedents of Modernism and the generations of the movement; concretism and recent developments.

*461. Brazilian Prose Fiction and Essay from Beginnings to Modernism. (3) Tolman, Tomlins

Readings in the major trends of Brazilian prose; the Baroque sermon, nineteenth-century developments, Machado de Assis, *Os Sertões*.

*462. Brazilian Prose Fiction and Essay from Modernism to the Present. (3) Tolman, 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.

*465. 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.

*496. Spain and Portugal Since 1700 [Iberian History since 1700.] (3)

(See Hist 396.)

497. Undergraduate Problems. (1, to a maximum of 6)

Prerequisite: permission of instructor.

*501. History of the Portuguese Language. (3) Tomlins

Required for the M.A. degree.

Prerequisite: Latin 351 or equivalent.

*504. Seminar in Ibero-American Studies. (3) Dolkart, Floyd,

T. Holzapfel, Lieuwen, Tolman, 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. (1-6 hrs. per semester)

Prerequisite: permission of instructor.

*560. Seminar in Portuguese Literature. (3)†

*570. Seminar in Brazilian Literature. (3)†

*599. Master's Thesis. (1-6 hrs. per semester)

*699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

RUSSIAN (RUSS)

MAJOR STUDY

Not offered. See Russian Studies.

MINOR STUDY

The minor requires 23 semester hours (an additional two hours).

ADVISEMENT AND PLACEMENT

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.

101-102. Elementary Russian. (4, 4)

{101-Fall, 102-Spring}

103-104. Elementary Russian Conversation. (1, 1)

Supplementary course to Russian 101-102 for students interested in additional practice in speaking. Students not concurrently taking 101-102 must obtain permission of instructor to enroll.

201-202. Intermediate Russian. (3, 3)

Prerequisites: 101-102 or the equivalent.

203. Russian Conversation. (1-3) Lindsey.

For intermediate students who wish to improve speaking skills. May be repeated to a maximum of three hours credit. Pre- or corequisite: 201-202.

253. Practicum in Russian Theater. (3)†

Students read and stage Russian plays. Performances may be recorded for subsequent use. Special attention is given to pronunciation, intonation. Open to students of all levels. Prerequisite: 102 or the equivalent.

275-276. Accelerated Beginning Russian. (3, 3) Staff

Primarily designed for students with previous exposure to either Russian or another language. Emphasis on acquiring

a reading knowledge of Russian. 101-102 and 275-276 may not both be counted for credit.

***301. Advanced Russian. (3)** Lindsey, Kolchevska
Vocabulary building, basic grammar review, and special attention to idiomatic Russian. Readings from recent Soviet literature.
Prerequisite: 202 or equivalent.

***302. Contemporary Russian. (3)** Lindsey, Kolchevska
Emphasis on all four language skills, especially reading, with selections from both pre-revolutionary and Soviet writers. The structure of Russian is reviewed in detail.

***303. Advanced Russian Conversation. (1)†** Lindsey, Kolchevska
Intensive practice in Russian conversational patterns 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.

***338. Russian Literature in Translation. (3)** T. Holzapfel, Kolchevska, Lindsey

***340. Topics in Russian Literature in Translation. (3)†** Lindsey, Kolchevska
(Also offered as Comp Lit 340.) Topics will deal with individual authors, genres, or periods.

***343. Soviet Literature in Translation. (3)** Kolchevska
(Also offered as Comp Lit 343.) Readings in Russian literature since the revolution: Sholokhov, Mayakovsky, Babel, Pasternak, Solzhenitsyn.

***345. Russian Civilization. (3)** Kolchevska, 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.
No prerequisites.

365-366. Russian Reading for Graduate Students. (3, 3)
Accelerated course for graduate reading requirements. 365 emphasizes fundamentals of grammar; 366 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates must have permission of instructor to enroll.

***401-402. Russia Today. (3, 3)** Kolchevska, Lindsey
Current language and literature including samizdat.

***407. [307.] Introduction to Russian Literature. (3)** Lindsey, Kolchevska
Readings from Pushkin, Lermontov, Dostoevsky, Tolstoy, and Chekhov. Emphasis on increased reading comprehension in Russian and on major aspects of the writers. Conducted in Russian.

***408. [308.] Russian Poetry. (3)** Lindsey
From Pushkin to the present. Conducted in Russian.

***490. Seminar in Russian Literature. (3)†** Kolchevska, Lindsey
Topic will deal with individual authors, genres, or periods. Taught in English.

497. Undergraduate Problems. (1, to a maximum of 6)
Prerequisite: permission of instructor.

SPANISH

MAJOR STUDY

Under either Plan A or Plan B, 30 hours of Spanish courses above 290 and completion of work in another foreign language at the level of 202 or 276 (or reading knowledge).

Students who do not speak Spanish natively should take 203 concurrently with 201 or 202.

Plan A. Hispanic Literature: required courses are 301-302, 351, 352 or 357, 340, plus at least 9 additional hours of literature courses from Section III below.

Plan B. Hispanic Language and Culture of the Southwest: required courses are 301-302, 297, 351, 357 and 345 or 346 plus 12 additional hours taken from areas II, III, IV, V below in any combination.

Courses in Plan B may be applied to the bilingual/cultural certification requirements, which the candidate may fulfill by taking 6 hours outside the department.

MINOR STUDY

18 hours in Spanish courses numbered 300 or above. Required courses: 301, 302.

PLACEMENT AND ADVISEMENT

Students who have had previous exposure to Spanish in high school or elsewhere (home, foreign travel; etc.) and who plan to continue studying Spanish at the University are expected to take the Department's Spanish Language Placement Examination offered at the beginning of each semester. The examination is for advisement purposes only and no student will be forced to enroll in a course for which he or she does not feel qualified. It is to the student's advantage to enroll initially in an appropriate level language course since lower level courses can be challenged by completing a higher course in the sequence. See the Department Chairperson for further information.

I. LANGUAGE

Beginning and Intermediate Spanish language courses (numbered in the 100 and 200 range) are divided into two tracks, the Bilingual track and the Monolingual track. The Department's Bilingual Placement Examination (given the first day of classes) helps determine which track is appropriate for students. The Bilingual track is for the bilingual student who understands spoken Spanish because he/she grew up in the United States in a Spanish-speaking environment. Spanish 112, 211, and 212 are the courses in the Bilingual track. The Monolingual track is designed for students who have had no experience with Spanish except in the school classroom. Spanish in monolingual track is taught as a foreign language. Spanish 101, 102, 201, 202, 275, 276 are the courses in the Monolingual track. The program in both the Bilingual and Monolingual tracks is designed to prepare students to work together in the Advanced (300 range) courses which are taught in Spanish.

SPANISH (SPAN)

101. Elementary Spanish. (3) Staff
Beginning Spanish for students with no previous exposure to Spanish. Development of all four language skills, with emphasis on listening comprehension and speaking. {Summer, Fall, Spring}

102. Elementary Spanish. (3) Staff
Beginning Spanish for students who have completed 101 or equivalent. Continued development of listening and speaking skills with more emphasis on basic reading and writing.

103-104. Elementary Spanish Conversation. (1)
Supplementary courses to Spanish 101-102 for students interested in additional practice in speaking.

107-108. Elementary Spanish Reading. (1)
Supplementary courses to Spanish 101-102 for students interested in additional practice in reading.

112. Elementary Spanish for Bilinguals. [Elementary Spanish for Spanish Speakers.] (3) Staff

This course emphasizes oral communication, the development of vocabulary and basic orthographic and reading skills. Students in this course understand spoken Spanish but lack confidence in their ability to speak. 101-102 and 112 may not both be counted for credit. {Fall, Spring}

#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. Intermediate Spanish. (3) Staff

Intermediate Spanish for students who have completed 102 or equivalent. Review of grammar and expansion of conversational skills with further development of reading and writing. {Summer, Fall, Spring}

202. Intermediate Spanish. (3) Staff

Intermediate Spanish for students who have completed 201 or equivalent. Continued conversational activities with emphasis on reading and writing skills.

203. Spanish Conversation. [Intermediate Spanish Conversation.] (3) Staff

For students from both the Bilingual and Monolingual track who have completed or are currently enrolled in Spanish 201, 202, 211, 212, or 276. Small classes designed to build confidence in speaking Spanish.

#205. Spanish Commercial Correspondence. (2)

#207. Conversational Spanish. (3)

211. Intermediate Spanish for Bilinguals. [Intermediate Spanish for Spanish Speakers.] (3) Staff

For bilingual students who have good skills in listening comprehension and speaking. This course continues to develop listening, speaking and reading skills, but emphasizes the development of writing skills; orthography and the manipulation of basic syntactic patterns in organizing ideas.

212. Intermediate Spanish for Bilinguals. [Intermediate Spanish for Spanish Speakers.] (3) Staff

Continues the development of grammar in order to improve all four language skills (listening, speaking, reading, writing). Major emphasis is on reading and on writing numerous short compositions based on the reading assignments.

275-276. Accelerated Beginning Spanish. (3, 3) Carter
Intensive one year course designed especially for language majors and enthusiasts. The sequence 275-276 and 101-102-201-202 or 112-211-212 may not be counted for credit.

#277-278. Spanish for Professionals. (3, 3) Staff
(Also offered as Journ 288, Law 507.) Specially designed course for professionals in the fields of medicine, law, business, office management. Attention given to specialized professional vocabularies.

****301. Advanced Grammar.** [Advanced Grammar and Composition.] (3)

Taught in Spanish. Thorough review of Spanish grammar and usage. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.

Prerequisites: 202, 212 or equivalent. {Fall, Spring}

****302. Advanced Composition and Conversation.** (3)

Taught in Spanish. Emphasis on oral and written expression based on numerous and varied readings. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish. Prerequisite: 301 or equivalent. {Fall, Spring}

***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. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish. Prerequisite: 302 or equivalent.

365-366. Spanish Reading for Graduate Students. (3, 3) Staff

Accelerated course for graduate reading requirements. 365 emphasizes fundamentals of grammar; 366 emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates must have permission of instructor to enroll.

***401. Spanish Stylistics.** (3) Fernandez

Literary style, figurative language, literary genres and versification, aesthetics, text analysis. Good command of Spanish essential.

Prerequisite: 302 or equivalent. {Fall}

II. LINGUISTICS, PHILOLOGY, AND METHODOLOGY

***311. Southwest Spanish.** (3) Gonzales-Berry, Reyna

Analysis of Spanish of U.S. Southwest, especially New Mexico; comparisons with standard Spanish. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish. Prerequisite: 212 or 302 or equivalent.

***340. Spanish Phonology.** (3) Gynan

Introduction to Spanish phonetics and phonemics. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.

Prerequisite: 301. {Fall, Spring}

***341. Spanish Linguistics for Elementary Teachers.** (3)

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. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.

Prerequisite: 302 and Ling 292 or equivalents.

***342. Spanish Linguistics for High School Teachers.** (3)

With approval of adviser, may be counted toward Spanish major. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.

Prerequisite: 302; suggested pre- or corequisites: 340 and SATE 361.

***441. Teaching of Spanish.** (3)

(Also offered as SATE 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. History of the Spanish Language.** (3) Bergen

Major features of evolution from Vulgar Latin to modern Spanish. Required of all candidates for graduate degrees.

***443. Spanish Morphology.** (3) Bergen

Introduction to linguistics and applied linguistics; analysis and teaching of word formation; emphasis on verb system.

***444. Structure of Spanish.** (3) Bills

Descriptive analysis of phonological, grammatical, and semantic structure of contemporary Spanish; emphasis on morphology and syntax.

Suggested prerequisite: 443.

***500. Teaching Practicum.** (1)† Gonzales-Berry, Gynan

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.)

†Offered through Continuing Education.

- *517. *Comparative Romance Philology*. (3) White
(See M Lang 517.)
- *540. *Latin American Dialectology*. (3) Bills
- *541. *Recent Research on the Teaching of Spanish*. (3) Bergen, Gonzales-Berry, Gynan
- *543. *Spanish Syntax*. (3) Bergen
- *549. *Seminar in the Language of Spain or Spanish America*. (3)† Bergen, Bills, Gynan

III. LITERATURE

307. *Introduction to Hispanic Literature*. (3) Ulibarri
Panoramic view of Hispanic literature and literary criticism from beginning to present.
Pre- or corequisites: 202 or 212 or equivalent.
Spanish 307 or equivalent is prerequisite for all literature courses below except 334 and 337.

A. PENINSULAR LITERATURE

- *337. *Spanish Literature in Translation*. (3) Rodriguez
Does not count for the Spanish major or minor. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.
- *351-352. *Survey of Spanish Literature*. (3, 3) Fernandez, Gonzalez, Guyler, Rodriguez
351—eleventh to seventeenth centuries; 352—eighteenth to twentieth centuries. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.
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. *Nineteenth-Century Spanish Literature*. (3) Fernandez, Rodriguez
Analysis of development from costumbrista and romantic novels to regional and naturalistic novels.
- *418. *Spanish Novel Since the Civil War*. (3) Gonzalez
Major novelists of the post-Civil War and contemporary generations.
- *419. *Spanish Poetry*. (3) Ulibarri
Stylistic, linguistic, and analytical approach to selected poems and poets of each literary epoch from beginning to present.
- *420. *Modern Spanish Drama*. (3) Fernandez
Development of Spanish theatre in nineteenth and twentieth centuries, since Romanticism, with major stress on contemporary drama.
- *421. *Lope de Vega and His Contemporaries*. (3) Rodriguez
Survey of Spanish drama from *Auto de los Reyes Magos* through Lope de Vega and major contemporaries.
- *422. *Calderon and His Contemporaries*. (3) Rodriguez
Continuation of 421; emphasis on Calderon, Francisco de Rojas, and Agustin Moreto.
- *423. *Cervantes: The Quijote*. (3) Guyler, Rodriguez
Detailed analysis of the *Quijote* and treatment of its place in world literature.
- *424. *Cervantes: Other Works*. (3) Guyler, Rodriguez
- *429. *Special Topics in Spanish Literature*. (3)†
Topic will deal with individual authors, genres, or periods.
- *514. *Major Figures from 1898 to 1936*. (3) Fernandez
- *518. *Medieval Romance Lyric*. (3) Tomlins, White
(See M Lang 518.)

- *519. *Proseminar in Medieval Spanish Genres*. (3) Tomlins
- *520. *Seminar in the Spanish Picaresque Novel*. (3) Guyler
- *521. *Seminar in Spanish Drama*. (3)† Fernandez
- *522. *Seminar in Spanish Poetry*. (3) Gonzalez, Ulibarri
- *523. *Seminar in the Twentieth-Century Spanish Essay*. (3) Fernandez
- *524. *Seminar in the Spanish Novel*. (3)† Fernandez, Gonzalez, Rodriguez
- *529. *Seminar in Spanish Literature*. (3)†

B. SPANISH AMERICAN LITERATURE

300. *Chicano Literature*. (3) Gonzales-Berry, Reyna
A general introduction to various genres of literature written in Spanish by Chicanos. The focus is on the formal, cultural, and social aspects of each work.
- *334. *Spanish American Literature in Translation*. (3) Carter
Does not count for the Spanish major or minor. Not available for graduate credit for M.A. and Ph.D. candidates in Spanish.
- *357-358. *Survey of Spanish American Literature*. (3, 3) Carter, Gerdes
357—from discovery to 1880; 358—from 1880 to present.
371. *Topics in Spanish American Literature*. (3)†
For undergraduates only.
- *430. *Spanish American Short Story*. (3) Gerdes, T. Holzapfel
Short story as a genre; its diverse forms in contemporary Spanish America.
- *431. *Modern Spanish American Poetry*. (3) Carter, Gerdes
Main trends from Modernism to 1960.
- *432. *Spanish American Vanguard Poetry*. (3) Gerdes, Gonzalez
- *433. *19th Century Spanish American Literature*. [Criolismo in Spanish American Literature.] (3) Carter, T. Holzapfel
- *434. *Literature of the River Plate Region*. (3) T. Holzapfel
Major literary works and movements of Argentina and Uruguay.
- *435. *Twentieth-Century Spanish American Novel until 1945*. (3) Gerdes, T. Holzapfel
Survey of major trends in early twentieth-century novel.
- *436. *Twentieth-Century Spanish American Novel since 1945*. (3) Sainz, T. Holzapfel
Survey of major trends; emphasis on "new novel".
437. *Chicano Literature and Thought*. [La Literature y Pensamiento Chicanos.] (3) Gonzales-Berry, Reyna
Study of Chicano works in Spanish. Analysis of formal techniques and world view.
- *438. *Mexican Literature*. (3) Sainz
Survey of Mexican literature of the twentieth century, from the novels written at the time of the Revolution to the authors represented by the cultural groups and societies, such as the Ateneo de la Juventud, Contemporaneos, and Spanish immigration.
- *439. *Special Topics in Spanish American Literature*. (3)†
Topic will deal with individual authors, genres, or periods.
- *504. *Seminar in Ibero-American Studies*. (3) Conniff, Lieuwen, Tolman
(Also offered as Hist, Ib-Am, and Port 504.)
- *530. *Seminar in Spanish American Drama*. (3) T. Holzapfel
- *531. *The Modernist Movement in Spanish American Poetry*. (3) Gerdes, T. Holzapfel

***532. Seminar in Twentieth-Century Spanish American Fiction. (3)†**

***533. Seminar in Spanish American Essay. (3)** Gerdes, Sainz

***539. Seminar in Spanish American Literature. (3)†**

IV. CIVILIZATION AND FOLKLORE

304. Southwestern Hispanic Folklore. (3) Reyna
Folkways of Spanish-speaking people of American Southwest: language, customs, beliefs, music, folk sayings. Taught in Spanish.

***345. Spanish Civilization. (3)** Gonzalez, Rodriguez, Ulibarri
Not available for graduate credit for M.A. or Ph.D. candidates in Spanish.

***346. Ibero-American Civilization. (3)** Carter, Gerdes, Gonzales-Berry
Development of European culture in Latin America and fusion with indigenous cultures. Taught in Spanish. Not available for credit for M.A. or Ph.D. candidates in Spanish.

***561 [361.] Hispanic Folktales. (3)** Reyna

***562 [362.] Hispanic Folk Ballads and Songs. (3)** Reyna

V. GENERAL

497. Undergraduate Problems. (1, to a maximum of 6)
Prerequisite: permission of instructor.

498. Reading and Research for Honors. (3)
Open to juniors and seniors approved by Honors Committee.
Prerequisite: permission of supervising instructor.

499. Honors Essay. (3)
Open only to seniors enrolled for departmental honors.
Prerequisite: permission of supervising instructor.

***551. Graduate Problems. (1-6 hrs. per semester)**
Prerequisite: permission of instructor.

***599. Master's Thesis. (1-6 hrs. per semester)**
See Graduate Programs Bulletin for total credit requirements.

***699. Dissertation. (3-12 hrs. per semester)**
See Graduate Programs Bulletin for total credit requirements.

SWAHILI (SWAHIL)

No major or minor study offered.

201-202. Intermediate Swahili. (3, 3)
Prerequisite: Afro Am St 102 or equivalent.

203. Intermediate Swahili Conversation. (3)
Prerequisite: Afro Am St 102. {Offered upon demand}

497. Undergraduate Problems. (1, to a maximum of 6)
Prerequisite: permission of instructor.

NATURAL SCIENCE (NAT SCI)

No major or minor study offered.

125. Natural Science. (3-4)
Deals with man's distribution in space and time. Man's cultural ascent is discussed from the standpoint of revolutions in cosmology, geology, mechanics, and the atom and its social consequences.

126. Biological/Behavioral Science. (3-4)

Deals with man's peaks of scientific discovery in anthropology, the human revolution; biology, the discovery of the gene; psychology, the cognitive revolution and the population-resource problem.

PALEOECOLOGY

Roger Y. Anderson, Chairperson
Northrop Hall 308, 277-2308

COMMITTEE IN CHARGE

PROFESSORS:

Roger Y. Anderson, Ph.D., Stanford University, (Geology)
James S. Findley, Ph.D., University of Kansas, (Biology)
Loren D. Potter, Ph.D., University of Minnesota, (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 Paleoe 209 or 439. 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 320, 366F
Biol 121L, 122L, 221, 222, 260L, 350L, 363L, 371L, 487L, 489L
Chem 121, 122, 132, 253L, 301, 302, 303L, 304L, 311, 312
Geol 101-102-103-225, 105L-106L, 311L, 312L, 313L, 314L, 333L, 441L, 501
Math 345-346, 441

GRADUATE MINOR

Requirements are listed in the Graduate Programs Bulletin.

PALEOECOLOGY (PALEO)

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. {Summer, Fall, Spring}

***439. Paleoclimatology. (3)** Anderson, Yapp
(Also offered as Geol 439.) History of the earth's climate. Examination of methods in climatic reconstruction and mechanisms of climatic change. Emphasis on Pleistocene and Holocene climatic records.
Prerequisite: Geol 105L. 3 lectures. {Fall 1983 and alternate years}

451-452. Problems in Paleoecology. (2, 2)

***540. Advanced Stratigraphy—Sedimentology. (3)** Anderson
(Also offered as Geol 540.)
Prerequisite: permission of instructor. {Spring}

***551-552. Problems. (2-3, 2-3 hrs. per semester)**

PHILOSOPHY

Fred Gillette Sturm, Chairperson
Humanities Building 517, 277-2405

PROFESSORS:

A. Charlene McDermott, Ph.D., University of Pennsylvania
Paul F. Schmidt, Ph.D., Yale University
Fred Gillette Sturm, Ph.D., Columbia University

ASSOCIATE PROFESSORS:

Matthieu Casalis, Ph.D., University of Strasbourg, Ph.D., University of Paris
Helena Eilstein, Ph.D., University of Warsaw
Russell Goodman, Ph.D., John Hopkins University
George Fredrick Schueler, Ph.D., University of California, (Berkeley)
Howard N. Tuttle, Ph.D., Brandeis University

ASSISTANT PROFESSORS:

William Boos, Ph.D., University of Wisconsin, Ph.D., University of Chicago
Andrew Burgess, Ph.D., Yale University
Donald Lee, Ph.D., University of California (San Diego)
Brian O'Neil, Ph.D., University of California (Berkeley)

VISITING ASSISTANT PROFESSOR:

Archibald M. Woodruff, III, Ph.D., University of Pittsburgh

EMERITI PROFESSORS:

Hubert G. Alexander, Ph.D., Yale University
Arlie J. Bahm, Ph.D., University of Michigan
Melbourne G. Evans, Ph.D., University of California (Berkeley)

Philosophy is a fundamental academic discipline which is related to all areas of human concern. Courses can be found which will be helpful to students in each of the arts and sciences, as well as in professional fields of study. The major and minor programs in philosophy are designed to serve several different functions: (1) the central focus of a liberal arts degree program, (2) a key component in an interdisciplinary program, (3) preparation for graduate work in education, law, medicine, politics, social work, and theology, (4) preparation for graduate work in philosophy. Students are invited to discuss with the departmental undergraduate adviser the role philosophy courses might play in specific programs of study.

Explanation of footnotes not indicated will be found on p. 316.

MAJOR STUDY

30 hours, of which 18 hours will be distributed as follows: 201, 202, 257, 358, either 352 or 354, and either 441 or 442, leaving 12 hours of electives of which 6 must be at the 300 level or above. Normally 100 level Philosophy courses will count only if taken prior to any 200 or higher level course.

MINOR STUDY

18 hours including either 156 or 247; at least 2 of the following: 110, 201, 202; with 9 hours to be at the 300 or above level. If 110 is included it must be taken before any 300 or above level course which is counted toward the minor.

RELIGIOUS STUDIES MAJOR AND MINOR

A major, dual major, and minor in Religious Studies are available through the Religious Studies Program. For information see the listing under "Religious Studies" in this Bulletin.

INTERDEPARTMENTAL MAJORS

The Department of Philosophy cooperates with the Department of Economics in administering an interdepartmental Economics-Philosophy major, and with the Department of English in administering an interdepartmental English-Phi-

losophy major. Descriptions of these programs are given under the headings of Economics-Philosophy, and English-Philosophy.

DEPARTMENTAL HONORS

Students desiring to read for honors in philosophy should (1) discuss requirements of the program with the departmental honors adviser, (2) establish a committee on studies during the junior year, and (3) enroll in Phil 498-499 for at least a total of 6 hours credit.

PERIOD MINOR

See Comparative Literature for a description of the minor.

PHILOSOPHY (PHIL)

107. Living World Religions. (3)

Introduction to major living world religions, such as Hinduism, Buddhism, Islam, Christianity, and Judaism.

110. Introduction to Philosophical Problems. (3)

Selected problems in values, knowledge, and reality. Social, political, and religious philosophy.

111-112. Humanities I—II. (3, 3)

Comparative introduction to the development of human civilizations emphasizing philosophic thought, religious practice, and artistic expression.

115. Introduction to Chicano Thought. (3)

Contemporary Chicano culture: intellectual roots in the history of ideas and current philosophical issues.

156. Introduction to Logic. (3)

Emphasis is placed on development of ability to understand, analyze and critically use various forms of argument.

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.

203. The Environmental Problem. (3)

(Also offered as Arch 181, Econ 203.) What the environmental problems are and how they are approached by various disciplines; how problems are defined, limits imposed on scope of problems, solutions and tradeoffs.

230. Old Testament History. (3)

Pentateuch and the historical books of the Old Testament.

231. Old Testament Prophets. (3)

Prophetic books and later Old Testament writings.

232. New Testament. (3)

New Testament and early Christian history

241. Philosophic Problems. (3)†

Topic to vary. An elementary treatment of some major philosophical issue.

242. Great Thinkers. (3)†

Figure will vary. A study of the thought of some major world thinker.

245. Professional Ethics: _____. (3)

Examination of social and ethical problems associated with a particular profession. Emphasis will vary in different semesters among the business, engineering, medical and legal professions.

247. Studies in Religions. (3)†

Topic to vary. Elementary topics in the study of world religions.

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. Scientific Method. (3)

Observation, experiment and hypothesis. Definition and law. Factors of theory choice. Prediction and explanation. Science and probability. Some philosophical problems of modern science.

Prerequisite: 156 or 253 or 257 or permission of the instructor.

255. Contemporary Moral Issues. [Philosophical Problems of Legal and Medical Ethics.] (3)

Ethical issues arising in contemporary society, e.g. sexual morality, preferential treatment, racism, punishment, war, world food distribution, etc.

257. Introduction to Symbolic Logic. (3)

Methods and techniques of modern logic.

263. Eastern Religions. (3)

A study of major Eastern traditions, such as Taoism, Hinduism and Buddhism.

264. Western Religions. (3)

A study of major Western traditions, such as Judaism, Christianity and Islam.

275. Philosophy of Correction. (3)

The purpose of this course is to examine the philosophical issues which underlie our social institutions of law and corrections.

301-302. Interdepartmental Studies in the Culture of the U.S. (1-3, 1-3)

(See Am St 301-302.) May be taken for departmental credit only with the consent of the chairperson.

***303. Hellenistic Philosophy. (3)**

Stoicism to Neoplatonism.

***304. Medieval European Philosophy. (3)**

Major thinkers from Augustine through Ockham.

305. Topics in Medieval Philosophy. (3)†**332. North American Philosophy. (3)**

Early developments, idealism, pragmatism, naturalism, realism, and analysis.

***334. Indian Philosophy. (3)**

Upanishads, Bhagavad-gita, Jainism, Buddhism, the six Hindu systems and recent developments.

335. Topics in Indian Philosophy. (3)†**336-337. Chinese Philosophy I—II. (3, 3)**

336—The development of Chinese thought from pre-Confucian times through the T'ang dynasty. 337—Chinese thought from the Sung dynasty to the present.

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. Nineteenth Century Philosophy. (3)**

From Kant through Hegel, Marx, Schopenhauer, Kierkegaard, Mill, Nietzsche.

***346. Twentieth-Century Philosophy. (3)†**

Twentieth-century philosophies.

Prerequisite: 110 or 202 or 256 or 356 or permission of instructor.

347. Topics in Religious Studies. (3)†

Studies in major religious figures or movements. Topic varies.

***348. Comparative Philosophy. (3)**

A comparative study of the Buddhist, Chinese, European, Indian, and Islamic philosophical traditions with reference to ontology, epistemology, axiology, and socio-political thought.

***350. Philosophy of Science. (3)**

Selected ontological and methodological problems of empirical sciences.

Prerequisite: 156 or 253 or 254 or 257 or permission of the instructor.

***352. Theory of Knowledge. (3)**

Problems and theories of epistemology.

Prerequisite: 110 or 156 or 202 or 356 or permission of the instructor.

***354. Metaphysics. (3)**

Theories of reality.

Prerequisites: 156, 201 or 202 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 for 356: 257 or consent of instructor; for 357: 356 or consent of instructor.

***358. Ethical Theory. (3)**

Inquiry concerning goodness, rightness, obligation, justice, and freedom.

Prerequisite: one previous philosophy course.

***360. Christian Classics. (3)**

A study of major writings in the Christian tradition, written by such persons as Augustine, Aquinas, Pascal, and Kierkegaard.

***361. Modern Christian Thought. (3)**

Background of the intellectual issues facing Roman Catholic and Protestant traditions today.

***363. Environmental Ethics. (3)**

Close reading of contemporary writings by naturalists, lawyers, theologians, and philosophers on the philosophical aspects of environmental problems.

***365. Philosophy of Religion. (3)**

Philosophic analysis of some major concepts and problems in religion.

***367. Philosophy of Art and Aesthetics. (3)**

A phenomenological investigation of the world of the arts with emphasis on aesthetic appreciation, artistic creativity, and the structuring of works of art.

Prerequisite: minimal ability to work within a given artistic medium or permission from the instructor.

***371. Classical Social and Political Philosophy. (3)**

From Plato to Hobbes.

***372. Modern Social and Political Philosophy. (3)**

From Hobbes to present.

375. Philosophy of Life. (3)

Questions concerning the meaning of existence, consciousness, freedom, death, hope, despair, joy, etc.

***377. Environment and Society. (3)**

Environmental implications of major historical and contemporary social/political philosophies.

***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 356 or permission of instructor.

***387. Latin American Liberation Theology. (3)**

Religious currents in Latin American thought, concentrating on the contemporary period, with special attention to the movement called "liberation theology".

***389-390. Latin American Philosophy I—II. (3, 3)**

(Also offered as Hist. Soc 389-390.) 389—pre-Columbian thought through independence ideologies. 390—positivism through contemporary thought.

***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 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.

***429. Aesthetics Institute Workshop. (1)**

Offered either as a one-week session during the summer at the Lawrence Ranch and Harwood Foundation, or as a six-session sequence during the spring semester. Feature lectures and discussions on specific topics in the Philosophy of Art and Aesthetics. Carries graduate credit when specifically approved by the Graduate Committee. **May be repeated to a maximum of 3 hours.**

***441. Philosophical Movements. (3)†**

Topic varies.

***442. Individual Philosophers. (3)†**

Figure varies.

***443. Problems in Space, Time, and Causality. (3)†**

Ontological and epistemological problems related to the concepts of space, time and causality in modern physics. Prerequisite: 156 or 253 or 254 or 257 or 350 or permission of the instructor.

***445. Philosophy of Language. (3)**

Philosophies of meaning with special attention to the relations between language and thought.

Prerequisite: 201 or 202 or 257 or 356 or permission of instructor.

***447. Seminar in Religious Studies. (3)†**

Major religious figures or movements. Topic varies.

***453. Interdisciplinary Asian Studies. (3)**

(Also offered as Geog. Hist. Pol Sci 453.) Cross-cultural and interdisciplinary investigations of problems and methodological current in Asian studies.

***455. Philosophy of the Natural Sciences. (3)†**

Critical examination of methods and concepts of empirical sciences. Topics varies.

Prerequisite: 156 or 253 or 254 or 257 or 350 or permission of instructor.

***465. Philosophy of the Social Sciences. (3)**

(Also offered as Soc 465.) 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 Engl-Phil 480.) May be repeated for credit as subject matter varies, with permission of the instructor.

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 Econ-Phil 485.)

Prerequisites: Econ 200, 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. (1-3)††**

(See Am St 501.)

***514. Survey of Contemporary Schools of Sociological Theory II. (3)**

(Also offered as Soc 514.) {Spring}

***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 and Causality. (3)†**

Prerequisite: 156 or 253 or 254 or 257 or 350 or permission of the instructor.

***551. M.A. Problems. (1-3 hrs. per semester)†**

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs 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)**

Prerequisites: 257 and 356 or equivalents.

***658. Ph.D. Seminar in Value Theory. (3)**

***699. Dissertation. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

PHILOSOPHY-ECONOMICS

See Economics-Philosophy.

PHILOSOPHY-ENGLISH

See English-Philosophy.

PHYSICS AND ASTRONOMY

R. Marcus Price, Chairperson

Physics & Astronomy 100, 277-2616

PROFESSORS:

Harjit S. Ahluwalia, Ph.D., University of Gujarat
Seymour S. Alpert, Ph.D., University of California, (Berkeley)
Charles L. Beckel, Ph.D., Johns Hopkins University
Howard C. Bryant, Ph.D., University of Michigan
Colston Chandler, Ph.D., University of California, (Berkeley)

Bryon D. Dieterle, Ph.D., University of California, (Berkeley)
 James D. Finley III, Ph.D., University of California, (Berkeley)
 McAllister H. Hull, Jr., Ph.D., Yale University
 David S. King, Ph.D., Indiana University
 Christopher P. Leavitt, Ph.D., Massachusetts Institute of Technology
 Alan W. Peterson, Ph.D., University of New Mexico
 R. Marcus Price, Ph.D., Australian National University
 Marian O. Scully, Ph.D., Yale University
 Derek B. Swinson, Ph.D., University of Alberta
 David M. Wolfe, Ph.D., University of Pennsylvania

ASSOCIATE PROFESSORS:

James E. Harvey, Ph.D., University of Arizona
 James G. Small, Ph.D., Massachusetts Institute of Technology
 Michael Zeilik, II, Ph.D., Harvard University

ASSISTANT PROFESSORS:

Bernd Bassalleck, Ph.D., Karlsruhe
 John Bellum, Ph.D., Florida University
 Jack O. Burns, Ph.D., Indiana University
 Kevin E. Cahill, Ph.D., Harvard University
 Weng W. Chow, Ph.D., University of Arizona
 Lois Kieffaber, Ph.D., University of New Mexico

RESEARCH PROFESSOR:

John Linsley, Ph.D., University of Minnesota

RESEARCH ASSOCIATE PROFESSORS:

David Clark, Ph.D., University of Connecticut
 Kenneth C. Jungling, Ph.D., University of Illinois
 J. R. McNeil, Ph.D., Colorado State University
 William C. Sweatt, Ph.D., University of Arizona

Explanation of footnotes not indicated will be found on p. 316.

Prerequisite to major and minor study in physics and in astrophysics are the basic courses Physcs 160, 161, 163L§, 262, 264L§, and Math 264, 311; astrophysics majors also take Astr 270, 271.

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. Academic advisement prior to actual registration is required each semester for students with a major in physics or astrophysics.

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

Physics 301, 302, 303, 304, 305, 306, 307L, 308L, 491, 492, 493L; Math 312, 316, or 361, 362; Chem 121L-122L or 131L-132L.

MINOR STUDY IN PHYSICS

Four courses selected from Physcs 301, 302, 303, 304, 305, 306, 330; Math 316 or 361.

MAJOR STUDY IN ASTROPHYSICS

Physics 301, 302, 303, 304, 305, 330; Astr 401, 402, and 3 hours of astronomy courses numbered above 399; Math 312, 316 or 361, 362. Chem 121L-122L or 131L-132L.

MINOR STUDY IN ASTROPHYSICS

Physcs 302, 330 and two of 301, 303, 305; Astro 270, 271, 3 hours of astronomy courses numbered above 399; Math 316 or 361.

GRADUATE STUDY

Prerequisite for all courses numbered 500 and above: an undergraduate major in physics equivalent to that outlined above.

GROUP REQUIREMENTS

Courses in this department satisfy the requirements of Group 4 in the College of Arts and Sciences.

GENERAL INTEREST COURSES IN PHYSICS AND ASTRONOMY**Astr 101. Introduction to Astronomy. (3)** Burns, King, Price, Zeilik

The theme of this course is cosmic evolution. It provides a guided tour of the universe to find out where and when we are in the cosmos. The presentation is descriptive and non-mathematical. It starts with an overview into people's ideas about the universe. After an inquiry into the origin and evolution of the solar system, a study of stars is made to find the place of the solar system in the Milky Way Galaxy. Finally, a history is presented of the physical, chemical, and biological evolution of the universe, from its beginning in a big bang to the possibility of life elsewhere in the Galaxy. Special topics may include black holes, interstellar communication, UFOs, and missions to the planets. No preparation is assumed. Important concepts of physics, chemistry, and biology are introduced in the context of the course. See Astr 111L for optional observations. {Summer, Fall, Spring}

Astr 111L. Astronomy Laboratory. (1) Burns, King, Price, Zeilik

Intended as an adjunct to Astr 101, this course deals with elementary techniques in astronomical observations. 2 hrs. at campus observatory.

Pre- or corequisite: Astr 101. {Fall, Spring}

Physcs 100. Natural Science. (4)

An introduction to the Natural Science disciplines. Emphasis on intensive skills improvement in reasoning, mathematics, communications, reading and comprehensive study techniques which are required for further study in any of the Natural Science disciplines. Individual courses will emphasize content pertinent to the department offering the course, but all courses will be interdisciplinary and focus on skills development. For students who score 17 or below in Natural Science on the ACT, or who are admitted with a Natural Science deficiency.

Physcs 102. Introduction to Physics. (3) Ahluwalia, Alpert, Chandler, Price, Wolfe

This course is designed for non-science students in all colleges as well as for students planning to major in the sciences who want a general introduction to the basic phenomena and concepts of physics. The treatment is primarily descriptive, with practical demonstrations and applications and with a minimum of elementary mathematics. No previous preparation is assumed. Basic physical concepts such as energy, momentum, and electric charge are discussed as well as the properties of gravitational, electromagnetic and nuclear forces, and wave phenomena. The basic ideas of relativity and quantum theory are introduced. See Physcs 112L for an optional laboratory. {Fall, Spring}

Physcs 103. Meteorology. (3)

This course is designed for students who may have no technical background but who are interested in weather. Demonstrations and films emphasize general principles underlying weather processes and illustrate special effects. Topics include the interaction of the sun with the earth and its at-

§Not required for the minor study in astrophysics.

mosphere, pressure systems and winds, weather data for the surface and aloft, stability and instability in the atmosphere, production of clouds and precipitation, development of frontal systems and of special storms, weather charts and maps and their use in forecasting. See Physcs 113L for an optional laboratory.

Physcs 104, 105. Physics and Society. (3, 3) Hull

These courses are intended for the student with minimum previous exposure to physical science. The concepts, ideas, and methodology of physics are developed as the basis for a discussion of their impact on society and the impact of society on the development of physics. In the first term, mechanics is introduced in the context of a discussion of the history of cosmology, of artificial satellites and space flight, and of missiles. Electricity and magnetism lead to a discussion of communication: telegraph, telephone, radio, TV. In the second term, thermal physics leads to a discussion of meteorology, climatology, pollution, weather modification, violent storms, aviation weather and soaring; energy concepts and special relativity lead to a discussion of mass energy, nuclear fission and fusion reactors, nuclear weapons, science policy and ethics, energy problems and alternative sources. Either course may be taken by itself, or both courses may be taken in either order. {104—Fall, 105—Spring}

Physcs 106. Light and Color. (3) Bryant, King, Price

This elementary course in optics and optical phenomena is intended primarily for students in the liberal arts, fine arts, and education. Light and color and optical systems are explained with demonstrations and graphical techniques, without formal mathematics. The formation of images with mirrors and lenses, wave phenomena, the eye, rainbows, tricks with polarized light, lasers and holography are covered. See Physcs 116L for an optional laboratory. {Fall, Spring}

Physcs 108. Introduction to Musical Acoustics. (3) Leavitt

This course is intended to provide a physical foundation of understanding the experience of music and the acoustics of the environment of music. It consists of the nonmathematical application of concepts of physics to sound perception, musical instruments, and to acoustics of the auditorium. Most of the topics covered are fully demonstrated in class. These include the nature of sound and its sources, functioning of the ear, harmonics and tone quality, auditorium response, pitch and musical scales, demonstration and analysis of the piano and other stringed instruments, woodwinds, brasses, the voice, discussion of electronic reproduction and synthesis of sound. See Physcs 118L for an optional laboratory. {Fall, Spring}

Physcs 112L. Physics Laboratory. (1) Alpert, Chandler, Price

A physics laboratory offered in conjunction with Physcs 102 for students desiring laboratory credit. Experiments and projects designed to explain basic physical concepts related to the atom, the environment, and the universe. Pre- or corequisite: Physcs 102. 2 hrs. lab. {Fall, Spring}

Physcs 113L. Meteorology Laboratory. (1)

Practical experience with meteorological observations, charts, and weather maps. Pre- or corequisite: Physcs 103. 2 hrs. lab.

Physcs 116L. Light and Color Laboratory. (1) Bryant, King, Price

A laboratory offered in conjunction with Physcs 106L for students desiring laboratory credit. Experiments and demonstrations with optical phenomena; lenses, mirrors, the eye, interference, diffraction, polarization, lasers. Pre- or corequisite: Physcs 106. 2 hrs. lab. {Fall, Spring}

Physcs 118L. Musical Acoustics Laboratory. (1) Leavitt

Intended as an adjunct to Physcs 108, this course emphasizes electronics and electronic equipment pertaining to acoustics and to music. Pre- or corequisite: Physcs 108. 2 hrs. lab. {Fall, Spring}

PHYSICS (PHYSCS)

For Physcs 102 through 118L see the general interest courses described above.

151. General Physics. (3)

Mechanics, sound, heat. The sequence 151, 152, 153L, 154L is required of pre-medical, pre-dental, pre-optometry, and pharmacy students.

Prerequisite: one of the courses Math 121, 150, 180. {Summer, Fall, Spring}

152. General Physics. (3)

Electricity, 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.

Corequisite: 151. {Fall, Spring}

158. Problems in General Physics. (1)

Problem solving and demonstrations related to 152.

Corequisite: 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.

Corequisite: 160. {Fall, Spring}

168. Problems in General Physics. (1)

Problem solving and demonstrations related to 161.

Corequisite: 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}

265L. Individual Laboratory Work in General Physics. (1)

Prerequisite: permission of instructor. 3 hrs. lab. {Offered upon demand}

267. Problems in General Physics. (1)

Problem solving and demonstrations related to 262.

Corequisite: 262. {Fall, Spring}

****301. Heat and Thermodynamics. (3) Ahluwalia, Alpert, Bryant**

Kinetic theory; specific heats; conduction, convection, radiation; change of state; classical thermodynamics. {Fall}

****302. Optics. (3) Alpert, Bryant, Finley, Leavitt**

Geometrical optics; wave theory of light; Fresnel and Fraun-

hofer diffraction; polarization; dispersion, absorption, and scattering. {Spring}

****393-304. Analytical Mechanics. (3, 3)** Alpert, Beckel, Bryant, Finley, Leavitt
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, Dieterle
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. (3, 3)** Alpert, Bassalleck, Beckel, Bryant, Dieterle, Wolfe
Experimental methods of physics. 1 lecture, 3 hrs. lab. each semester. {307L—Fall, 308L—Spring}

****327. Solid Earth Geophysics. (3)** Huestis
(Also offered as Geol 427.) Structure, constitution, and deformation of earth as determined by gravity, magnetism, seismology, heat flow, and earth currents. Related aspects of plate tectonics.
Prerequisites: Geol 101, Math 264, Physcs 161. {Spring}

****330. Atomic and Nuclear Physics. (3)** Ahluwalia, Alpert, Bryant, Dieterle, Finley, Leavitt, 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}

***430. Physics of Matter. (3)** Chandler, 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. {Spring}

***433. Molecular Biophysics. (3)** Beckel
(Also offered as Biol 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)**
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, Woodall
(Also offered as N Engr and Astr 435.) Plasma parameters adiabatic invariants, orbit theory, plasma oscillations, hydromagnetic waves, plasma transport, stability, kinetic theory, nonlinear effects, applications. {Fall}

***437. Introduction to Solar Terrestrial Physics. (3)** Ahluwalia
(Also offered as Astr 437.) The sun as a star, photosphere, chromosphere, corona, solar activity, solar wind, interplanetary medium, earth's magnetosphere, solar terrestrial effects, applications. {Offered upon demand}

***440. Atmospheric Physics. (3)**
Atmospheric gases; cloud physics; the high atmosphere; radiation, atmospheric motions, and turbulence; aerosols. {Offered upon demand}

***445. Introduction to Cosmic Radiation. (3)** Ahluwalia, Swinson

(Also offered as Astr 445.) Primary cosmic radiation, the production and detection of secondary cosmic radiation, meteorological effects, geomagnetic effects, time variations, extensive air showers, applications to high energy physics. {Offered upon demand}

***451. Problems. (1-3 hr. per semester, to a maximum of 6)**

***452. [461.] Research Methods. (1-3 hrs. per semester, to a maximum of 6)**

***455. Problems. (1-3 hrs. per semester, to a maximum of 6)**

***466. Methods of Theoretical Physics. (3)†** Alpert, Beckel, Chandler, Chow, Finley, Scully
(Also offered as Math 466.) A selection of mathematical methods applied to physics. {Fall}

***471. [554.] Advanced Optics I. (3)** Harvey
{Fall}

***472. [564.] Laser Physics I. (3)** Chow, Scully
Prerequisite: 306 or EECE 362. {Fall}

***476L-477L. Experimental Techniques of Optics. (3, 3)** Alpert, Small
Diffraction, interference, optical detectors, lens aberrations, lasers, spectra, scattering, optical testing. 1 lecture, 3 hrs. lab. {476L—Fall, 477L—Spring}

***491-492. Contemporary Physics. (3, 3)** Ahluwalia, Bryant, Cahill, Dieterle, Finley, Leavitt, Swinson
Introduction to special relativity and quantum mechanics; atomic and nuclear physics, cosmic rays. {491—Fall, 492—Spring}

***493L-494L. Contemporary Physics Laboratory. (3, 3)** Dieterle
Spectrographic methods; lasers; atomic structure; natural and artificial radioactivity; cosmic rays. 1 lecture, 5 hrs. lab. {493L—Fall, 494L—Spring}

***495. Theory of Special Relativity. (3)** Ahluwalia, Finley
Relativistic kinematics and dynamics, relativistic electromagnetism, application to nuclear physics and astrophysics. {Offered upon demand}

496-497. Contemporary Physics Honors. (3, 3) Ahluwalia, Bryant, Cahill, Dieterle, Finley, Leavitt, Swinson
{496—Fall, 497—Spring}

498L-499L. Contemporary Physics Honors Laboratory. (3, 3) Dieterle
1 lecture, 5 hrs. lab. {498L—Fall, 499L—Spring}

***500-501. Advanced Seminar. (1-3, 1-3)**
{Fall, Spring}

***503. Classical Mechanics I. (3)** Beckel, Bryant, Chandler, Finley
{Fall 1984 and alternate years}

***504. Classical Mechanics II. (3)** Chandler, Finley
{Spring 1983 and alternate years}

***505. Statistical Mechanics and Thermodynamics. (3)** Chandler, Leavitt
{Spring 1983 and alternate years}

***511. Electrodynamics I. (3)** Alpert, Chandler, Finley
{Fall 1983 and alternate years}

***512. Electrodynamics II. (3)** Chandler, Finley
{Spring 1984 and alternate years}

***521. Quantum Mechanics I. (3)** Alpert, Beckel, Chandler, Finley, Leavitt
{Spring}

ASTRONOMY (ASTR)

***522. Quantum Mechanics II. (3)** Beckel, Finley, Leavitt
{Fall}

***523. Quantum Field Theory I. (3)** Cahill, Finley
Prerequisites: 521 and 522. {Offered upon demand}

***524. Quantum Field Theory II. (3)**
{Offered upon demand}

***530. Selected Topics in Solid State Physics. (3)†**
Prerequisite: 521. {Offered upon demand}

***531. Atomic Structure. (3)** Beckel
Prerequisite: 521. {Offered upon demand}

***532. Molecular Structure. (3)** Beckel
Prerequisite: 521. {Offered upon demand}

***534. Selected Topics in Biophysics. (3)†**
{Offered upon demand}

***535. Stability of Fluid Plasmas. (3)** Ahluwalia, Woodall
(Also offered as Engr 535.)
Prerequisite: 435 or equivalent. {Spring}

***537. Selected Topics in Astrophysics and Space Physics. (3)†**
Ahluwalia, Leavitt
(Also offered as Astr 537.) {Offered upon demand}

***538. Advanced Methods of Theoretical Physics. (3)†**
Beckel, Finley
{Offered upon demand}

***540. Introduction to Nuclear Physics. (3)** Dieterle, Leavitt, Stephenson
{Offered upon demand}

***542. Selected Topics in Theoretical Nuclear Physics. (3)†**
Chandler, Finley, Stephenson
Prerequisites: 521, 540. {Offered upon demand}

***543. Selected Topics in High-Energy Physics. (3)†**
Chandler, Dieterle, Finley, Leavitt
Prerequisite: 521. {Offered upon demand}

***551-552. Problems. (1-4, 1-4 hrs. each semester)**

***554. [555.] Advanced Optics II. (3)** Sweatt
Prerequisite: 471. {Spring}

***555. Nonlinear Optics. (3)**
Prerequisites: 554, 564. {Fall}

***556. Optical Coherence Theory. [Electro-Optical Physics.] (3)**
Prerequisite: 554. {Offered on demand}

***564. [565.] Laser Physics II. (3)** Chow, Scully
Prerequisite: 472. {Spring}

***565. Resonator Theory. (3)**
Prerequisites: 554, 512 or EECE 562. {Offered upon demand}

***566. Quantum Optics. [Nonlinear Optics and High Power Lasers.] (3)†**
Prerequisite: 564. {Fall}

***570. Theory of Relativity. (3)** Finley
Prerequisite: 503. {Offered upon demand}

***580. Advanced Plasma Physics. (3)**
(Also offered as NE 580.)
Prerequisite: 435, 535. {Offered on demand}

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

***650. Research. (1-12)**

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

101. Introduction to Astronomy. (3) Burns, King, Price, Zeilik
See description under General Interest Courses above. {Summer, Fall, Spring}

111L. Astronomy Laboratory. (1) Burns, King, Price, Zeilik
Intended as an adjunct to 101, this course deals with elementary techniques in astronomical observations. 2 hrs. at campus observatory.

Pre- or corequisite: 101. {Fall, Spring}

270-271. General Astronomy. (3, 3)

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)
Observations of the moon, planets, and stars.

Pre- or corequisites: 270-271. 3 hrs. lab. (272L—Fall, 273L—Spring)

***401. Planetary Systems. (3)** King, Peterson, Zeilik
Comparative Planetology, planetary interiors and atmospheres, the sun and the interplanetary medium, comets, asteroids, satellites, origin and evolution of the solar system, starbirth and extrasolar planetary systems.

Prerequisites: Physics 330. {Fall}

***402. Stars and Galaxies. (3)** King, Peterson, Zeilik
Stellar spectra, Hertzsprung-Russell diagram, stellar interiors and atmospheres, stellar evolution and death, structure and contents of the Milky Way Galaxy, distances to galaxies, properties of galaxies, active galaxies, quasars, clusters {Spring}

***424. Selected Topics in Extragalactic Astronomy and Cosmology. (3)†**
Distribution, properties, and interactions of galaxies. Active galaxies and quasistellar objects. Clusters of galaxies. Observational cosmology. {Spring 1984 and alternate years}

***425. Selected Topics in Galactic Astronomy. (3)†** King, Peterson, Zeilik
Galactic astronomy, including physical properties and processes in stars, the interstellar medium, and aggregates of stars. Structure of our galaxy. {Offered upon demand}

***426. Selected Topics in Astronomical Methods. (3)†**
Instrumentation and techniques in visual and infrared photometry and spectroscopy, radio astronomy (including aperture synthesis), high energy astronomy, and digital data acquisition and processing. {Offered upon demand}

***427. Selected Topics in Planetary Astronomy. (3)†** Peterson
Planetary physics; planetary investigation using space vehicles; optical properties of planetary atmospheres. {Offered upon demand}

***435. Introduction to Plasma Physics. (3)** Ahluwalia, Woodall
(Also offered as N Engr, Physcs 435.) Plasma parameters, adiabatic invariants, orbit theory, plasma oscillations, hydromagnetic waves, plasma transport, stability, kinetic theory, nonlinear effects, applications. {Fall}

***437. Introduction to Solar Terrestrial Physics. [Introduction to Space Physics.] (3)** Ahluwalia
(Also offered as Physcs 437.) The sun as a star, photosphere, chromosphere, corona, solar activity, solar wind, interplanetary medium, earth's magnetosphere, solar terrestrial effects, applications. {Offered upon demand}

May be repeated up to 9 hours.

***445. Introduction to Cosmic Radiation. (3)** Ahluwalia, Swinson

(Also offered as Physcs 445.) Primary cosmic radiation, the production and detection of secondary cosmic radiation, meteorological effects, geomagnetic effects, time variations, extensive air showers, applications to high energy physics. {Offered upon demand}

***455. Problems. (1-3 each semester, to a maximum of 6)**

***537. Selected Topics in Astrophysics and Space Physics. (3)‡** Ahluwalia, Leavitt

(Also offered as Physcs 537.) {Offered upon demand}

POLITICAL SCIENCE

James L. Ray, Chairperson
Ortega Hall 305, 277-5104 or 2716

PROFESSORS:

F. Chris Garcia, Ph.D., University of California (Davis)

Fred R. Harris, J.D., University of Oklahoma

Martin C. Needler, Ph.D., Harvard University

Robert J. Sickels, Ph.D., Johns Hopkins University

Jay B. Sorenson, Ph.D., Columbia University

Harry P. Stumpf, Ph.D., Northwestern University

ASSOCIATE PROFESSORS:

Paul L. Hain, Ph.D., Michigan State University

Peter A. Lupsha, Ph.D., Stanford University

James L. Ray, Ph.D., University of Michigan

Karen L. Remmer, Ph.D., University of Chicago

Harold V. Rhodes, Ph.D., University of Arizona

ASSISTANT PROFESSORS:

Miriam A. Golden, Ph.D., Cornell University

Philip G. Roeder, Ph.D., Harvard University

Debra C. Rosenthal, Ph.D., State University of New York (Binghamton)

Martin L. Sanchez-Jankowski, Ph.D., Massachusetts Institute of Technology

PROFESSORS EMERITI:

Dorothy I. Cline, M.A., University of Chicago

Edwin C. Hoyt, Ph.D., Columbia University

MAJOR STUDY

A total of 33 hours is required for a major in political science. These hours must be distributed among the following requirements (a through c): a) 12 hours from the core courses (200, 220 or 221 **not both**, 240, 260, and 280), including at least one course from each of the following three groups: (200 or 270), (220, 221, or 240), and (260 or 280); b) 15 hours from courses numbered 300 or above; c) 6 additional hours from any level.

MINOR STUDY

A total of 21 hours, including at least three of the core courses, is required for a minor in political science.

DISTRIBUTED MINOR FOR POLITICAL SCIENCE MAJORS

With the consent of the department chairperson, a major may offer an American studies minor as well as a minor in a single department. For requirements, see "American Studies".

A political science major may pursue a distributed minor consisting of courses in related disciplines, provided the minor program of courses is approved by the department chairperson.

CONCENTRATIONS:

A political science major may take a "concentration" (a major integrated with a distributed minor) in International Relations,

Law and Politics, or Public Policy. See the department chairperson for the required curricula.

DEPARTMENTAL HONORS

Superior sophomore and junior students 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. Those enrolled in the honors program are expected to take 495, 496, and 497.

POLITICAL SCIENCE (POL SC)

INTRODUCTORY AND GENERAL COURSES

100. Social Science. (4)

An introduction to the social science disciplines. Emphasis on intensive skills improvement in communications, reading comprehension. Study techniques and logical reasoning which are required for further study in any of the social science disciplines. Course themes may vary by department, but all courses will be interdisciplinary and will emphasize skills. For students who score 13 or below in social science on the ACT or who are admitted with a social science deficiency.

110. The Political World. (3)

An introduction to politics, with emphasis on the ways people can understand their own political systems and those of others. (Students who have already had courses in political science may not count 110 toward a major.) {Fall, Spring}

*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}

491. Internship. (1-6)

This course provides supervised work experience in the practical application of political science skills.

Prerequisites: permission of instructor and department chairperson.

495. Junior Honors Seminar. (3)

Prerequisite: permission of instructor.

496. Undergraduate Seminar. (3)‡

One section of this course is offered in conjunction with each graduate pro-seminar (510, 520, 525, 530 and 540). Open to undergraduate majors with 3.3 GPA and others with permission of instructor.

497. Senior Thesis. (3)

Prerequisite: permission of instructor.

499. Independent Study. (1-3)

Open to senior majors with 3.3 GPA and permission of department.

CORE 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) Golden

Political systems of Western European countries. {Fall, Spring}

240. International Politics. (3) Ray, Roeder, Sorenson

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}

260. Political Ideas. (3) Fralin, Rhodes

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}

270. Public Policy and Administration. (3) Rosenthal

Introduces public policy and bureaucracy, including decision-making and implementation.

280. Introduction to Political Analysis. (3) Ray, Rosenthal

Discovery of causal patterns in political behavior, evaluation of the effectiveness of political reforms and campaign techniques, analysis of the logic of scientific research, and related topics. No knowledge of statistics, computers, or research methods assumed. {Fall, Spring}

SCOPE AND METHODS***480. Statistics for Social Research. (3)**

Foundations of statistical inference with emphasis on social science applications. Includes (a) choice of correct statistical model for the problem, (b) computation, (c) interpretation. Prerequisite: 280 or equivalent or permission of instructor. {Spring}

***481. Introduction to Empirical Research. (3)**

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.

Prerequisite: 280 or equivalent or permission of instructor. {Fall}

***482. Survey of Political Science as a Discipline and a Profession. (1)**

Topics include scope and component fields of political science, relationships with other social sciences, problems of explanation and prediction, including theories, models, and approaches.

AMERICAN POLITICS**245. National Security Forces in Contemporary American Society. (3)**

(Also offered as Aerospace St. 400.) A full year course conceptually focused on the Armed Forces as an integral element of society, with an emphasis on the environmental context in which U.S. defense policy is formulated and implemented. {Fall}

246. National Security Forces in Contemporary American Society. (3)

(Also offered as Aerospace St. 401.) A full year course conceptually focused on the Armed Forces as an integral element of society, with an emphasis on the environmental context in which U.S. defense policy is formulated and implemented. {Fall}

***301. The Government of New Mexico. (3) Lupsha, Hain**

Prerequisite: 200.

***302. Comparative State Politics. (3)**

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**

(Also offered as Ed Fdn 401.) A basic 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. (Generally not for political science majors, minors, and those having taken 200; these students require permission from the instructor.)

***304. Group Politics. (3) 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. {Spring}

***305. Public Opinion and Electoral Behavior. (3) Garcia**

Public opinion, its content and measurement, and its relation to public policy and electoral behavior.

Prerequisite: 280 or permission of instructor.

***306. Political Parties. (3) Hain, Harris**

The American party system, national, state, and local. {Fall}

***307. The Politics of Ethnic Groups. (3) Garcia, Sanchez-Jankowski**

The ethnic basis of group politics in the U.S.; its historical, sociological, and psychological foundations; the role of white ethnics; traditional and nonconventional strategies and tactics; special emphasis on the politics of regional ethnic minorities. {Spring}

***308. Chicano Politics. (3) Garcia, Sanchez-Jankowski**

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}

***310. Native Americans and Government. (3) Harris**

Examines the dual citizenship of American Indians and their unique relationship with the federal government. {Fall}

***311. The Legislative Process. (3) Hain, Harris**

The recruitment, formal and informal procedure, and power structure of legislative bodies; their place in contemporary American government.

Prerequisite: 200.

***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}

***315. Constitutional Law: Powers. (3) Stumpf**

The separation of powers and federalism. Includes an introduction to the Supreme Court as an institution.

Prerequisite: 200. {Fall}

***316. Constitutional Law: Rights. (3) Sickels**

Freedom of speech, freedom of religion, privacy, procedural justice, equal protection of the laws, and other issues in and around the Bill of Rights.

Prerequisite: 200. {Spring}

***319. Political Socialization. (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}

***415. Judicial Politics. (3) Stumpf**

An introduction to the structure, process, and environment of judicial policy making in the United States, with emphasis on the federal judiciary.

- *419. Seminar in Contemporary Legal Issues.** (3) Sickels, Stumpf

COMPARATIVE POLITICS

- 150. Introduction to Latin America.** (3)
(Also offered as Hist, Soc and Lat Am St 150.) This is an interdisciplinary introduction to the geography, culture, literature, society, politics, history, and international relations of the region. A lecture by faculty members from different departments will be followed by a one hour discussion session each week.
{Spring}

- 250. Latin America Through Film.** (3) Remmer, Merx
(Also offered as Soc and Lat Am St 250.) Interdisciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion.

- *320. Topics in Comparative Politics.** (3)†
Topics will be noted in appropriate class schedules. {Offered upon demand}

- *321. Comparative Politics: Developing Countries.** (3) Remmer
Prerequisite: 220.

- *322. Authoritarian Political Systems.** (3)
Survey and analysis of twentieth-century authoritarian regimes, including fascist, communist, and military political orders.

- *355. Government and Politics of Latin America.** (3) Needler
(Also offered as Soc and Lat Am St 355.) The political dynamics of the Latin American republics, considered on a country-by-country basis. Recommended preparation: Hist 282. {Fall}

- *356. Political Development in Latin America.** (3) Remmer
Selected topics considered cross-nationally.
Prerequisite: 220. {Spring}

- *357. Government and Politics of the Soviet Union.** (3) Sorenson, Roeder
A study of the evolution of the Soviet political system with emphasis on dynamics and institutional structure.
Prerequisite: 220. {Fall}

- *420. Political Violence.** (3) Lupsha
Examines political violence cross-culturally and cross-temporally. Emphasis is placed on theories, models, and explanation of the phenomenon.

- *450. Government and Politics of Communist China.** (3) Sorenson
Examination of problems, policies, postures, and options of Communist China. {Spring}

- *453. Interdisciplinary Asian Studies.** (3)
(Also offered as Geog, Phil and Hist 453.) Cross-cultural and interdisciplinary investigations of problems and methodologies current in Asian studies.

- *455. Major Powers of Latin America.** (3) Needler
Politics of Argentina, Brazil, and Mexico (in some years a fourth country may be added). Recommended preparation: 355 or 356. {Spring}

INTERNATIONAL POLITICS

- *340. Topics in International Politics.** (3)
Selected problems of international politics.
Prerequisite: 240.

- *342. American Foreign Policy.** (3) Sorenson
Prerequisite: 240. {Fall, Spring}

- *345. Inter-American Relations.** (3) Ray
Survey of contemporary international politics in the Western Hemisphere. Emphasis on conflict resolution of trade and economic assistance problems, territorial disputes, ideological issues, and integration. {Fall}

- *346. Mideast in World Politics.** (3) Ray
The Middle East in international relations and the foreign policies of major states in the region.
{Fall}

- *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.

- *443. International Law and Organization.** (3)
Prerequisite: 240. {Spring}

- *449. Soviet Foreign Policies.** (3) Roeder
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. {Spring}

- *478. Seminar in International Studies.** (3) Slavin
(Also offered as Econ, Geog, M&CL, 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/her particular background and relating it to international matters. Open only to seniors.

POLITICAL THEORY

- *361. Classical Political Theory.** (3) Fralin, Rhodes
Prerequisite: 200 or 260 recommended. {Fall}

- *362. Modern Political Theory.** (3) Fralin, Rhodes
Prerequisite: 200 or 260 recommended. {Fall}

- *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}

PUBLIC POLICY

- 204. The Environmental Problem.** (3) Sorenson
Multidisciplinary introduction to the environmental problem.
{Spring}

- *350. Public Finance.** (3) Therikildsen
(Also offered as Econ 350.) Taxation, government borrowing, financial administration, and public expenditures.
Prerequisite: Econ 201.

- *371. Public Policy Theories and Perspectives.** (3) Lupsha
Introduction to the major concepts and theoretical formulations underlying the field of public policy. {Spring}

- *372. Urban Politics and Policy.** (3) Lupsha
Introduction to urban politics and policy, including survey of government forms, political processes, and the interaction of urban institutions and policies.
Prerequisite: 200.

- *375. Introduction to Public Management.** (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.

***376. Natural Resources Policy. (3)** Sorenson
Environmental, health and safety hazards and risks associated with energy technologies and natural resource development.

***377. Organized Crime and Political Corruption. (3)** Lupsha
Relationship between political corruption and organized crime at the local, state, and federal levels. {Spring}

***465. City Planning Methods. (3)** Anderson
(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 multidisciplinary introduction to urban studies, with emphasis on planning and control. {Fall}

***470. 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}

***475. Environmental Politics. (3)** Sorenson
A study of political problems of environmental protection and land use planning.

GRADUATE COURSES

***500. Contemporary Public Administration. [Issues in Contemporary Public Administration.] (3)**
(Also offered as Pub Ad 500.)

***501. Interdepartmental Seminar in the Culture of the United States. (1-3)**
(See Am St 501.) {Fall, Spring}

***510. Pro-Seminar in American Government and Politics. (3)**
{Offered upon demand}

***511. Research Seminar in American Government and Politics. (3)**
{Offered upon demand}

***512. Topics in American Government and Politics. (3)±**
May be repeated for credit. {Fall}

***520. Pro-Seminar: Comparative Government and Politics. (3)**
{Offered upon demand}

***521. Research Seminar in Comparative Government and Politics. (3)**
{Offered upon demand}

***522. The Administrative Process. (3)**
(Also offered as Pub Ad 522.)
Prerequisite: 375 or comparable experience. {Spring}

***525. Pro-Seminar on Latin American Politics. (3)**
(Also offered as Lat Am St and Soc 525). Previous work in the field is highly desirable and reading knowledge of Spanish is required. {Fall}

***530. Pro-Seminar in International Relations. (3)**
{Offered upon demand}

***531. Research Seminar in International Relations. (3)**
{Offered upon demand}

***535. Comparative Public Administration. (3)** Heady
(Also offered as Pub Ad 535.)
Prerequisite: 375 or approval of instructor. {Fall}

***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, 1-3 hrs. each semester)**

***555. Interdisciplinary Seminar: Asia. (3)**
(Also offered as Geog., Hist 555.)

***570. Pro-Seminar in Public Policy. (3)**
(Also offered as Pub Ad 570.) {Offered upon demand}

***584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3)** Lieuwen, Merckx, Needler, Schwerin
(Also offered as Econ, Hist, Soc 584.) {Spring}

***585. The Teaching of Political Science. (3)**
Prerequisite: graduate standing.

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

PHYSICAL SCIENCE (PHY SC)

No major or minor study offered.

261-262. Introduction to Physical Science. (3, 3)
Prerequisite: permission of instructor.

PSYCHOLOGY

Henry Carlton Ellis, Chairperson
Psychology 178, 277-4249 or 4121

PROFESSORS:

David Theodore Benedetti, Jr., Ph.D., University of Colorado
Henry Carlton Ellis, Ph.D., Washington University
Dennis Michael Feeney, Ph.D., University of California, (Los Angeles)
Douglas Peter Ferraro, Ph.D., Columbia University
Peder Jack Johnson, Ph.D., University of Colorado
Frank Anderson Logan, Ph.D., University of Iowa
John Marshall Rhodes, Ph.D., University of Southern California
Samuel Roll, Ph.D., Pennsylvania State University
Sidney Rosenblum, Ph.D., University of Iowa
Britton Kenneth Ruebush, Ph.D., Yale University

ASSOCIATE PROFESSORS:

Harold D. Delaney, Ph.D., University of North Carolina
Thomas Patrick Friden, Ph.D., University of Illinois
John Paul Gluck, Jr., Ph.D., University of Wisconsin
William C. Gordon, Ph.D., Rutgers University
Richard Jerome Harris, Ph.D., Stanford University
Gordon H. Hodge, Ph.D., University of California, (Los Angeles)
William R. Miller, Ph.D., University of Oregon

ASSISTANT PROFESSORS:

Janet E. Belew, Ph.D., Florida State University
Rafael M. Diaz, Ph.D., Yale University
Michael J. Dougher, Ph.D., University of Illinois at Chicago Circle
Gordon Karl Hodge, Ph.D., University of California, (Los Angeles)
Jean E. Newman-Charlton, Ph.D., University of Toronto
Kevin E. O'Grady, Ph.D., University of Connecticut
Eligio R. Padilla, Ph.D., University of Washington
Gary H. Ritchey, Ph.D., University of California (San Diego)

DISTINGUISHED PROFESSOR:

G. Robert Grice, Ph.D., University of Iowa

PROFESSOR EMERITUS:

Ralph David Norman, Ph.D., Ohio State University

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/her 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/personality psychology; 4—comparative/physiological psychology; 5—special topics in psychology; 6—psychology of learning, motivation, and perception; 7—social 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 instructor.

More complete course descriptions are available to any interested student in the Department office. **Acceptance of transferred credits toward a major or minor in psychology must be approved by the department chairperson.**

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.

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.

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.

PSYCHOLOGY (PSYCH)**100. Social Science. (4)**

An introduction to the social science disciplines. Emphasis on intensive skills improvement in communications, reading comprehension, study techniques and logical reasoning which are required for further study in any of the social science disciplines. Course themes may vary by department, but all courses will be interdisciplinary and will emphasize skills. For students who score 13 or below in Social Science on the ACT or who are admitted with a Social Science deficiency.

101. General Psychology I. (3) Ferraro, Gluck, Gordon, Hodge, Newman-Charlton

An introduction to basic processes underlying behavior. The course focuses on principles of learning, memory and motivation, as well as areas such as perception, language, states of awareness and biological bases of behavior. {Fall, Spring}

102. General Psychology II. (3) Belew, Diaz, Dougher, O'Grady, Ritchey, Roll

An introduction to patterns of human behavior. The course focuses on the topics of human growth and development, intelligence, personality, abnormal behavior and therapy. {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) Feeney

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. {Summer, Fall, Spring}

202. Psychological Research Techniques. (3) Newman-Charlton

Application of the concepts covered in 201. Includes discussion of basic principles of research design and scientific methodology as applied to psychology. Corequisite: 201. {Fall, Spring}

210. Educational Psychology. (3) Rosenblum

The contribution of psychological theory, research and methods to our understanding of the educational process.

Prerequisite: 101 or 102. {Fall, Spring}

211. Applied Psychology. (3) Staff

Topics in Applications to everyday life, such as personnel selection, consumer psychology, and environmental problems.

Prerequisites: 101 and 102. {Spring}

220. Developmental Psychology. (3) Daiz, Ritchey, 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}

225. Institutional Psychology. (3)

The course will review basic areas of psychology which are relevant to the criminal justice system including research methods, research finding and theories.

Prerequisite: 101 or 102.

230. Psychology of Adjustment. (3) Benedetti, Rhodes

An introduction to concepts and models of human adjusting.

Prerequisite: 102. {Fall, Spring}

231. [271.] Psychology of Sexual Identity. (3) O'Grady

Exploration of the physiological, cultural, social and individual factors that influence sexual behavior, sex roles, and sex identity. {Spring}

240. Physiological Psychology. (3) Feeney, Hodge

A general survey of the biological foundations of behavior. Emphasis is on the central nervous system.

Prerequisite: 101 or 102 or Biol 121L. {Summer, Fall}

260. Psychology of Learning and Memory. (3) Delaney, Ellis, Logan

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. {Summer, 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 interpersonal relations.

Prerequisite: 102.

***300. Intermediate Statistics. (3)** Friden, Harris

Complex analysis of variance designs (factorial, mixed-model, Latin square, unequal-n) and nonparametric tests.

Prerequisite: 200 or 201. {Fall}

***310. Psychological Testing. (3)** O'Grady

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 assessment of individual difference among humans.

Prerequisite: 200 or 201. {Fall}

***321. Introduction to Child Research. (3)** Staff

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 220. {Fall}

***322L. Child Research Laboratory. (2)** Staff

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)** Dougher, O'Grady, Roll

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, Spring}

***332. Abnormal Behavior. (3)** Miller, Padilla

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: 230. {Fall, Spring}

***352. Alcoholism. (3)** Miller

Causes, course, prevention and treatment of problem drinking.

Prerequisite: 102. {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

Practical application of classical and operant conditioning principles to behavioral modification, behavior therapy, behavioral medicine and behavioral pharmacology.

Prerequisite: 230 or 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)** Newman-Charlton

(Also offered as Ling 367.) Theoretical and methodological issues in psycholinguistics, including comprehension, speech perception and production, language acquisition, bilingualism, brain and language, reading.

Prerequisites: 101 or 102 or Ling. 292. {Fall}

***368. Sensation. (3)** Friden

Exploration of sense organ operation with emphasis on both behavioral and physiological data.

Prerequisite: 260. {Fall}

***371. Social Psychology. (3)** Belew, Harris

The behavior of organisms (primarily humans) as affected by the mutual interdependence among organisms. Emphasis on mathematically stated hypotheses about social interaction, including judgment of oneself and others, attitude change, leadership and conformity.

Prerequisite: 230 or 260. {Fall, Spring}

***372L. Social Psychology Laboratory. (2)** Harris

Laboratory projects relevant to topics in 371.

Prerequisite: 200 or 201; corequisite: 371. 4 hrs. lab. {Fall, Spring}

***373. Cross-cultural Psychology. (3)** Padilla

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) Gordon

Discussion of the history and systems of psychology and the

philosophy of science, particularly as related to current topics in psychology.

Prerequisites: 260 and permission of instructor; pre- or corequisites: 201 and 202. {Fall}

392. Junior Honors Seminar. (3) Gordon
Continuation of 391. {Spring}

***400. History of Psychology. (3)** Benedetti

An introduction to the major developments and systems in the history of psychology.

Prerequisite: 101 or 102. {Spring}

***401. Mathematical Psychology. (3)** Delaney, Harris
Survey of mathematical descriptions of behavior.

Prerequisite: 200 or 201. {Offered upon demand}

***402. Multivariate Statistics. (3)** Friden, Harris, O'Grady
(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 in alternate years}

***412. Advanced Educational Psychology. (3)** Delaney, Rosenblum

The 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 in alternate years}

***413. Industrial and Organizational Psychology. (3)** Staff

Survey of industrial/organizational psychology as a science and profession. Techniques of problem analysis, collection, and interpretation of relevant data and application of findings are discussed in relation to a variety of organizational systems.

Prerequisite: 101 or 102. {Fall}

***414. Human Factors Psychology. (3)** Staff

Application of psychological principles to the design and evaluation of man-environment systems.

Prerequisite: 101 or 102. {Spring}

***415. Environmental Psychology. (3)** Staff

The impact of environments on human behavior drawn from psychology, anthropology, architecture, and urban studies. Applications of behavioral data to the design of environmental systems.

Prerequisite: 101 or 102. {Fall}

***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. {Offered upon demand in Summer}

***420. Advanced Developmental Psychology. (3)** Ritchey
Investigation of the theoretical bases and critical issues in the area of developmental psychology. {Spring}

***428. Cognitive Development. (3)** Johnson, Ritchey
Research and theory concerning the development of conceptual, intellectual and linguistic behavior in children.

Prerequisites: 101, 102, and 220. {Fall}

***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: 220. {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}

***435. Experimental Hypnosis. (3)** Staff

A presentation of the research methodology and findings from the areas of experimental hypnosis. Designed to give students an appreciation of the methods, findings, and conclusions of recent hypnotic research. This is **not** a course on how to do hypnosis, but rather on how to investigate altered states of consciousness.

Prerequisite: 331 or 332. {Fall in alternate years}

***440. Advanced Physiological Psychology. (3)** Feeney, Hodge

Critical issues, concepts, and methodologies in psychobiology and the neurosciences. Emphasis on current research.

Prerequisite: 240 and/or permission of instructor. {Spring}

***441L. Advanced Physiological Psychology Laboratory. (2)** Feeney, Hodge

Laboratory projects related to topics in 440.

Prerequisite: 200 or 201; corequisite: 440. 4 hrs. lab. {Spring}

***442. Brain Mechanisms of Information Processing and Storage. (3)** Feeney, Hodge

Basic electrical and chemical processes of the brain and their relation to information input, coding, storage, and output.

Prerequisite: 240. {Spring}

***444. Introduction to Clinical Neuropsychology. (3)** Rhodes

Application of psychophysiological techniques and principles to clinical problems.

Prerequisites: 240 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 in 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 in alternate years}

***447. Psychopharmacology: Drugs and Behavior. (3)** Hodge

Techniques and strategies of psychopharmacological research; biochemical mechanisms of neuronal conduction; psychoactive drugs: use and abuse.

Prerequisites: 240 and/or permission of instructor. {Fall}

***448. Primate Behavior. (3)** Gluck

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 in 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 in 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}

***452. Behavior Therapies. (3)** Dougher, Miller

A survey of clinical behavior therapies, including techniques based upon learning theory, self-control, cognitive and social psychological principles. Emphasis is upon treatment outcome research and the practical application of methods to clients' life problems.

Prerequisite: permission of instructor. {Fall}

***453L. Behavior Therapies Laboratory. (2)** Dougher, Miller
Laboratory projects related to topics in 452.

Prerequisites: 260, 332; corequisite: 452. 4 hrs. lab. {Fall}

***454. Health Psychology. (3) Ferraro**

Study of the contributions of the experimental analysis of behavior and behavior therapy to the promotion and maintenance of health and to the prevention, diagnosis, treatment and rehabilitation processes as they relate to illness.

Prerequisite: 230 or 240 or 260. {Fall}

***461. Psychobiology of Motivation. (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. {Spring}

***462L. Psychobiology of Motivation Laboratory. (2) Feeney**

Laboratory projects related to topics in 461.

Prerequisites: 103L and 200 or 201; corequisite: 461. 4 hrs. lab. {Spring}

***463. Human Performance. (3) Johnson**

The study of skilled mental and physical performance and the psychological processes and structures underlying these activities. Language comprehension, skilled reading, and fine perceptual-motor movements, like those involved in sports activities, typing, and speech production, will be considered. The particular skills emphasized will vary from semester to semester.

Prerequisite: 260. {Fall in alternate years}

***464L. Human Performance Lab. (2) Johnson**

Laboratory projects related to topics in 463.

Prerequisite: 200 or 201; corequisite: 463. 4 hrs lab. {Fall in alternate years}

***467. Thinking and Reasoning. (3) Johnson**

(Also offered as CS 438.) Concepts of cognition from psychology and from computer science. Human factors, problem solving, game playing, teaching programming. Includes a project in cognitive modelling.

Prerequisites: 367 or CS 263 or permission of instructor. {Spring in alternate years}

***468L. Thinking and Reasoning Lab. (2) Johnson**

Laboratory projects related to topics in 467.

Prerequisite: 200 or 201; corequisite: 467. {Spring in alternate years}

***479. Advanced Topics in Social Psychology. (3) Harris**

(Also offered as Soc 479.) Intensive study of one area of social psychology chosen by the instructor; e.g., attribution theory, experimental games, person perception.

Prerequisites: Psych 371 or equivalent introductory social psychology courses. {Spring in alternate years}

491. Senior Honors Seminar. (3) Johnson

Experimental methods and laboratory techniques. Senior thesis based on independent research.

Prerequisite: 392. {Fall}

492. Senior Honors Seminar. (3) Johnson

499. Undergraduate Problems. (1-3 hrs. each semester, to a maximum of 6)

Prerequisite: permission of instructor.

***501. Advanced Statistics. (3) Friden**

***502. Design of Experiments. (3) Delaney, Ellis**

***505. Research Techniques in Experimental Psychology. (2) Ferraro**

***506. Seminar in Mathematical Psychology. (3) Delaney**

***523. Seminar in Social Development of the Child. (3) Rosenblum**

***524. Seminar in Functional Analysis of Child Development. (3) Staff**

***525. Seminar on Infancy. (3) Staff**

***528. Seminar in Cognitive Development. (3) Johnson**

***531. Introduction to Clinical Psychology. (3) Rosenblum**

***532. Seminar in Behavior Pathology. (3) Gluck, Padilla**

***533. Psychological Evaluation: Cognitive Functions. (3) Dougher**

***534L. Practicum in Assessment of Cognitive Function. (2) Dougher**

Offered on CR/NC basis.

***535. Psychological Evaluation: Personality Functions. (3) O'Grady, Roll**

***536L. Practicum in Assessment of Personality Functions. (2) O'Grady, Roll**

Offered on CR/NC basis.

***537. Seminar in Developmental Abnormalities. (3) Rosenblum**

***538. Seminar in Psychoanalytic Ego Psychology. (3) Roll**

***541. Animal Learning: Complex Processes. (3) Gluck**

***542. Seminar in Sensory Neuropsychology. (3) Feeney**

***547. Seminar in Psychopharmacology. (3) Hodge**

***551. Graduate Problems. (1-3)††**

***560. Seminar in Child Language. (3) Staff**

***561. Theories of Learning. (3) Ferraro, Logan**

***562. Human Learning and Cognition. (3) Ellis**

***563. Seminar in Human Memory. (3) Ellis**

***564. Seminar in Classical Conditioning. (3) Grice**

***566. Experimental Analysis of Operant Behavior. (3) Ferraro**

***567. Theories of Perception. (3) Friden**

***568. Cognitive Processes. (3) Johnson**

***569. Seminar in Psycholinguistics. (3)‡ Newman-Charlton**
(Also offered as Ling 569.)

***571. Seminar in Social Psychology. (3) Harris**

***572. Theories of Personality. (3) Roll**

***573. Seminar on Cross Cultural Research. (3) Padilla, Roll**

***599. Master's Thesis. (1-6 hrs. per semester)**

***600. Clinical Practicum. (1-3)†† Clinical Faculty**
Prerequisite: permission of instructor.

***601. Methods of Behavioral Research. (3) Grice**

***630. Seminar in Psychoanalytic Psychotherapy. (3) Roll**

***631. Practicum in Psychotherapy with Adults I. (3) Rhodes**

***632. Practicum in Psychotherapy with Adults II. (3) Rhodes**

***633. Case Formulation Seminar. (3) Miller**

***634. Seminar in Treatment of Children, Adolescents and Families. (3) Ruebush**

***641. Seminar in Physiological Psychology. (3)‡ Feeney, Hodge**

***650. Special Topics in Psychology. (1-3) Staff**

***666. Seminar in Perceptual Learning. (3) Ellis**

***699. Dissertation. (3-12 hrs. per semester)**

RELIGIOUS STUDIES

Andrew Burgess, Chairperson
Humanities Building 533, 277-4009

COMMITTEE IN CHARGE:

Andrew Burgess, Philosophy
Matthieu Casalis, Philosophy
Shlomo Karni, Electrical Engineering
Charlene McDermott, Philosophy
Patrick McNamara, Sociology
Patricia Stephens, Nursing
Fred Sturm, Philosophy
Donald Sullivan, History

ASSOCIATED FACULTY:

Alfonso Ortiz, Anthropology
Ferenc Szasz, History

Religious Studies is an interdisciplinary and interdepartmental program offering a wide range of approaches to the study of religions. Students enter such a program with a variety of professional and personal goals. (1) Some adopt the major or minor because they look for a broad program using a variety of methods to focus upon an area of great personal interest. (2) Others take a dual major, in order to attain a balance between disciplinary method and interdisciplinary content. (3) Many students use the major or minor as a pre-professional program that provides background for further study in counseling, ministry, religious education, law, or graduate work in Religious Studies.

MINOR STUDY

The minor requires 18 hours in Religious Studies, of which at least 9 must be in Philosophy.

MAJOR STUDY

The major requires 33 hours in Religious Studies, of which at least 18 must be at the upper division level. Required are Phil 230 or 231; Phil 232; Phil 263; Phil 264; and Phil 447. In addition to the four lower division required courses, the student must also take at least one other course (which may include Phil 447) in each of the four distributional areas—Asian Religions, Western Religions, Biblical Studies, and Religion in America.

DUAL MAJOR

Students may combine a major in Religious Studies with another major. For students with such dual majors, the total number of hours required for the Religious Studies major is reduced from 33 to 30, while the other requirements for the major remain the same.

Phil 107. Living World Religions. (3)

Phil 247. Studies in Religions. (3)†

Phil 347. Topics in Religious Studies. (3)†

***Phil 447. Seminar in Religious Studies. (3)†**

ASIAN RELIGIONS

Phil 263. Eastern Religions. (3)

***Phil 334. Indian Philosophy. (3)**

***Phil 336-337. Chinese Philosophy I-II. (3, 3)**

***Hist 358. Traditional India. (3)**

***Hist 359. Modern India. (3)**

Hist 456. Islam. (3)

WESTERN RELIGIONS

Phil 264. Western Religions. (3)

***Hist 301. History of the Jewish People to 1492. (3)**

***Hist 302. Modern History of the Jewish People. (3)**

***Phil 304. Medieval European Philosophy. (3)**

***Hist 305. History of Christianity to 1517. (3)**

***Hist 306. History of Christianity, 1517 to Present. (3)**

***Hist 325. Reformation Era, 1500-1600. (3)**

***Phil 360. Christian Classics. (3)**

***Phil 361. Modern Christian Thought. (3)**

***Phil 365. Philosophy of Religion. (3)**

BIBLICAL STUDIES

Phil 230. Old Testament History. (3)

Phil 231. Old Testament Prophets. (3)

Phil 232. New Testament. (3)

Advanced Biblical Studies courses are taught under topics numbers, especially Phil 347 and Phil 447. Topics in New Testament Greek are usually offered under Greek 301 and Greek 302.

RELIGION IN AMERICA

Amer St 308. The Jewish Experience in America—Literature and Culture. (3)

***Anth 333. Ritual Symbols and Behavior. (3)**

***Phil 387. Latin American Liberation Theology. (3)**

***Soc 422. Sociology of Religion. (3)**

***Soc 532. Seminar: Sociology of Religion. (3)**

***Anth 536. Seminar: Theories of Symbolic Action. (3)**

In addition to the above courses, the following courses have been offered or are planned under topics numbers: (1) in ASIAN RELIGIONS: Ch'an and Zen Buddhism; Buddhist Epistemology; History of Indian Philosophy and Religion; Philosophies and Religions of India—The Last Thousand Years; Mysticism East/West; Chinese Buddhism; Philosophical Tradition; Evolution of Indian Religious Thought; Religions of India: Medieval and Modern; Sanskrit; (2) in WESTERN RELIGIONS: Introduction to Judaism; Medieval Tales of Wonder; Aquinas; Western Mysticism; Sociolinguistics of Jewish Languages; Kierkegaard; Tillich; Religion and Literature; (3) in BIBLICAL STUDIES: Psalms; Synoptic Gospels; Paul and Early Christianity; Jesus and the Gospels; New Testament Greek; The Bible and the Greek World; Old Testament Wisdom Literature; Isaiah; Revelation and Apocalypticism; (4) in RELIGION IN AMERICA: History of Religion in America; Religious Beliefs and Health Care; The New England Way; History of the American Sermon; Seminar: The Jewish Experience in American Literature and Culture; Hispanic Religion in New Mexico; Religious Literature in the Southwest; Religion in American Literature; Church and State.

A complete listing of courses currently approved for credit in Religious Studies may be obtained from the Chairperson of the Religious Studies Program.

The student may include among courses for a major or minor some advanced work in such languages as Chinese, Greek, Hebrew, and Sanskrit, when these courses are integrated with work in scripture studies.

Students preparing for advanced study of Biblical Greek are advised to take either Greek 101-102 or Greek 104 (New Testament Greek), although these introductory courses do not count toward a Religious Studies major.

RUSSIAN STUDIES

See *International Studies*.

SOCIOLOGY

H. Laurence Ross, Chairperson
1915 Roma NE #120, 277-2501 and 5918

PROFESSORS:

Theodore Abel, Ph.D., Columbia University (Scholar-in-Residence)
Pedro R. David, Ph.D., Indiana University
Gilbert W. Merks, Ph.D., Yale University
George A. Huaco, Ph.D., University of California (Berkeley)
H. Laurence Ross, Ph.D., Harvard University
Richard F. Tomasson, Ph.D., University of Pennsylvania

ASSOCIATE PROFESSORS:

Dodd H. Bogart, Ph.D., University of Michigan
Richard M. Coughlin, Ph.D., University of California, (Berkeley)
Patrick H. McNamara, Ph.D., University of California, (Los Angeles)
Philip A. May, Ph.D., University of Montana
Harold C. Meier, Ph.D., University of Colorado
Nelson P. Valdes, Ph.D., University of New Mexico
Charles F. Woodhouse, Ph.D., University of California, (Berkeley)

ASSISTANT PROFESSORS:

Gary D. LaFree, Ph.D., Indiana University
Arthur W. St. George, Ph.D., University of California, (Davis)
Paul D. Steele, Ph.D., University of Texas
Susan Tiano, Ph.D., Brown University

The student interested in the discipline of sociology should take both 101 and 110. These courses are recommended for all beginning students and are required for a major or minor in sociology. Most higher level courses specify one or both of these introductory courses as prerequisites.

Normally, students should follow the introductory courses with at least one or two 200-level courses before attempting more advanced courses. In some areas there is a progression from less to more advanced courses and following such progressions is strongly recommended even when the lower level course is not explicitly listed as a prerequisite for the higher level course, e.g. 213 (Deviant Behavior) should be taken before taking 312 (Juvenile Delinquency) or 313 (Criminology) and 312 and/or 313 should be taken before attempting 413 (Criminal Justice) or 414 (Sociology of Corrections).

MAJOR STUDY AND FIELDS OF CONCENTRATION

All sociology majors must complete at least 36 hours of course work, including the following 18 hours of required courses: 101, 110L, 281, 371, 471, and 481L. For the remaining 18 hours, the student may select among a number of designated courses that provide a concentration in one of the following subfields of sociology: (1) **Criminal Justice**. Provides background for careers or further training in police, correctional, or legal institutions. (2) **Sociology of Latin America**. Provides courses helpful to persons interested in business, educational, or diplomatic activities in the Latin American countries. (3) **Social Psychology**. Courses suitable for later activities in which a general knowledge of social influences on human behavior is essential. (4) **Social Welfare**. Appropriate for future work in public and private agencies, as preparation for law school, or for graduate study in social work, public administration and business administration. (5) **General Sociology**. Especially recommended as

preparation for graduate study in sociology and for a broadly balanced understanding of the discipline. Further details are available on each concentration from the Department of Sociology and undergraduate advisers in the Department.

MINOR STUDY

At least 18 hours of course work beyond 101, including 110 and either 371 or 471 and including a total of not less than 9 hours of upper-division courses.

MINOR IN SOCIAL WELFARE

A minor in social welfare consists of at least 18 semester hours of courses in the social welfare curriculum, exclusive of introductory courses in sociology and related disciplines. This minor is designed to accompany a major in sociology, economics, political science or psychology, but may be pursued by students majoring in other fields.

The social welfare minor requires 9 semester hours of the following specialized courses offered by the Department of Sociology: Soc 200, 300, 301. The remaining 9 or more hours of the minor must be selected from the following courses: Soc 213, 216, 230, 308, 310, 312, 313, 315, 321, 345, 351, 414, 488; Psych 220, 230, 231, 270, 331, 332, 373; Anth 308, 315, 345, 348; Econ 331, 335, 341; Pol Sci 270, 371, 372, 375, 470.

Prerequisite requirements attached to the electives listed above must be strictly adhered to by students minoring in social welfare. Finally, courses which are applied toward a major may not be applied toward a minor in social welfare.

DEPARTMENTAL HONORS

Superior sophomore or junior students, especially those anticipating graduate study in sociology or interested in research training, are invited to apply for admission to the Undergraduate Honors Program, beginning as early as 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. Students enrolled in the honors program are expected to take at least 6 hours of honors courses, including 499 (Senior Honors Thesis). See p. 35 for general requirements for departmental honors.

SOCIOLOGY (SOC)

100. Social Science. (4)

An introduction to the Social Science disciplines. Emphasis on intensive skills improvement in communications, reading comprehension, study techniques and logical reasoning which are required for further study in any of the Social Science disciplines. Course themes may vary by department, but all courses will emphasize skills. For students who score 13 or below in Social Science on the ACT or who are admitted with a Social Science deficiency.

101. Introduction to Sociology. (3) Staff

Basic concepts, topics, and theories of contemporary sociology.

Prerequisite for more advanced courses in sociology. (Summer, Fall, Spring)

110L. Introduction to Sociological Inquiry. (3) St. George, Woodhouse

Basic research tools and methods of sociology. Skills in use of library resources, the computer, and principal modes of data collection. Students must pass an elementary skills examination, given on first day of class, or enroll in a one-hour noncredit laboratory. (Fall, Spring)

150. Introduction to Latin America. (3)

(Also offered as Lat Am St, Hist, Pol Sci and M Lang 150.) This is an interdisciplinary introduction to the geography, culture, literature, society, politics, history, and international relations of the region. A two-hour lecture by faculty members from different departments will be followed by a one-hour discussion section each week.

200. Foundations of Social Welfare. (3) Coughlin, Tomasson

Historical development of social welfare institutions and the welfare state; social indicators and the quality of life.

Prerequisite: 101. {Fall, Spring}

211. Social Problems. [Social Problems: Selected Topics.] (3)†

Sociological approaches to problems such as poverty, crime and delinquency, sexual behavior, mental disorders, drug use, corporate power, and other issues selected by the instructor.

Prerequisite: 101. May not be repeated for credit toward a major or minor. {Fall, Spring}

213. Deviant Behavior. (3) Bogart, LaFree, May, Tiano

Theory and research on deviant behavior; types of individual and subcultural deviance.

Prerequisite: 101. {Summer, Fall, Spring}

216. Race and Cultural Relations. (3) McNamara, May

Historical, comparative, and social psychological study of race and ethnic relations in the United States and elsewhere.

Prerequisite: 101. {Fall, Spring}

221. Sociology of Rich and Poor Nations. (3) Tiano, Valdes

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: 101. {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. {Fall, Spring}

230. Society and Personality. (3) Bogart

The social psychology of personalities, relationships, small groups, and organizations.

Prerequisite: 101. {Summer, Fall, Spring}

250. Latin America Through Film. (3) Merx, Remmer

(Also offered as Pol Sci and Lat Am St 250.) Interdisciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion.

Prerequisite: 101 {Spring}

275. Introduction to Criminal Corrections. (3) Steele

The purpose of this course is to introduce the student to the corrections system from a sociological perspective, institutional placements.

Prerequisite: 101.

280. Introduction to Probability and Statistics. (3)

(Also offered as Math 102, Psych 201.) Recommended preparation 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. Sociological Data Analysis. (3) Coughlin, May, St. George

Prerequisite to 481L. Problems in the treatment and analysis of quantitative sociological data, including selected statistical applications and computer utilization.

Prerequisites: 101 and 110. {Fall, Spring}

300. Social Welfare: Policies and Programs. (3) Coughlin, Tomasson

Examination of the American social welfare system at federal, state and local levels; the social programs of developed and developing societies.

Prerequisite: 200. {Fall, Spring}

301. Social Welfare: Selected Topics for Intensive Study. (3)† Coughlin, Tomasson

Exploration of specific issues in social welfare and equality, designed to provide in-depth exposure to current research; topics for each semester to be announced in advance. May not be repeated as credit toward the major or minor.

Pre- or corequisite: 300. {Fall, Spring}

303. Sociology of Political Behavior. (3)

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. {Offered upon demand}

308. Sociology of Sex Roles. (3)

How males and females acquire masculine, feminine, and androgenous traits. The social dynamics creating continuity and change in traditional gender roles. The costs and benefits of being male or female in contemporary American society.

Prerequisite: 101. {Fall, Spring}

310. Sociology of Aging. (3)

Descriptive and theoretical study of the social situation of older persons in contemporary industrial societies; the impact on societal institutions of an increasing percentage of older citizens.

Prerequisite: 101. {Offered upon demand}

***312. Juvenile Delinquency. (3)** LaFree, Steele

The causes and nature of juvenile delinquency; its prediction, prevention, and control.

Prerequisite: 101; recommended additional preparation: 213. {Summer, Fall, Spring}

***313. Criminology. (3)** LaFree, Steele

The sociological dimensions of crime, types of criminal behavior, explanations of crime.

Prerequisite: 101; recommended: 213. {Summer, Fall, Spring}

315. Social Stratification. (3) Meier

Structure and dynamics of class, status, and power in society; social consequences of stratification.

Prerequisite: 101. {Fall, Spring}

***321. Medical Sociology. [Sociology of Medical Practice.] (3)**

Introduction to the examination of the social factors involved in health, illness, and the practice of medicine.

326. Sociology of New Mexico. (3) (326S. Sociologia de Nuevo Mexico.) Valdes

New Mexico as a social system; the infrastructure of communities and ethnic groups, stratification, major social institutions, deviance and inter-group relations.

Prerequisite: 101. {Fall}

328. Sociology of the Mexican American People. (3) Staff

The historical, comparative and contemporary study of the Mexican American in the U.S. Race and ethnic relations theories and the Chicano Movement.

Prerequisite: 101. {Offered upon demand}

***331. Collective Behavior. (3)** Woodhouse

Collective activity in response to social stresses; social behavior in the forms of panics, crazes, hostile outbursts, and social movements.

Prerequisite: 101. {Fall}

335. Sociology of Mass Communication. (3)

(Also offered as Sp Com 335.) Mass communication in so-

ciety with emphasis on Western industrial societies, impact of mass communication on social movements and on sectors of the social structure; social psychology of mass communications.

Prerequisite: 101. {Offered upon demand}

***338. The City in History.** (3) Roebuck
(Also offered as Arch and Hist 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.

Prerequisite: 101. {Spring}

345. Sociology of Youth. (3) McNamara

Youth in varying social contexts. Intergenerational problems, role transitions, youth subcultures, and the relationships of youth to major social institutions.

Prerequisite: 101. {Offered upon demand}

350. Rural Society in Latin America. (3) Valdes

Analysis of agricultural modes of production—including the relationship of crop, tenancy and land ownership patterns and social institutions stemming from them, from Spanish colonial times to the present. *Effects of the commercial revolution and agrarian reforms.*

Prerequisites: 101 or 6 hrs. in courses related to Latin America. {Offered upon demand}

***351. The Urban Community.** (3) McNamara

The forms and development of urban community; demographic, spatial, functional, and temporal patterns; metropolitan development and city-hinterland relations.

Prerequisite: 101. {Spring}

***355. Governments and Politics of Latin America.** (3)

(Also offered as Lat Am St, Pol Sci 355.) The political dynamics of the Latin American republics, considered on a country-by-country basis. Recommended preparation: Hist 282.

***361. Modernization of Traditional Societies.** [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: 101.

371. History of Social Thought. (3) Huaco, Woodhouse

The rise of sociology as a scientific discipline, principally during the nineteenth century; special attention to the contributions of Comte, Marx, Durkheim, Tonnies, Simmel, and Weber.

Prerequisite: 101. {Fall, Spring}

***389-390. Latin American Philosophy.** (3, 3)

(Also offered as Hist and Phil 389-390.) 389—pre-Columbian thought through independence ideologies. 390—positivism through contemporary thought.

399. Sociology Honors Seminar. (3)

Restricted to students admitted to departmental honors program. {Offered upon demand}

***413. Criminal Justice.** (3) LaFree, Steele

The system of criminal justice and social control. Organization and decision processes involved in detection, arrest, prosecution, adjudication, sentencing, and other subsystems of criminal justice. Issues of evaluation and planning.

Prerequisite: 312 or 313. {Offered once a year}

***414. Sociology of Corrections.** (3) LaFree, Steele

The police, courts, prisons, probation and parole; recent developments in the control of crime.

Prerequisite: 312 or 313. {Fall, Spring}

***416. Sociology of Legal Systems.** (3) Ross

Various perspectives in relation to law and social structure.

Emphasis on the normative perspective of law, the natural law perspectives and the sociology of law in historical and present developments. Comparison of Western and non-Western legal systems.

Prerequisites: 213, 312, 313, 414. {Offered once a year}

421. Sociology of Education. (3) Bachelor

(Also offered as Ed Fdn 421.) Structure and functioning of educational institutions in the United States and other societies.

Prerequisite: 101.

***422. Sociology of Religion.** (3) McNamara

Structure and functioning of religious institutions in Western and non-Western societies.

Prerequisite: 101. {Spring}

***424. Sociology of the Western Occult Tradition.** (3) Huaco

Examines the Western occult tradition as heretical mysticism and as a set of techniques for personal growth. As mysticism, occultism will be analyzed as ideology, as a response to fear and insecurity, and as an expression of transcendence.

No prerequisites. {Spring}

***430. Sociology of Myth and World Views.** (3) Huaco, Steele

The social bases of ideology; ideological phenomena as distortions of social reality; isomorphism in social and cultural patterns; social causation of ideology. Theories of myth. Freudian, Jungian and structuralist approaches. Relations between ideology and myth.

No prerequisites. {Fall}

***435. Small Group.** [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.

Prerequisite: 101. {Offered upon demand}

***438. Concepts of Social Psychology.** (3) Bogart

Concepts from sociologists who specialize in social psychology, including symbolic interaction, labeling theory, exchange theory and others. Comparison of sociological and psychological perspectives.

Prerequisite: 230. {Offered upon demand}

***439. Proseminar in Social Psychology Research.** (3)

Critical analysis of current research publications in social psychology. Designing of publishable research projects.

Prerequisite: 281.

***441. Complex Organizations.** [Formal Organizations.] (3)

Bogart

Structure and functional dynamics of formal organizations; the role of bureaucracy in modern social organization.

Prerequisite: 101. {Offered upon demand}

***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.

Prerequisite: 101. {Offered upon demand}

***450. Urban Society in Latin America.** (3) Valdes

Causes, processes and consequences of urbanization from Spanish colonial times to present; changes in class, status, power, population growth and social relations in urban society.

Prerequisite: 350. {Offered upon demand}

***451. Population.** (3) May, Tomasson

The composition of populations; fertility, mortality, migration; sources and evaluation of demographic data.

Prerequisite: 101. {Fall}

***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.

Prerequisite: 101. {Offered upon demand}

***465. Philosophy of History. (3)**

(Also offered as Phil 465.) Examination of the structure, methods, and presuppositions of social sciences.

471. Contemporary Sociological Theory. (3) Huaco

Comparative analysis of major contributions to sociological theory since 1900, considering their continuity with older theoretical positions and applications in contemporary research.

Prerequisite: 101 recommended. {Summer, Fall, Spring}

***478. Seminar in International Studies. (3) Slavin**

(Also offered as Econ, Geog, M&CL, and Pol Sci 478.) Designed to provide seniors from several disciplines an opportunity to apply an international perspective to their undergraduate training. Each student presents a term project drawing upon his/her major disciplinary background and related to international concerns.

Open only to seniors. {Fall}

***479. Advanced Topics in Social Psychology. (3)**

(Also offered as Psych 479.)

***480. Intermediate Statistics for Social Research. (3) St. George**

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 equivalent or permission of instructor. {Fall}

****481L. Research Methods in Sociology. (4) Coughlin, 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: 281 for sociology majors; for non-majors, a knowledge of elementary statistics or permission of instructor. {Fall, Spring}

***484. The Cuban Revolution, 1959 to Present. (3) Valdes**

(Also offered as Hist 484.) Background to revolution since 1898; emphasis on period since 1959. {Offered upon demand}

488. Field Observation and Experience. [Seminar in Field Observation and Experience.] (1-4) Coughlin

A field placement arrangement for students in the social welfare and criminal justice concentration. Participant observation in local agencies and sociological analysis of this experience.

Prerequisites: Core courses in social welfare or deviance/criminology, and consent of instructor. {Offered once a year}

490. Directed Study. (1-3, to a maximum 6)†

Tutorial arrangement with a member of the sociology faculty. Restricted to students with substantial background in sociology. May be taken for departmental honors with prior approval of chairperson.

499. Senior Honors Thesis. (3)

For departmental honors students only. By arrangement with department Honors and Awards Committee and approval of the chairperson.

***500. Classical Sociology Theory. (3)**

Prerequisite: 371 or equivalent, as determined by instructor.

***502. Seminar: Social Systems Analysis. (3) Bogart**

***503. Political Sociology. (3) Merckx**

***504. Deviance. (3) LaFree, Steele, Ross**
Prerequisite: 312, 313, or 414.

***505. Complex Organization. (3) Bogart**

***506. Seminar: Comparing Nations. (3) Merckx, Tomasson**

***507. Sociological Theory: Selected Topics. (3) Staff**

***508. Seminar: Comparative Latin American Social Systems. (3) Merckx, Valdes**

Prerequisite: 450 or permission of instructor.

***510. Social and Political Movements. (3)**

***512. Sociology of Knowledge. (3) Huaco**

***513. Survey of Contemporary Schools of Sociological Theory I. (1) Huaco**

***514. Survey of Contemporary Schools of Sociological Theory II. (3) Huaco**

(Also offered as Phil 514.)

***515. Sociology of Law. (3) LaFree, Ross**

Prerequisite: 312, 313, 413, or 414.

***516. Social Control Institutions. (3) Staff**

***517. Criminology and Delinquency. (3) LaFree, Steele**

***518. Social Thought in Latin America. (3) Valdes**

***519. Sociology of Latin American Legal Systems. (3) David**

***520. Racial and Ethnic Relations. (3) McNamara**

Prerequisite: 216 or equivalent.

***521. Sociology of Education. (3) Bachelor**

(Also offered as Ed Fdn 581.)

***522. Sociology of the Family. (3) St. George**

***523. Proseminar in Theory. (3) Staff**

Prerequisites: 500, 513. (Soc 514 is prerequisite but can be taken concurrently.)

***524. Theories of Social Stratification. (3) Meier**

***525. Proseminar on Latin American Politics. (3)**

(Also offered as Lat Am St, Pol Sci 525.) Previous work in the field is highly desirable and reading knowledge of Spanish is required.

***526. Small Group Research. (3) Bogart**

***529. Social and Cultural Change. (3) Staff**

***530. Occupations and Professions. (3) Woodhouse**

***531. Sociology Teaching Practicum. (1)**

For teaching assistants only.

***532. Sociology of Religion. (3) McNamara**

***535. Theories of Social Psychology. (3)**

***545. Sociology of Mass Communication. (3)**

(Also offered as Sp Com 545.)

***551-552. Problems. (2-3, 2-3 hrs. each semester)** Tutorial arrangement with member of the graduate faculty. {Fall, Spring}

***570. Sociological Research: Special Topics. (3) Staff**

***580. Methods of Social Research I. (3) St. George**

Prerequisite: 481L or equivalent.

***581. Methods of Social Research II. (3) LaFree, St. George, Steele**

Prerequisite: 480 or equivalent, or permission of instructor. {Offered upon demand}

***584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen, Merckx, Needler**

(Also offered as Econ, Hist, Pol Sci 584.)

***588. Seminar in Field Observation and Experience. (1-6) Staff**

***595. Special Topics in Sociology. (3) Staff**

***599. Master's Thesis. (1-6 hrs. per semester)**

See Graduate Programs Bulletin for total credit requirements.
(Fall, Spring)

***699. Dissertation. (3-12)**

See Graduate Programs Bulletin for total credit requirements.

SPEECH COMMUNICATION

Kenneth D. Frandsen, Chairperson
1801 Roma NE #123, 277-5305

PROFESSOR:

Kenneth D. Frandsen, Ph.D., Ohio University

ASSOCIATE PROFESSORS:

Jean M. Civiky, Ph.D., Florida State University
Richard J. Jensen, Ph.D., Indiana University
Janice E. Schuetz, Ph.D., University of Colorado
Estelle M. Zannes, Ph.D., Case Western Reserve University

ASSISTANT PROFESSORS:

Thomas D. Daniels, Ph.D., Ohio University
Allen Lichtenstein, Ph.D., Florida State University
Barry K. Spiker, Ph.D., Ohio University
W. Gill Woodall, Ph.D., University of Florida

LECTURER:

Thomas E. Jewell, J.D., Brigham Young University

MAJOR STUDY

36 credits in departmental courses, including 101 or 102; 21 credits must be 300-400 level courses. 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, Anderson School of Management, or Education. A distributed minor is available; consult the Chairperson of Speech Communication for advice on specific course patterns.

Advising sequences for courses of study leading to careers in teaching; interpersonal communication and the helping professions; law, government, and public affairs; organizational communication and management; public relations and public information; and telemediated communication and broadcasting are available from the Department. The Department recommends that students take a course from each of the following areas: interpersonal, organizational, rhetorical, and telemediated communication.

The University offers a multidisciplinary program of studies concerning the media of mass communication. Course offerings in Speech Communication coordinate with offerings in the Departments of Journalism, Theatre Arts and other departments.

MINOR STUDY

18 credits in departmental courses, including 101 or 102; 12 credits must be 300-400 level courses.

DEPARTMENTAL HONORS PROGRAM

Guidelines for completing an honors sequence to graduate with departmental honors are available from the Department.

SPEECH COMMUNICATION (SP COM)

101. Introduction to Speech Communication. (3)

A scientific approach to the principles and concepts of communicative behavior. A lecture/discussion course. (Fall, Spring)

102. Introduction to Speech Communication. (3)

Description and analysis of significant speeches in American history. A lecture/discussion course. (Fall, Spring)

110. The Evolution of Television. (3)

(Also offered as Jour and TA 110.) Development of television in the areas of news, performing arts, ethics, taste, technology, and as industry. Social, cultural, and political impact of television on contemporary America, western civilization, and the world. (Fall, Spring)

111. Technical Intro to Television. (3)

(Also offered as Journ and T.A. 111.) A technical introduction to the operation of the television equipment encountered on this campus and, to the degree possible, in commercial operation. Culminates in demonstration tape.

Prerequisite or Corequisite: TA/Sp Com/Journ 110.

130L. Public Speaking. (3)

Analysis, preparation and presentation of speeches. A performance course. 1 hr. lecture, 2 hrs. lab. (Summer, Fall, Spring)

132. Parliamentary Procedure. (1)

Study and practice of the rules governing the proceedings of groups and deliberating assemblies.

211. Communication in Institutions. (3)

Study of patterns, practices, strategies and tactics of verbal and nonverbal communication in institutional hierarchies.

221. Interpersonal Communication. (3)

Analysis and practice of communication variables in interpersonal relations and settings.

225. Problem Solving Groups. (3)

Analysis and application of creative and communicative abilities to solving problems in groups. (Fall, Spring)

232. Advanced Public Speaking. (3)

Analysis, preparation, and presentation of specialized forms of public speeches.

Prerequisite: 130 or permission of instructor.

240. Communication in Organizations. (3)

Review of current literature concerning the relationships among interpersonal communication, organizational behavior, organizational communication networks, and human resources.

252. Introduction to Linguistic Analysis. (3)

(See Ling 292.)

260. Oral Interpretation. (3)

Analysis and presentation of written materials.

262. Speaking for Radio/Television. (3)

Vocal performance and message preparation skills related to the audio component of the mass media. Emphasis on fundamentals of prepared, extemporaneous and interpretative speaking for television and radio. (Fall)

268. Introduction to Mass Communication Effects. (3)

Survey of structure, impact, and effects of mass media messages. Analysis of personal and social media environment. Attention to print media and elements of popular culture.

270L. Communication for Teachers. (3)

Theory and practice of communication principles and strategies adapted to the special needs of classroom teachers. 1 lecture, 2 hrs. lab. (Fall, Spring)

275. Forensics. (1 per semester, to a maximum of 4)

Participation in intercollegiate debate or individual speaking events, campus and community activities. **Offered on CR/NC basis only.** {Fall, Spring}

280. Scientific Bases of Speech. (3)

(Also offered as Com Dis 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}

293. Topics. (1-3)**303. English Phonetics. (3)**

(Also offered as Com Dis and Ling 303.) Study of speech sounds, especially English, and application to teaching speech and English and to speech and language remediation, especially with problems of articulation, pronunciation, rhythm, and dialects. {Fall, Spring}

321. Problems of Interpersonal Communication. (3)

Analysis of communication difficulties in dyadic and small group relationships.

323. Nonverbal Communication. (3)

Theory, analysis and practice of a variety of nonverbal messages, including body movement and appearance, vocal cues, and environmental cues.

325. Intercultural Communication. (3)

Theory, analysis and practice of communication across cultural and national boundaries, with emphasis on Anglo, Black, Chicano and Native American cultures.

327. Persuasive Communication. (3)

Analysis, practice and evaluation of principles of attitude change for a variety of interpersonal and public communication situations.

328. [421.] Theories of Communication. (3)

Study of the nature of communication theories and theory development; theories of meaning, information processing and influence with applications to selected communication contexts.

Prerequisite: 101 or permission of instructor. {Fall}

331. Argumentation. (3)

Examines historical and contemporary theories of argumentation. Emphasis placed on development of effective advocacy and criticism of arguments.

332. Southwest Rhetoric. (3)

Study of the rhetorical tactics used by speakers and groups in the Southwest.

334. Campaigns and Movements. (3)

Study of rhetorical tactics used by speakers and groups in political campaigns and social movements.

335. Sociology of Mass Communication. (3)

(Also offered as Soc 335.) Mass communication in society with emphasis in Western industrial societies, impact of mass communication on social movements and on sectors of the social structure; social psychology of mass communications. Prerequisites: Soc 101 and 110.

336. Rhetoric of Dissent. (3)

Study of the rhetoric of agitators, demagogues, and representatives of the establishment, including analysis of the rhetoric of controversial issues.

338. Rhetorical Criticism. (3)

Survey of the types of criticism used to analyze rhetorical messages.

348. Communication Audit. (3)

Philosophy, methods, and designs for studying the communication system of and practices in a complex organization.

Prerequisite: 240 or permission of instructor.

350. General Semantics. (3)

Influence of perceptions and language habits on evaluations, decisions, and interpersonal relations.

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.

362. Mass Communication: Broadcast Station Operations. (3)

Examination of media production units and outlets from an organizational perspective. Study of the roles of management and administrative personnel, market analysis, and advertising sales. {Spring}

368. Mass Media Criticism I. (3)

Critical survey of mediated messages designed to entertain with emphasis on development of analytical and evaluative skills. Methods of analysis are applied to various forms of packaged entertainment, including television programs, contemporary music and the popular press.

375. Advanced Forensics. (1 per semester, to a maximum of 4)

Intensified study and participation in intercollegiate debate and individual speaking events. **Offered on CR/NC basis only.** {Fall, Spring}

***423. Advanced Nonverbal Communication. (3)**

Analysis and evaluation of theories and research on nonverbal communication.

Prerequisite: 323.

***425. Small Group Communication. (4)**

(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.

***428. Mass Communication Research. (3)**

Examination of basic principles, methods and techniques of conducting empirical, market and audience research in mass communication.

***431. Rhetorical Theory. (3 per semester, to a maximum of 6)**

Historical survey of major contributors and contributions to the development of contemporary rhetorical theory.

***436. Famous Speeches. (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.

***442. Strategies of Organizational Communication. (3)**

Application to communication in organizational development; planning and implementing change in organizational communication systems and practices.

Prerequisite: 240 or permission of instructor.

***444. Interviewing. (3)**

Theory and practice of dyadic communication in informational, employment, and decision-making situations.

***449. Communication Practices in Professions. (3)**

Techniques for development and improvement of communication skills in business, industrial, and professional settings, including oral reporting, interviewing, group communication, listening, and public communication skills.

Prerequisite: 221 or 240, or permission of instructor.

***452. The Middle Ages. [History of the English Language.] (3)**

(See Engl 451.)

***463. Current Developments in Mass Communication. (3 per semester, to a maximum of 6)†**

Intensive study of one area of theory and research in mass communication chosen by the instructor, e.g., rating systems, programming, economics, regulation, social effects. Content varies from semester to semester, may be repeated with different content.

***464. Telemediated Instruction. (3)**

Analysis of the values and use of video materials in instructional uses in education, business and industry, and community events.

***467. Mass Communication: International Perspectives. (3)**

Examination of structure and function of broadcasting systems in different countries. Study of agenda setting, information, persuasion, and intercultural contact through mass media. {Spring}

***468. Mass Media Criticism II. (3)**

Critical survey of mediated messages designed to persuade and inform, with emphasis on developing skills for analysis of such media strategies. Methods of analysis are applied to commercials, political advertisements, news programs, and events of current import.

***470. Speech Communication in the Secondary Schools. (3)**

Survey and development of course content, instructional objectives, and teaching materials for speech communication as an academic subject.

***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. Required of instructional interns.

***472. Administration of the Forensic Program. (3)**

Problems and methods of directing forensics, managing tournaments, and coaching competitive and noncompetitive activities.

490. Undergraduate Problems. (1-3 per semester, to a maximum of 6)

Prerequisite: permission of departmental chairperson. {Summer, Fall, Spring}

492. Undergraduate Internship. (1-6 per semester, to a maximum of 6)

Student placement in field assignments for application of speech communication principles and practices in telemediated, instructional, and organizational settings.

Prerequisite: permission of department chairperson. **Offered on CR/NC basis only.** {Summer, Fall, Spring}

493. Reading and Research in Honors. (3)

{Summer, Fall, Spring}

494. Senior Thesis. (3)

{Summer, Fall, Spring}

***500. Foundations of Communication Theory. [Introduction to Graduate Study.] (3)**

Required of all graduate students. {Fall}

***521. Seminar: Interpersonal Communication. (3)**

***523. Seminar: Intercultural Communication. (3)**

***527. Seminar: Persuasion. (3)**

***528. Communication Research Methods. (3)**

***531. Contemporary Rhetoric. (3)**

***534. Seminar: Public Address. (3)**

***535. Seminar: Reasoned Discourse. (3)**

***538. Seminar: Rhetorical Criticism. (3)**

***544. Seminar: Organizational Communication. (3)**

***545. Sociology of Mass Communication. (3)**

(Also offered as Soc 545.)

***548. Organizational Communication Analysis. (3)**

***550. Seminar: Language Behavior. (3)**

***551-552. Graduate Problems. (1-3, 1-3 hrs. per semesters, to a maximum of 6)**

***555. Seminar: Educational Linguistics. (1-3)**

(See Ling 555.)

***561. Seminar: Telecommunication Processes and Effects. (3)**

***564. Seminar: Telecommunication Policy and Regulation. (3)**

***570. Seminar: Communication Education. (3)**

***573. Teaching the Basic Course. (1)**

***595. Special Topics in Speech Communication. (3 per semester to a maximum of 6)**

Content varies, may be repeated with different content.

***599. Master's Thesis. (1-6 hrs. per semester)**

See Graduate Program Bulletin for total credit requirements.



DIVISION OF DENTAL PROGRAMS

E. B. Yudkowsky, Director
Division of Dental Programs
Novitski Hall, 277-4520

The Division of Dental Programs offers three programs:

1. A Bachelor of Science in Dental Hygiene degree program.
2. An Associate of Science in Dental Hygiene degree program which includes one year of preprofessional pre-entrance requirements.

Note: Enrollment in the Division's dental hygiene curriculum is restricted to accepted students in the Division of Dental Programs.

3. A dental assisting program which includes three semesters plus a short 4th summer semester leading to a Certificate of Proficiency in Dental Assisting.

Dental hygienists are auxiliary personnel to the dental profession and perform procedures such as oral prophylaxis, application of decay preventatives, exposure of dental radiographs, patient education, and nutritional counseling. Career opportunities for hygienists are available in a variety of settings, including private dental practices, community dental health clinics, public schools, clinical and basic science research laboratories, state and federal health facilities, and management positions. Licensure by National and State examination is required.

Dental assistants serve as auxiliary personnel to the dental profession. They perform supportive duties to the dentist or serve as expanded auxiliaries in some dental procedures, assume responsibilities in instrument sterilization, radiographic exposure and development, and other duties assigned by the dentist. Individuals trained as dental assistants may be employed immediately upon completion of their education. Licensure is not required at this time, but all students must take the National Certification Examination.

Students for all Division Programs are accepted for matriculation only in the Fall Semester.

Dental Hygiene

Bachelor of Science in Dental Hygiene Degree Program

The Bachelor of Science in Dental Hygiene degree program expands the basic skills and knowledge acquired in an Associate of Science in Dental Hygiene degree program. This program requires a 4th year of study during which the student may concentrate in one or several areas including education, advanced clinics, management, research or public health.

This program is available to selected students who have received an Associate Degree or a Certificate in Dental Hygiene from a school accredited by the American Dental Association. Applicants for admission to the bachelor's degree program must meet these requirements

Requirements for Admission

1. Graduation from an accredited Dental Hygiene Program.
2. Admissibility to the University of New Mexico as described in the Admissions section of this catalog.

3. Application for admission to the Division of Dental Programs.
4. A 2.5 grade point average for all previous college training.
5. To be considered for the Program, the following must be submitted to Division of Dental Programs before August 1.
 - a. Official copies of all college transcripts.
 - b. Official current enrollment information.
 - c. Evidence of recent medical and dental examination.

Requirements of the Bachelor of Science Degree

1. Satisfactory completion of 12 hours of 400 level Dental Hygiene courses.
2. Satisfactory completion of at least 15 hours in one of the above designated areas of concentration.
3. Satisfactory completion of 128 total semester credit hours including 1 and 2 above.
4. At least a 2.0 scholastic index in all hours attempted at the University of New Mexico and a 2.5 average in all dental hygiene courses.
5. Written application for graduation to be submitted during the semester prior to expected graduation date. This is to be submitted to the Division of Dental Programs office.
6. Unanimous recommendation by the full-time faculty of the Division.

Students graduate under the catalog requirements of the year in which they enroll for the first time as baccalaureate degree candidates provided they complete graduation requirements within a continuous three-year period. Students who interrupt attendance and are absent from the program for one or more years must reapply and follow the same procedures as a new applicant. Entrance into this program is only allowed during the fall semester.

Associate of Science in Dental Hygiene Degree Program

The Associate of Science in Dental Hygiene degree program follows a required two semester preprofessional year in college with a four semester curriculum which begins each year during the fall semester. Facilities limit each class to no more than 24 students. In addition to tuition, housing, books, and other usual school expenses, the Division of Dental Programs requires fees for instruments, dental supplies, clinic and laboratory, uniforms, graduation fees, Student Dental Hygiene Association fees, and professional pin and class photograph fees. Students will be charged a handpiece rental fee each year while enrolled in the professional curriculum. Students are responsible for transportation fees to and from clinical rotations at off campus sites.

Requirements for Admission

1. Application and admission to the University of New Mexico. Application forms are available from the Office of Admission and Records. Students already enrolled need not reapply to the University. Students transferring from another institution or those seeking readmissions to the University of New Mexico must submit an application.
2. Completion of all courses listed under the preprofessional curriculum with an overall grade point average of 2.4 on a 4.0 point scale. All courses must be taken for a letter grade. Credit/No Credit grades are not acceptable.

- 3.. Successful completion of a National Aptitude Examination as specified by the Division.
4. Evidence of recent medical and dental examination.
5. Application and admission to the Division of Dental Programs.

To be considered for the program, the following must be sent to the Division by March 1:

- a. official copies of all transcripts and test scores
 - b. official current enrollment information
 - c. evidence of recent medical and dental examination
 - d. application
6. A personal interview with the Division of Dental Programs Admissions Committee. Appointments for this interview will be made by the Division at the appropriate time.

All of the admissions requirements must be completed by March 1 in order to be considered for the Dental Hygiene Program. Credentials are screened in March. Applicants who successfully complete this portion of the application are then invited to meet with the Admissions Committee for a personal interview. Those applicants who are provisionally selected will be notified in April. Applicants will be required to submit spring semester grades by June 15 and return completed medical and dental forms.

Applicants are encouraged to complete their applications well in advance of the March 1 deadlines. Preference is given to residents of New Mexico. Potential students who are past the age of most college students (returning students) are not handicapped by this factor and are encouraged to apply. Equal opportunity for admission is given to all applicants.

Requirements for the Associate of Science Degree

1. Completion of all required course work, maintaining an overall grade point average of 2.0 or above.
2. Earn grades of C or better in all dental hygiene courses in the four semesters of the required curriculum.
3. Unanimous recommendation by the full-time faculty or the Division of Dental Programs.

Students who complete the Associate Degree program are eligible to take the National Board Examination in Dental Hygiene.

CURRICULUM

Preprofessional Curriculum

First Semester

Engl 100 or 101	3
Biol 121L Prin of Biol	4
Chem 111L Gen	4
Psych 101 Gen or 102	3
Soc 101 Intro to Soc	3
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	17

Second Semester

Engl 101 or 102	3
Chem 212 Org and Biochem	4
Biol 136 Hum Anat & Physiol	3
Biol 139L Hum Anat & Physiol Lab	1
Sp Comm 221 Interspers Com	3
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	14

Professional Curriculum: Associate of Science

First Year, First Semester

DH 201 Pre Clin DH Lect	2
DH 202L Pre Clin DH Lab	2
DH 210 Head and Neck Anat	3
DH 211L Tooth Morphology	2
DH 212L Oral Radiography	3
DH 230 Prin of Oral Med	2
DH 250 Histology	2
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	16

First Year, Second Semester:

DH 203 Clin DH 1 Lect	2
DH 204L Clin DH 1 Lab	3
H Ec 125 Nutrition	3
Biol 239 Microbiol	4
DH 240 Oral Path	3
DH 260 Pharm of Dent Hygiene	3
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	18

Summer Session:

DH 344 Spec Topics (clinic)	2
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	2

Second Year, First Semester:

DH 300 Clin DH II Lect	2
DH 301L Clin DH II Lab	3
DH 302L Dent Materials	2
DH 322 Comm Dental Health	3
DH 370 Peridontics	3
DH 380 Adv. Clinic (Anesthesia)	3
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	16

Second Year, Second Semester:

DH 302 Clin DH III Lect	2
DH 303L Clin DH III Lab	4
DH 340 Field Experiences	1
DH 342 Ethics, Juris, and Prac Mgmt	2
DH 344 Spec Topics in DH	2
DH 352 Adv. Dental Procedures	3
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	14

Professional Curriculum: Bachelor of Science

An individual curriculum for each student will be developed. This curriculum will be designed to meet the needs of the practicing hygienist who wishes to enroll as a part-time student as well as the full-time continuing student.

First Semester

DH 400 Dental Hygiene Seminar	3
DH 440 Field Experience	3
Areas of concentration: (education, advanced clinic, management, public health, research)	6-12
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	12-18

Second Semester

DH 410 Research Methods	3
DH 440 Field Experience	3
Areas of concentration: (education, advanced clinic, management, public health, research)	6-12
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	12-18

All courses in the professional curriculum must be taken for a letter grade. Students graduate under the catalog requirements of the year in which they enroll, provided they complete graduation requirements within a continuous three-year period. Students who interrupt attendance and are absent from the program one or more years must reapply and follow the same procedures as a new applicant.

Dental Assisting

The Dental Assisting Program is a three-semester curriculum plus an additional 4 week summer session. It begins each year in the summer semester only. The program is open to high school graduates who meet University admissions requirements. Applicants with college credit must have at least a C scholastic average.

The class is limited to 16 students selected on the basis of academic 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, uniform, instruments, dental supplies, class photograph, professional dues, professional pins, fees for Dental Assisting National Board Examination, and transportation to and from clinical rotations off campus.

Requirements for Admission

1. Graduation from an accredited high school or successful completion of GED.
2. Successful completion of an accredited typing course.
3. Application and admission to the University of New Mexico. Application forms are available from the Office of Admissions and Records. Students already enrolled need not reapply to the University. Students transferring from another institution or those seeking readmission to UNM must submit an application.
4. Application and admission to the Division of Dental Programs. To be considered for the program, the following must be sent to the Division by May 1:
 - a. official high school transcripts or results of GED
 - b. official college transcripts when applicable
 - c. evidence of successful completion of typing course
 - d. application
 - e. evidence of recent medical and dental examination

You are encouraged to complete your application well in advance of the May 1 deadline. Students are encouraged to seek professional counseling early and should contact the Division at 277-4513 for an appointment.

Requirements for the Certificate in Dental Assisting

1. Completion of all course work and maintaining an overall grade point average of 2.0 combined for all courses.
2. Earn a grade of C or better in all professional courses. Professional course numbers begin with DA or DH.
3. Unanimous recommendation by the full-time faculty of the Division of Dental Programs.

Curriculum

Summer Session

H Ec 125 Intro Nutri	3
Sp Com 221 Interpersonal Communication	3
	<hr/> 6

First Semester

DA 120 Basic Human Biology	2
DA 121L Dental Sciences	2
DA 131L Pre Clin Dental Assisting	4
DH 211L Tooth Morphology	2
DH 212L Oral Radiography	3
DH 230 Prin of Oral Med	2
	<hr/> 15

Second Semester

Psych 101 Gen Psych 1	3
Eng 100/101 Wrtgs w/Rdgs in Exp	3
DA 130 Preventive Dentistry	1
DA 132L Clin Dent Assisting	2
DA 134L Extramural Clin Assisting	5
DA 122L Adv Dent Sci	4
	<hr/> 18

4 Week Summer Session

DA 138L Adv. Extramural Clin Asst	3
	<hr/> 3

If the student has completed H Ec 125 and Sp Com 221 or acceptable equivalents at the time of application, attendance in the first Summer Session is not required.

COURSES OF INSTRUCTION

PROFESSOR:

E. B. Yudkowsky, D.D.S., Northwestern University

ASSISTANT PROFESSORS:

Clara O. Miera, M.Ed., University of New Mexico
Glenna B. Taylor, M.A., University of New Mexico

INSTRUCTORS:

Doni W. Bird, B.S., San Francisco State University
Elizabeth A. Kostas, M.S., University of Missouri, Kansas City
Debra Lakies, B.S., University of West Florida
Demarise Wright, M.Ed., University of Houston

DENTAL HYGIENE (DH)

See p. 156.

201. Pre-Clinical Dental Hygiene. (2) Lakies

Didactic instruction into the theory and clinical skills of dental hygiene. 2 hrs. {Fall}

202L. Pre-Clinical Dental Hygiene Laboratory. (2) Lakies
Introduction to the clinical skills of dental hygiene. 8 hrs. lab. {Fall}

203. Clinical Dental Hygiene I. (2) Lakies

Didactic instruction in techniques of oral hygiene procedures. 2 hrs. {Spring}

204L. Clinical Dental Hygiene I. (3) Lakies

Clinical experience in techniques of oral hygiene procedures and practices.

Prerequisites: 201, 202L, 210, 211L, 230, 250. 12 hrs. lab. {Spring}

210. Head and Neck Anatomy. (3) McLeod
Anatomy of head and neck with emphasis. 3 lectures. {Fall}

211L. Tooth Morphology. (2) Miera
Morphology of the tooth structure. 1 lecture, 3 hrs. lab. {Fall}

212L. Oral Radiography. (3) Staff
The physics of roentgenology, the operation of the x-ray machine, and the practice of taking and developing dental x-rays. 1 lecture, 4 hrs. lab. {Fall}

230. Principles of Oral Medicine. (2) Staff
Didactic course introducing basic clinical knowledge prior to patient contact. 2 lectures. {Fall}

240. General and Oral Pathology. (3) Parry
Pathology of the head and neck and the major diseases that affect the oral cavity. 2 lectures. {Spring}

250. Histology. (2) Wright
Study of cells, tissues, and organ systems of the human body with emphasis on oral structure. 1 lecture, 2 hrs. lab. {Fall}

260. Pharmacology for Dental Hygienists. (3)
Basic principles of pharmacology and their application to drugs currently used in dentistry; mechanisms of action with emphasis on drugs specifically used by dental professionals and possible interactions between other medications and these drugs.
Prerequisite: Chem 212; pre or corequisite: Biol 237-238 or 136-139L. {Spring}

276. Principles of Pharmacology. (3) Medon
(See Pharm 276.) 3 lectures. {Spring}

300. Clinical Dental Hygiene II. (2) Taylor
Continuation of DH 203. Didactic instruction in dental hygiene sciences. 2 lectures. {Fall}

301L. Clinical Dental Hygiene II. (3) Staff
Clinical experiences in dental hygiene procedures and practices. 12 hrs. lab. {Fall}

302. Clinical Dental Hygiene III. (2) Taylor
Continuation of 300. 1 lecture. {Spring}

303L. Clinical Dental Hygiene III. (4) Staff
Clinical experience in dental hygiene procedures and practices.

Prerequisite: completion of first three semesters of professional curriculum. 16 hrs. lab. {Spring}

320L. Dental Materials. (2) Staff
(Also offered as DA 121.) A survey of materials used in dentistry; training in common dental laboratory procedures. Corequisite: 301L. 1 lecture, 2 hrs. lab. {Fall}

322. Community Dental Health. (3) Wright
Survey of health dentistry in regard to principles, methods, and materials. 2 lectures. {Fall}

340. Field Experience. (1) Wright
Application of principles and objectives studied in 322. Students will plan and develop specific educational problems for schools, hospitals, nursing homes, mental retardation centers, and other needs groups in the community. 2 hrs. {Spring}

342. Ethics, Jurisprudence and Practice Management. (2) Wright
Introduction to dental hygiene professional ethics, professional association, principles, laws, and regulations. Office management and record keeping are discussed. 2 lectures. {Spring}

344. Special Topics in Dental Hygiene. (2) Staff
Discussion of topics related to professional advancements,

innovations and concerns national and international. 2 lectures. {Spring}

352. Advanced Dental Procedures. (3) Taylor
Lab course covering principles and use of restorative materials used in dentistry. 2 lectures, 2 hrs. lab. {Fall}

370. Periodontics. (3) Parry
Didactically covers basic biological principles and the prevention and treatment of periodontal disease. 3 lectures. {Fall}

380. Advanced Clinical Dental Hygiene. (3) Staff
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}

400. Seminar. (3) Staff
Critical analysis of literature in the health and education professions.
Prerequisites: Ed Fdn 310, permission of instructor. {Offered upon demand}

410. Research Methods. (3) Staff
Developing of research in regard to special areas in dental hygiene with emphasis on writing reports.
Prerequisites: Ed Fdn 303, 310, Lib Sci 432. {Offered upon demand}

440. Student Teaching/Field Experience. (3)† Staff
A course to provide the student with the opportunity to achieve educational skills and indepth knowledge in an area of special interest such as dental hygiene teaching, public health and hospital dental hygiene. May be repeated for maximum total of 6 credits.
Prerequisite: 400, 410, Lib Media 432 and 433. 1 seminar, 1 hr. teaching, 4 hrs. rotation. {Spring}

DENTAL ASSISTING (DA)

120. Basic Human Biology. (2) Sandoval
The study of basic structures, organs, and biological functions of the human body. 2 lectures {Fall}

121L. Dental Science. (2) Miera
(Also offered as DH 320L.) Study and manipulation of materials used in dentistry. 1 lectures, 3 hrs. lab. {Fall}

122L. Advanced Dental Science. (4) Sandoval
Composite course covering microbiology, pharmacology, pathology, and head and neck anatomy. 4 lectures. {Spring}

130. Preventive Dentistry. (1) Miera
Lecture on the prevention of dental disease and methods utilized to prevent disease. 1 hr. lecture.
Prerequisite: 121L, 131L. {Spring}

131L. Pre-Clinical Dental Assisting. (4) Miera
Detailed study of the application and practice of dental assisting. 1 lecture, 3 hrs. lab. {Fall}

132L. Clinical Dental Assisting. (2) Miera
Lecture and clinical course coordinating classroom and clinical skills.
Prerequisites: 121L, 131L. {Spring}

134L. Extra Mural Clinical Dental Assisting. (5) Miera
Clinical experiences in private practice setting, a dental clinic, or in any other appropriate facility.
Prerequisites: 121L, 131L. {Spring}

138L. Advanced Extra Mural Clinical Assisting. (3)
This course is intended to immerse the dental assisting student into a transitional clinical experience for entry into the actual dental work environment. The student will spend 3 months as the primary chairside assistant in a dental office.

COLLEGE OF EDUCATION

David Colton, Dean
College of Education
Educational Administration Bldg. 109, 277-2231

EDUCATORS DEVELOP HUMAN resources. These resources—intellect, creativity, morality, physical well-being, emotional health, and occupational skills—provide the foundations for effective living in a democratic society. Careers in education offer unique opportunities for work that is challenging, gratifying and socially significant.

Today, formal education is provided not only in elementary and secondary schools and colleges; it also is provided in settings designed for the very young, for adult learners, and for the elderly. Education is available not only in schools, but also in the home, on the job, and in a variety of community organizations. Classroom teachers, backed by a wide array of educational specialists, continue to be the principle providers of formal education. However, in our increasingly complex and technological society there also are opportunities for educators in the media, in government service, in the arts, in sports and recreation, in health and nutrition, in religious organizations, and in business and industry.

The College of Education prepares individuals for careers in education and human development, engages in educational research, and extends services to practicing educators. At the undergraduate level, the College offers preparation programs for qualified individuals seeking careers in teaching and related occupations. Graduate programs offered in the College provide advanced professional training in these careers as well as initial professional training in specialized areas where an undergraduate degree is a prerequisite (e.g., educational administration, counseling, educational research). Many educational careers require state licensure (certification); successful completion of the College's programs normally leads to such certification.

Programs offered by the College of Education include formal classroom preparation, laboratory training, and supervised clinical practice. Students in the College participate in training experiences operated jointly with the Albuquerque Public Schools and other educational agencies; study textbooks, curriculum guides, and audiovisual instructional materials housed in the Tireman Library; produce instructional materials in the Learning Materials Laboratory; investigate computer-based education in the Computer Education Center; and observe or participate in research studies housed in the Manzanita Center, the Human Performance Laboratory, and the Research and Evaluation Center. In addition, qualified students have opportunities to work as staff members in a variety of teaching, research, and service programs operated through the College.

The College's instructional programs are offered by nine Departments: Art Education; Counselor Education; Educational Administration; Educational Foundations; Elementary Education; Health, Physical Education, and Recreation; Home Economics; Secondary and Adult Teacher Education; and Special Education. These departments work in cooperation with each other, with other departments in the larger University, and with a variety of specialized agencies located on the campus and in the community. Descriptions of departmental instructional programs are provided below and in more specialized materials available through the departments and the College. Inquiries may be directed to the appropriate department or to the Dean's office.

Certification

Any student expecting to be recommended for certification by the College of Education must complete a planned program

previously approved by a department adviser. Successful graduates from the College of Education teacher preparation programs will be recommended to the State Department of Education to receive a four-year certificate to teach in New Mexico.

Those who already hold the baccalaureate degree may pursue any of several planned programs and, upon completion, receive the College of Education's recommendation for certification.

Programs leading to vocational certification are available for those who do not hold degrees, as well as for those who do.

Certification may also be obtained in the areas of counseling, educational diagnosis, library/media, school administration, and reading. Most of these programs require graduate work.

The College of Education also offers planned programs for those certified teachers who wish to add endorsements to certificates and for those who wish to obtain the five-year teaching certificate.

Students desiring certification in the state of New Mexico must complete appropriate forms which are only available in the Office of Student Affairs in the College of Education. For further information about certification, consult the Office of Student Affairs in the College of Education.

Degree Programs

The College of Education offers a wide variety of baccalaureate programs which prepare individuals for careers in education and other areas of human development. Most baccalaureate programs offered by the College lead to certification as a teacher. Some programs, while leading to a bachelor's degree, do not lead to teacher certifications. Complete information on all degree programs and on certification can be obtained from the appropriate departments.

The College of Education offers, through the Office of Graduate Studies, programs leading to the Master of Arts degree, the Doctor of Philosophy degree, and the Doctor of Education degree. Graduate programs leading to the Certificate of Education Specialist (sixth-year graduate programs) are also available in some departments. Consult the current Graduate Programs Bulletin and appropriate departments for details about these programs.

A limited number of programs leading to a degree of Associate of Arts in Education are offered by the College and enrollment in some is limited to participants in special projects. Further information about available Associate of Arts programs may be obtained from the Office of Student Affairs.

Degrees Awarded by the College of Education.

The following degrees are available through the College:

- 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
- Bachelor of Science in Health Education
- Bachelor of Science in Physical Education
- Bachelor of Arts in Recreation
- Bachelor of Science in Industrial Education
- Bachelor of Music Education
- Bachelor of Arts in Education for majors in all other subjects.
- Associate of Arts in Education for those who concentrate in paraprofessional training in education or in secretarial studies and office supervision.

Requirements for Graduation

The College has general requirements for graduation. In addition, each department has specific graduation requirements. It is the student's sole responsibility for completing both college and departmental requirements. Students should contact their respective departments as early in their studies as possible.

The following are the college-wide 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 Assistant Dean for Student Affairs.
2. Completion of a minimum of 128 semester hours. No more than 5 semester hours of credit earned in workshops may be used toward any bachelor's degree. (See course 492 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. Completion of the prescribed curriculum which leads to the desired degree (see Curricula, p. 164). Students should obtain from the appropriate department the most current degree plans under which they expect to complete their studies.

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 (48 semester hours) 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, 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.

Professional Education Requirements

Students pursuing teacher education curricula must qualify on a test of basic skills in the areas of reading, writing, and

mathematics. In addition, students must complete the professional education courses described below:

1. Ed Fdn 290 Foundations of Education
2. Ed Fdn 303 Human Growth and Development*
3. Ed Fdn 310 Learning and the Classroom*
4. All students must also take appropriate methods courses and student teaching prescribed in the curriculum they are following. A minimum of 24 semester hours in professional education is required.

In some programs Ed Fdn 303 and 310 are part of a module. Students should check with the appropriate department for further information.

Scholastic Regulations

See also *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 in writing 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, Reading and Research in Honors.

Maximum Number of Hours

An undergraduate student 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. His/her GPA is 3.0 or higher;
2. He/she has presented a written petition to the Chairperson of the department and received the approval of the Assistant Dean of Student Affairs.

Hours beyond 21 in a regular semester or 11 during summer session will not be counted toward graduation.

Credit Allowed for Basic Skills Courses

Students will receive partial credit toward graduation for Basic Skills courses according to the following plan:

If the student is required to take:	Credits required for graduation from College of Education will be:
1 course (3 or 4 hours)	128 hours
2 courses (6–8 hours)	131 hours
3 courses (10–11 hours)	133 hours
4 courses (14 hours)	135 hours

Counseling and Advisement for Students

Students considering teaching as a career or those planning to enter any field offered by the College of Education should contact the Office of Student Affairs when they begin their studies. Counseling and advisement will be provided to clarify course selections and insure proper planning. Upon formal transfer to the College a permanent adviser will be assigned to the student. Advisement is mandatory in the College of Education.

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, B.U.S., or any other degree-granting 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 considered 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, Office of Student Affairs. Complete an Application form for Admission to a Teacher Education Program. Take a test of basic skills in reading, writing, and mathematics at the scheduled time and place for that semester. Complete a data folder for use in the screening process.
2. Return your data folder to the College of Education, Office of Student Affairs 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. A student applying for admission into the teacher education program in **art** must bring art work (slides, photographs, or actual work).
4. Below are additional admissions criteria applied by some departments of the College for admission to a teacher education program:
 - a. **Art Education.** Successfully complete Art Education 220 concurrent with screening into the program, and receive a positive recommendation from the professor of Art Education 220 (or in some cases Art Education 320).
 - b. **Elementary Education.** Complete with a grade of "C" or better Educational Foundations 290, one communicative arts course, one math course, five courses distributed across four additional General Education areas (see section on *Elementary Education*). Have an overall GPA of 2.30 or better.
 - c. **Nutrition/Dietetics.** An overall GPA of 2.75.
 - d. **Secondary Education.** An overall GPA of 2.5.
5. You will be notified by mail, whether or not you have been admitted to a teacher education program.
6. If you wish to graduate from the College of Education, you must then apply for transfer from your college of origin (see next section).

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 graduation. Exceptions are granted to transfer

students from other institutions during their first semester of enrollment and students who have earned a baccalaureate, upon recommendation of the department concerned. Graduate students planning to work for initial certification must also successfully complete the admission process. Students admitted to a teacher education program during their junior or senior year will probably have to spend one or two additional terms 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 previous section).

If you are already enrolled at the University of New Mexico, whether in University College, a degree-granting college, or in non-degree status, you will not be eligible to transfer to the College of Education or take 300- and 400-level courses 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 working toward a degree in the College of Education in order to pursue certain secondary education programs. If you plan to become certified as a teacher, however, *you must be admitted to a teacher education program and 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.

Professional Laboratory Experiences

All degree programs offered through the College of Education include organized and sequential experiences with children and youth or adults. 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, youth, and adults, and formal student teaching assignment(s).

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, youth, and adults. These 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 certification for teaching. The student teaching assignment is performed under the personal direction of selected cooperating teachers in the public and private school systems of New Mexico and professors from the University. The University of New Mexico is indebted to the administration and teachers of the Albuquerque Public Schools, Navajo Tribe, All Indian Pueblo Council and other school systems throughout the state 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. The GPA required for admission to student teaching is often higher than that required for admission to the College and University. Students should familiarize themselves with specific requirements for student teaching upon admission to a teacher education program.

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 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 departmental 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. Completed and passed a tuberculosis skin test. 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.) *Majors in elementary education must plan for two professional semesters. They must be available seven hours daily for the methods-module semester and for the entire school day during the student-teaching semester. 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. Filed application for degree in the office of Student Affairs in the College of Education.
9. Have on file in College Records a completed and signed program of studies (major and minor).

Special Requirements for Elementary Student Teaching

Admission to elementary education is limited. Students are screened and admitted on a competitive basis. Therefore, a number of students who meet the minimum catalog requirements for acceptance to the Department of Elementary Education may be denied admission on a selective basis.

Catalog requirements are regarded as minimal for admission to the Department of Elementary Education; that is, simply meeting the minimum requirements will not automatically result in admission to the Department. Among the criteria that are used to determine admission are grade-point average, standardized test scores, survey test battery results, and personal interview results. These and other criteria are considered in the screening process. The Department admits those students who appear to be best qualified to profit from the Department's teacher preparation program. In addition, students who are admitted may be asked to take their professional semesters at designated times when space is available.

Professional Blocks. The methods block combines on-campus instruction with opportunities to observe and work with children in classroom settings. The methods block courses are:

El Ed 321 Tchg of Soc Studies in El Sch	3
El Ed 331 Tchg of Reading in El Sch	3
El Ed 333 Tchg of Oral/Writ Lang in El Sch	3
El Ed 353 Tchg of Science in El Sch	3
El Ed 361 Tchg of Math in El Sch	3

During the student-teaching block, the student is assigned to full-time responsibility in an elementary classroom under the direction of a cooperating teacher. The student-teaching block is:

El Ed 400 Stu Tchg in El Sch	15
El Ed 435L	3

Students enrolled in both the methods and student-teaching blocks are assigned grades of CR (credit is awarded) or NC (no credit is awarded). The hours for these blocks are not computed in the scholarship index. Students should, therefore, exercise caution in selecting credit/no credit grading options in nonprofessional aspects of the undergraduate program.

Most students will be assigned to schools that have been designated in cooperation with the Albuquerque Public Schools as student-teaching centers. In these schools, student teachers are placed with one or more teachers on the staff. In addition, methods-block students work in classrooms throughout the school during the classroom application aspects of the methods block. Students are charged a \$10.00 laboratory fee for the methods block and the student-teaching block. This fee is for materials and supplies used in the schools by elementary education students.

A new component of student teaching is provided at teacher education centers on designated Pueblo and Navajo sites.

Special Requirements for Secondary Student Teaching

The student must have:

1. Completed an application for student teaching, and submitted the form to appropriate major area verifying the following:
 - a. Completed a major portion of work in his/her major and minor (degree check).
 - b. Attained at least a 2.8 grade-point average in the major teaching area; or at least a 2.5 GPA in Business Education or Industrial Education Composite majors. Achieved a general grade-point average of at least 2.5 in all courses attempted at the undergraduate level. Graduate students must also meet these requirements and maintain a 3.0 grade-point average.
 - c. Applied for graduation.
2. Students enrolled in secondary student teaching may be required to comply with a modified academic calendar.

Special Requirements for Physical Education Student Teaching

The student must have:

1. Submitted recommendations from three faculty members, including the student's adviser, indicating that the student is believed ready for student teaching.
2. Successfully completed a major portion of the theory course work as determined by the adviser in consultation with the student teaching personnel.

- Completed all of the following prerequisites: Ed Fdn 290, 303, and 310; PE 107, 217, 245, 277, 289, 301, 302, 309, 310, 326L, 444, and 445.
- Removed all Ds and Fs in the major field.
- Attained at least a 2.5 grade-point average in the major field and at least a 2.2 grade-point average overall. Full-time student teaching for at least one semester is required as defined by each SATE Program.
- Students enrolled in physical education student teaching may be required to comply with a modified academic calendar.*

Curricula

Curricula are outlined on the following pages under the respective departments for the purpose of directing students in their chosen fields of work. Descriptions for the courses listed will be found later in this bulletin. Note carefully the prerequisites that are specified because 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 Schedule of Classes in order to find out specifically what is to be given in a particular semester.

Adult Education

See *Secondary and Adult Teacher Education*.

Art Education

Major Study for Teacher Certification in Art, Grades K-12 or 6-12. A student may enroll in either the College of Education or the College of Fine Arts to satisfy requirements for art teaching certification for grades 6-12. The course requirements, and degrees of each college for 6-12 certification differ except for teacher certification requirements of the College of Education which apply to both teacher education curricula. The College of Education offers a Bachelor of Arts in Education degree; the College of Fine Arts offers a Bachelor of Fine Arts degree. A student may satisfy requirements for art teaching certification in grades K-12 only by enrolling in the College of Education.

A student who wishes to be admitted into a teacher education program in art in either college is required to meet the screening criteria and procedures of the College of Education and the Department of Art Education. Screening is done concurrently with the Department's prerequisite screening course, Art Ed 220.

Upon admission into the teacher education program in art, the student who chooses to enroll in the College of Education will be assigned a department faculty adviser with whom the student must design and contract an official program of studies. The student is required to meet with his/her adviser each semester throughout the program.

Curricula for Art Education Majors

There are two curriculum options in the Department of Art Education which qualify the student to apply for certification to teach a) (Option I) art in grades K-12 or grades 6-12, or b) (Option II) art in grades K-12 or grades 6-12 with a second teaching area (grades 6-12) chosen from an approved list of certifiable teaching areas (e.g. math, social studies, English, etc.). The student may select the option (with the approval of his/her adviser) which best meets the student's needs. Should the student choose Option II, a minor adviser will be

assigned in the Department of Secondary and Adult Teacher Education. Under Option II it is possible for the student to develop two teaching areas within a four year period.

Option I—B.A. in Art Education with K-12 or 6-12 Art Teaching Certification

This option is available for the student who desires to be prepared to teach art at the elementary, secondary levels (K-12) or at the secondary level only (6-12). The student choosing this option needs to design a program of studies, in consultation with a faculty adviser, which meets the criteria for certification at the appropriate level.

Option I—B.A. in Art Education with K-12 or 6-12 Art Teaching Certification

I. GENERAL (LIBERAL) EDUCATION REQUIREMENTS—48 HOURS

- Art St 121 (3), 122 (3), Art Hi 101 (3) and Art Hi 151 (3) plus 6 hours selected from music, theatre arts, industrial arts or architecture †18 hours
- plus 30 hours, which must include a minimum of 6 hours in four of the areas listed below:
 - Humanities and/or social science
 - Behavioral science
 - Biological and/or physical science
 - Foreign language
 - Communicative arts
 - Mathematics
 - Fine and practical arts (excluding Art Studio, Art History or Art Education).
 - Health education, physical education and/or recreation 30 hours

II. PROFESSIONAL EDUCATION COURSES—12 HOURS

- Ed Fd 290 (3) Foundation of Education
 Ed Fd 303 (3) Human Growth and Development
 Ed Fd 310 (3) Learning in the Classroom
 SATE 438 (3) Teaching Reading in the Content Field 12 hours

III. ART EDUCATION REQUIREMENTS—15 HOURS

- Art Ed 220 (3) Teaching Art in the Elementary School
 Art Ed 320 (3) Teaching Art in the Secondary School
 Art Ed 400 (3) Elementary Student Teaching in Art
 Art Ed 460/461 (6) Student Teaching in the Middle/Junior/Senior High School 15 hours

IV. TEACHING AREA—54 HOURS

- Basic art courses

Art St 121 (3) Two Dimensional Design
 Art St 122 (3) Three Dimensional Design
 Art Hi 101 (3) Art Appreciation
 Art Hi 151 (3) Artistic Traditions of the Southwest
 Art Hi 150 (3) History of Art
 Art St 106 (3) Fundamentals of Drawing
 Art St 205 (3) Drawing I
 Art St 306 (3) Drawing III †24 hours
- Studio concentration I

A concentration of 9 hours in a single studio area, 6 hours of which must be in courses numbered 300 or above 9 hours
- Studio concentration II

A concentration of 9 hours in a second studio area (different from B. above), 6 hours of which must be in courses numbered 300 or above 9 hours

D. Art/Art Ed electives

A concentration of approved electives to fulfill certification requirements. Crafts certification must include 12 hours of work selected from ceramics, jewelry or weaving, (e.g. Art Ed 430 (3) Studio in the Schools: Weaving; etc.).

12 hours

†FREE ELECTIVES—12 HOURS 12 hours

Total 129 hours

Option II—B.A. in Art Education K-12 or 6-12 Art and a Second Teaching Area (e.g. math, English, etc.) Certification.

This Option is available to the student who wishes to teach art at either the elementary or secondary level (K-12) or at the secondary level (6-12) only plus a second teaching area at the 6-12 level (e.g., math, English, etc.). The student selecting this option must design a program of studies, in consultation with his/her adviser which meets the criteria established for two teaching area certifications. Student teaching will be assigned in both Art Education and the second teaching area to correspond with the program selected.

†I. GENERAL EDUCATION REQUIREMENTS—48 HOURS

A. Same as Option I curriculum (see above)

B. Same as Option I curriculum (see above) exception that 6 hours from the second teaching area can count in these areas and represent one of the count in these hours and represent one of the eight areas listed in the corresponding Option I section above

††30 hours

II. PROFESSIONAL EDUCATION REQUIREMENTS—12 HOURS

Same as Option I Curriculum (see above) 12 hours

III. ART EDUCATION REQUIREMENTS—15 HOURS

Same as Option I Curriculum (see above) 15 hours

†IV. TEACHING AREA ONE—42 HOURS

A. Basic art courses

Same as Option I curriculum (see above) with the deletion of Art St 305 Drawing II

†21 hours

B. Major studio concentration

Same as Option I Curriculum (see above)

9 hours

C. Art/Art Ed Electives

Same as Option I Curriculum (see above)

12 hours

††V. TEACHING AREA TWO—30 HOURS

(e.g. math, English, Spanish, social studies, etc.)

††Courses in Teaching Area Two—24 hours

SATE (3) Methods of Teaching Area Two

SATE 461 (3) Student Teaching in Area Two

††30 hours

Total 129 hours

Minor Study in Art Education for Elementary Majors Only (24 Hours)

Art St 121, Art St 122, Art Hi 101

Art Elective (200 level, 3 hrs)

Art Ed 214, Art Ed 215, Art Ed 220 and Art Ed elective (400 level, 3 hrs)

For Students in Other Than Teacher Training Programs (18 Hours)

Nonteaching minor requirements: Art St 121, Art St 122, Art St elective (200 level, 3 hrs); Art Ed 285, Recreation Arts

and Crafts (3 hrs); additional hours to be determined with an art education adviser.

Graduate Program

The Department offers an M.A. in Art Education. For details of the graduate program see the Graduate Programs Bulletin.

Business Education

See p. 147 for information about programs in business education.

Counselor Education

This department offers work leading to the Master's in Counseling. The doctorate is offered in counseling. 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 counseling, mental health counseling, or general counseling. Doctoral work in counseling provides emphasis 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 Programs Bulletin.

Educational Administration

See Course of Instruction for course descriptions and the Graduate Programs Bulletin for all graduate programs.

Educational Foundations

This Department houses the Library/Media program which may be taken as a minor in several departments. Students interested in this minor should see the adviser in their major department and the chairperson of Educational Foundations. Course offerings meet state certification requirements in Library/Media. See p. 183 for course descriptions and the Graduate Programs Bulletin for all graduate programs.

Elementary Education

Curriculum for Students Preparing to Teach in Elementary Schools

All prospective elementary school 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.

The student pursuing a degree in elementary education should contact the office of Student Services in the Department of Elementary Education for academic counseling and a list of suggested courses that satisfy these requirements.

†Please note that that Art St 121, 122, Art Hi 101 and 151 (12 hours) fulfill requirements in both areas of General (liberal) Education and the Teaching Area. However, these 12 hours are counted only once toward the 129 total hours for graduation.

††Six (6) hours of course work may fulfill requirements in both areas of General Education and Teaching Area Two. For example, a student working for a second teaching area in Math may take 6 hours of Math courses which fulfill requirements for Math certification and fulfill 6 hours of course work in General Education under area number 6. Mathematics; however, these 6 hours are counted only once toward the total 129 hours for graduation.

The faculty of the Department of Elementary Education sees the role of the elementary teacher in the Southwest as one that requires a broad education which is supportive to multicultural needs of southwestern communities. With respect to the general education requirements, the intent of the Department of Elementary Education is: (1) to encourage learning in a wide range of study areas, (2) to encourage a pursuit of study somewhat unique to each student, and (3) specify some courses in critical areas. Therefore, a number of options in each general education area is available. Selection may be based on the student's background, goals in education, and interests.

In addition to the general education requirements, all prospective elementary teachers are required to complete prescribed professional education courses. Contact the Department of Elementary Education for current requirements.

Minor Requirements for Elementary Education Majors

Elementary education majors are required to complete a minor of 24 semester hours in a subject area or a composite minor of 30 semester hours 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 of this catalog. Those interested in preparing to teach in special education classrooms should see the minor study in special education "Department of Special Education."

Composite minors have been approved in bilingual education, early childhood studies, science, and the social science.

Composite Minor in Bilingual Education-Spanish/English.

This minor is designed for students wishing to prepare for teaching in Spanish/English bilingual classrooms. State bilingual teacher certification requires specific levels of mastery in the areas of language (Spanish), culture, and pedagogy. The student interested in a composite minor in bilingual education-Spanish/English should contact the Student Services Office in the Department of Elementary Education as early in his or her college career as possible for information, including recommended courses to be taken, before seeking admission to the Department.

Composite Minors in Navajo/English Bilingual Education and in other southwestern Indian languages are also available. The student interested in such a minor should contact the Student Services Office in the Department of Elementary Education for information, including recommended courses to be taken, before seeking admission to the Department.

Composite Minor in Early Childhood Studies. 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 preschool and primary years. However this minor program leads to New Mexico 24 Hour Kindergarten Endorsement only when combined with the elementary education major program. Contact the Department of Elementary Education for current requirements.

Composite Minor in Science. This is designed for students wishing to pursue a broad field's 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 field's study of the social sciences. Acceptable fields include anthropology, eco-

nomics, geography, political science, history, and sociology and psychology.

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 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.

Graduate Program. The Department also offers graduate programs leading to the master's and doctor's degrees and the Certificate of Education Specialist. Students wishing to pursue one of these programs should consult the Chairperson and the Graduate Programs Bulletin for details.

Health, Physical Education, and 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 nonteaching 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

FIRST YEAR

(same for both tracks)

H Ed 164 First Aid	3
H Ed 171 Personal & Community Health	3
*Soc 101 Intro Soc or Appr Altern	3
*Psych 101 or 102 General Psych	3
*Biol 121L Prin of Biol	4
*Chem 111L Elem Gen Chem	4
*H Ec 125 Intro to Nutrition	3
*Biol 122L Prin of Biol	4
*Engl 219 Tech Wrtg or Eng 220 Expos Wrtg	3
*Electives	3
	<hr/> 33

SECOND YEAR

School Health

H Ed 260 Intro to Hlth Ed	3
H Ed 301 General Safety Ed	3
*Anthro 130 Cult of Wld	3
*Biol 136-139L Hum Anat and Physiol	4
H Ed 212 Fund Human Sexuality	3
*Biol 239L Micro for Hlth Sc	4
*Sp Com 130 Pub Speaking	3
Ed Fdn 290 Fdn of Education	3
H Ed 247 Consumer Health	3
*Electives	3
	<hr/> 32

Community Health

H Ed 260 Intro to Hlth Ed	3
*Approv Cult Anthro or Cult Geograph	3
*Biol 136-139L Hum Anat & Physiol	4
*Approv Intro to Statistics	3
*Econ 335 Econ of Hlth or Soc 321 Med Soc	3
Biol 221 Genetics or 239L Micro for Hlth Sc	3-5
*Approv Sp Comm Course	3
*Ed Fdn 303 Human Growth and Dev	3
H Ed 247 Consumer Hlth	3
Electives	3-5
	33

THIRD YEAR

School Health

H Ed 345 Prof Lab Exp	3
Ed Fdn 303 Human Gwth and Dev	3
Ed Fdn 310 Lrng in Classroom	3
H Ed 333 Ment/Emo Hlth in Classroom	3
H Ed 471 Intro to Comm Hlth	3
H Ed 442 Emerg Hlth Care	3
H Ed 469 Elem Sch Hlth	3
Lib Sci 432 Prod of Inst Mat	3
H Ed Electives (selected w/advisement)	6
*Multicultural Elective	3
	33

Community Health

*Psych 210 Ed Psych	3
*Psych 230 Psych of Adjust or Psych 260 Psych of Learn	3
*Psych 371 Soc Psych	3
H Ed 471 Intro to Comm Hlth	3
H Ed 345 Prof Lab Exp	3
Approv Sp Comm (Upper Division)	3
*Engineering Course—General Ed	3
Lib Sci 432 Prod of Inst Mat	3
Approv H Ed Electives	6
Electives	3
	33

FOURTH YEAR

School Health

SATE 438 Tchg Rdg Content Field	3
H Ed 475 Alt Approach in Drug Ed	3
H Ed 470 Sec Sch Hlth and H Ed	3
H Ed 400 Stu Tchg Elem Sch	3
H Ed 461 Stu Tchg in Sec Sch	3
H Ed 451 Curr in Hlth Ed	3
H Ed 520 Teach Human Sexuality	3
Elective	3
	24

Community Health

H Ed 495 Field Experience I	3
H Ed 470 Sec Sch Hlth and H Ed	3
*Multicultural Elective	3
H Ed 495 Field Experience II	3
Approv H Ed Electives	9
Electives	9
	30

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 48 hours, including courses and electives designated by the (*) in the major programs. Screening by health education faculty is a prerequisite to entering either track.

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. 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. Curricula leading to the degree of Bachelor of Science in Physical Education are designed to prepare the student to teach physical education in elementary, middle, and/or junior and senior high schools. Students completing the program are eligible to apply for a four-year teaching certificate in New Mexico. A minor is required.

Major Study in Physical Education

FIRST YEAR

*Eng 101 Wrtg w/Rdgs in Expos or equivalent	3
*Psych 101 Gen Psych or 102 Gen. Psych	3
Math 120 Intermed Algebra	3
*H Ec 125 Intro Nutrition	3
*Biol 136 Hum Anat and Physiol	3
Biol 139L Hum Anat and Physiol Lab	1
*H Ed 164 First Aid	3
PE 115 Women Gymnastics or	
PE 117 Men's Apparatus Stunts	1
PE 231 Flickerball, Flag Football,	
Volleyball, Basketball	1
PE 232 Golf and Dance	1
PE 233 Soccer, Speedaway, Racketball	1
PE 234 Volleyball, Track and Field	1
PE 273 Intro to Ath Trng	2
PE 289 Tests and Meas in PE	3
*Communication arts elective	3
*General education elective	3
	35

SECOND YEAR

PE 217 PE in Elem Sch	3
PE 235 Tennis, Aerobics	1
PE 236 Personal Defense, Archery	1
PE 237 Softball, Team Handball, Badminton	1
PE 238 Wrestling or Mod Dance and Wght Trng	1
PE 245 002 Prof Lab Exp in PE	2
PE 277 Kinesiology	3
PE 288 Motor Lrng and Perform	3
*Humanities/social science electives	6
*Multicultural studies	3
*General education electives	6
*Minor	3
Ed. Fdn 290	3
	36

THIRD YEAR

*Minor	
Psych 260 or 210 or Ed Fdn 310 Lrng in Classrm	3
Psych 220 or Ed Fdn 303 Hum Gwth and Dev	3
PE 444 Tchg PE I	4
PE 301 Tchg Team Sports	2
PE 310 Tchg Dance in School	2
PE 445 Tchg of PE II	4
PE 302 Tchg of Indiv and Dual Sports	2
PE 309 Tchg of Gymnastics	2
PE 326 Physiol of Exercise	3
PE activity elective	3
Lifesaving or equivalent	1
PE 107 Water Safety Instr or Certif	2
	34

FOURTH YEAR

**PE 378 Prin of PE	3
\$PE 400 Stu Tchg in El Sch (optional)	6
**PE 452 Org of Sports Prog	3
PE 461 Student Tchg in Sec Sch *	9
PE 466 Special PE	3
**PE 479 Org and Admin of PE	3
SATE 438 Tchg Rdg in Content Fld	3
PE activity elective	1
Minor	6
	<hr/> 37

Student teaching, all day, 10 week experience, taken with PE 378, PE 479 and/or PE 452.

Students who, for any reason, interrupt their progress in the physical education program at UNM for more than two consecutive semesters must be rescreened.

Physical education majors will not be allowed to graduate with a grade of D or lower in a course in their major field.

Physical education minors must meet the same requirements as majors in reference to grades and must have a 2.5 average in their minor courses.

Minor Study in Physical Education

PE 209 Fdn of Human Perform	3
PE 217 PE in the Elem Sch	3
PE 231 Flickerball, Flag Football, Volleyball, Basketball	1
PE 232 Dance, Golf	1
PE 234 Track and Field	1
PE 237 Softball, Team Handball, Badminton	1
PE 245 001 Prof Lab Exper in PE	2
PE 288 Motor Lrng and Perform	3
PE 301 Tchg of Team Sports	2
(must be taken concurrently with PE 310 and 444)	
PE 310 Tchg Dance in the Sch	2
(must be taken concurrently with PE 301 and 444)	
PE 444 Tchg of PE	4
PE 378 Prin of PE	3
	<hr/> 26

Minor Study in Physical Education Designed for Students Interested in Special Education

PE 107 Water Safety Instr (or Certificate)	2
PE 209 Fdns of Hum Perform	3
PE 217 PE in Elem Sch	3
PE 231 Flickerball, Flag Football, Volleyball, Basketball	1
PE 232 Dance, Golf	1
PE 234 Track and Field	1
PE 233 Soccer, Speedaway, Racquetball	1
PE 288 Motor Lrng and Perform	3
PE 301 Tchg of Team Sports	2
PE 444 Tchg of PE	4
PE 466 Special PE	3
PE 467 Survey of Phys Defects and Path	3
	<hr/> 27

Minor Study in Athletic Coaching (Not available to physical education majors.)

PE 273 Athletic Trng	2
PE 209 Fdn Human Perf	3
PE 481 Adm Varsity Athletics	3
PE 495 Field Exper	3

Choose two of the following three courses:

PE 288 Motor Lrng	3
PE 378 Prin of PE	3
PE 452 Org of Spts Prog	3

Choose nine hours from the following group:

PE 202 Theory and Prac of Baseball	2
PE 203 Theory and Prac of Wrestling	2
PE 204 Theory and Prac of Track and Field	2
PE 205 Fund of Basketball	2
PE 206 Fund of Football	2
PE 207 Theory and Prac of Swmng	2
PE 309 Tchng Gymnastics	2
PE 464 Theory of Football	3
PE 465 Theory of Basketball	3
PE 245 004 Prof Lab Exper	2
	<hr/> 26

Athletic Training Option

(Leading to the degree of Bachelor of Science in Physical Education, with a minor in biology, and national certification in athletic training)

FIRST YEAR

Engl 101 Wrtg w/Rdgs in Expos or equivalent	3
Psych 101 Gen Psych 1	3
Math 120 Intermed Algebra	3
H Ec 125 Intro Nutrition	3
Biol 136 Hum Anat and Physiol	3
Biol 139L Human Anat and Physiol Lab	1
H Ed 164 First Aid	3
H Ed 171 Per and Comm Hlth	3
PE 115 Women's Gymnastics or	
PE 117 Men's Apparatus Stunts	1
PE 273 Intro to Alth Trng	2
PE 289 Tests and Meas in PE	3
PE 231 Flickerball, Flag Football, Volleyball, Basketball	1
PE 232 Golf, Dance	1
PE 233 Soccer, Speedaway, Racquetball or	
PE 234 Track and Field	1
Communication arts elective	3
PE 284 Clinical Exp	1
	<hr/> 35

SECOND YEAR

PE 284 Clinical Exp	2
PE 217 PE in Elem Sch	3
PE 235 Personal Defense, Archery	1
PE 236 Tennis, Aerobics	1
PE 237 Softball, Team Handball, Badminton	1
PE 238 Wrestling or Mod Dance and Wght Trng	1
PE 245 002 Prof Lab Exp in PE	2
PE 277 Kinesiology	3
PE 288 Motor Lrng and Perform	3
Ed Fdn 290 Fdn of Ed	3
Multicultural studies	3
Biology minor	8
Psy 260 or 210	3
Psy 220 Developmental Psych	3
	<hr/> 37

*Courses to fulfill general education requirements.

**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.

\$PE 400 To be taken only if student desires elementary school certification.

THIRD YEAR

PE 326 Physiol of Exercise	3
PE 373 Adv Ath Trng	3
PE 301 Tchg Team Sports	2
PE 310 Tchg Dance in the Sch Prog	2
PE 444 Tchg PE I	4
PE 302 Tchg of Indiv and Dual Sports	2
PE 309 Tchg of Gymnastics	2
Lifesaving or equivalent	1
PE 107 Water Safety Instr or Certif	2
Human/Soc Sci	3
Biology minor	6
PE 484 Clin-Corr Thrpy Ath	3
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	33

FOURTH YEAR

PE 461 Secondary Student Teaching	9
Human/Soc Sci	3
PE 378 Prin of PE	3
SATE 438 Tchg Rdg in Content Fld	3
PE 452 Org of Sports Prog	3
PE 466 Special PE	3
PE 479 Org and Admin of PE	3
PE 484 Clin Prog of Ath Trng	3
Biology minor	3
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	33

Following are requirements for certification by the National Athletic Trainers Association:

- I. A college degree with a teaching license.
- II. Completion of specific required courses:
 1. Anatomy Biol (Biol 136, 139L)
 2. Physiology (Biol 136)
 3. Physiology of Ex (PE 326L)
 4. Applied Anatomy and Kinesiology (PE 277)
 5. Psychology (2 courses) (Psych 101 and 220)
 6. First Aid and Safety (H Ed 164)
 7. Nutrition (H Ec 125)
 8. Remedial Exercises (PE 466)
 9. Personal, Community, and School Health (H Ed 171)
 10. Techniques of Athletic Training (PE 273)
 11. Advanced Techniques of Athletic Training (PE 373)
 12. Laboratory Practice (800 clock hours) (PE 484)

Majors in other fields may take the certification examination after completion of the above required courses.

Option in Adapted Physical Education and Corrective Therapy

FIRST YEAR

Engl 101 Wrtg w/Rdgs in Exp or equivalent	3
Psych 101 Gen Psych 1 and	3
Psych 103L Gen Psych 1 Lab	1
Psych 102 Gen Psych II and	3
Psych 104L Gen Psych Lab II	1
Math 120 Intermed Algebra	3
H Ec 125 Intro Nutrition	3
Biol 136 Hum Anat and Physiol	3
Biol 139L Hum Anat and Physiol Lab	1
H Ed 164 First Aid	3
PE 115 Women's Gymnastics or	
PE 117 Men's Apparatus Stunts	1
PE 231 Flickerball, Flag Football,	
Volleyball, Basketball	1
PE 232 Golf, Dance	1
PE 233 Soccer, Speedaway, Racquetball	1
PE 234 Track and Field	1

PE 273 Intro to Ath Trng	2
PE 289 Tests and Meas in PE	3
Communication arts elective	3
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	37

SECOND YEAR

Ed Fdn 290 Fdn of Ed	3
PE 217 PE in Elem Sch	3
PE 235 Personal Defense, Archery	1
PE 236 Tennis, Aerobics	1
PE 237 Softball, Team Handball, Badminton	1
PE 238 Wrestling or Mod Dance and Wght Trng	1
Psych 240 Physiol Psych	3
PE 245 002 Prof Lab Exp in PE	2
PE 277 Kinesiology	3
PE 288 Motor Lrng and Perform	3
Psych 331 Psych of Personality	3
Multicultural studies	3
Psychology electives	3
General education elective	3
	<hr/>
	33

THIRD YEAR

H Ed 171 Per and Comm Hlth	3
Psych 260 Psych of Lrng or	
Psych 210 Educ Psych	3
PE 301 Tchg Team Sports	2
PE 310 Tchg Dance in the Sch Prog	2
PE 444 Tchg PE I	4
PE 302 Tchg of Indiv and Dual Sports	2
PE 309 Tchg of Gymnastics	2
PE 445 Tchg PE II	4
PE 106 Lifesaving or card	1
PE 107 Water Safety Ins or certification	2
Psych 220 Dev Psych	3
PE 326 Physiol of Exercise	3
PE activity electives	3
	<hr/>
	34

FOURTH YEAR

PE 479 Org & Adm PE	3
PE 461 Stud Tch Sec Sch	9
PE 466 Spec Phy Educ	3
PE 452 Org Sports Prog	3
SATE 438 Reading in Content Field	3
Psych 332 Abnormal Behav	3
PE Activity Elective	1
PE 378 Principles of PE	3
PE 467 Survey of Phy Def and Pathology	3
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	31

PE 484 Clinical Program for Corrective Therapy may not be taken as a undergraduate. This is part of your graduate program.

Note: Students will not be certified in Corrective Therapy until completion of Master's Degree in Adapted Physical Education.

The above curriculum includes a minor in psychology; however, a student may minor in special education.

Non-Teaching Option: Exercise Technologist**FIRST YEAR**

Eng 101 Wrtg w/Rdgs in Exp	3
Psy 101 Gen Psychology I or 102	3
Math 120 Inter Algebra	3
H Ec 125 Intro to Nutrition	3
Biol 123L Biol for Hlth Related Sciences	4
Chem 111L Elem of Gen Chem	4
Chem 212L Integ Organic Chem and Bio Chem	4
PE 231 Flickerball, F. Football, Volleyball, Basketball	1
PE 232 Golf, Dance	1
PE 233 Soccer, Speedaway, Racquetball	1
PE 234 Track & Fld	1
Electives: General Education	3
PE 102 Inter-Swim	1
	<hr/> 32

SECOND YEAR

Sp Comm 130L Public Spk	3
Math 102 Intro Prob & Stat	3
Bio 237L Human Anat H Sc I	4
Bio 238L Human Anat H Sc II	4
H Ed 164 First Aid	3
PE 273 Intro Athl Trng	2
PE 289 Test & Meas in PE	3
PE 277 Kinesiology	3
PE 288 Motor Learning	3
PE 235 Tennis, Aerobics	1
PE 193 Aerobic Dance	1
PE 237 Softball, Team Handball, Badminton	1
Elective General Educ	3
	<hr/> 34

THIRD YEAR

Psy 230 Psy of Adjustment or	
Psy 260 Psychology of Learning	3
EECE 302 Clin Instrument (Recommended when available)	3
PE 326 Exercise Physiol	3
PE 470 Designs for Fitness	3
PE 493 Inter Ex Physiol	3
PE 495 Field Exper	6
PE 160 Wt Training	1
PE 161 Dev PE and Wt Control	1
Electives General Education	6
H Ec 325 Inter Nutrition	3
	<hr/> 32

FOURTH YEAR

PE 378 Principles of PE	3
PE 467 Survey Phy Defects	3
PE 373 Adv Athl Trng	3
PE 391 Problem	3
PE 495 Field Experience	6
PE 152 Racquetball	1
PE 165 Yoga	1
PE 163 Aerobics	1
Electives General Education	9
	<hr/> 30

Students must have American Red Cross or American Heart Association CPR certification prior to graduation.

Major Study in Recreation

(Leading to the degree of Bachelor of Arts in Recreation)

FIRST YEAR

Engl 101 Writing w/Rdgs in Exp	3
Engl 102 Analytic Writing	3
Natural sciences electives	6-8
Recrea 175 Fdn of Recrea	3
Fine and practical arts elective	3
H Ed 164 First Aid	3
Psych 102 Gen Psych II	3
Recrea 290 Creat and Soc Arts for Recrea	3
Elective	3
	<hr/> 30-32

SECOND YEAR

Writing elective	3
Sp Com 130 Public Spkng	3
H Ed 171 Per and Comm Hlth	3
Recrea 221 Recrea Leadership	3
Recrea 245 Field Work	3
Social science elective	3
Psych elective (200 level or above)	3
Recrea program option	3
Directed Recrea electives	3
Electives	6
	<hr/> 33

THIRD YEAR

Recrea 378 Outdoor Recrea	3
Sp Com 225 Prob Solv Groups	3
or	
Sp Comm 221 Interpersonal Communication	
Recrea 454 Dev of Recrea Prog	3
Recrea 495 Field Exper	3-6
Psych elective (200 level or above)	3
Social science elective	3
Fine and practical arts elective	3
Recrea program options	3
Rec 385 Leisure Serv—Spec Pop	3
Electives	6
	<hr/> 30-36

FOURTH YEAR

Recrea 495 Practicum	3-6
Recrea 480 Admin of Recrea Prog	3
Multicultural education	3
Social science elective	3
Recrea program option	6
Rec 407 Hist & Phil	3
Electives	8
Directed Recrea Elec	3
	<hr/> 32-35

Total	136
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Minor Study in Recreation

Recrea 175 Fdns of Recrea	3
Recrea 290 Creat and Soc Arts for Recrea	3
Recrea 301 Rec Spts	3
or	
PE 217 PE in Elem Sch	3
Recrea 221 Recrea Leadership	3
Recrea 245 Prof Lab Exper in Recrea	3
Recrea 454 Dev of Recrea Prog	3
Recreation electives	6
	<hr/> 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 (Gen Psych II) (3) plus 6 hours of Psych electives (200-level or above)	
Communicative arts	15 hours
English 101, 102	
Sp Com 130 (Public Spkng)(3) or Sp Com 221 Interpersonal Comm or Sp Com 225 (Group Prob Solv) (3)	
Writing Elective	
Fine and practical arts	6 hours
Natural sciences	6 hours
Social sciences	9 hours
Health education or physical education	
H Ed 171 Personal & Comm Health	3 hours
Multicultural education	3 hours
Total	51 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.

Forty hours of required home economics subject matter is required for a major with a minimum of 24 hours in a teaching minor. A 54-hour home economics major without a required minor is available. *Students must seek advisement when planning their major and minor.*

Home Economics Education

Curriculum for Students Preparing to Teach Home Economics.

FIRST YEAR

Anth 130 Digging Up Our Past or Soc 101 Intro to Soc	3
Communication electives	6
Psych 102 Gen Psych II	3
Biol 136 Hum Anat/Phy—Non majors	3
H Ec 101 Freshman Sem (Fall)	2
H Ec 102 Infant Gwth and Dev	3
H Ec 120L Food Science	3
H Ec 150L Clothing Const	2
*Restricted electives	3
General Ed electives	6
	34

SECOND YEAR

General Ed electives	9
Hum, Math, HPER or Lang	3
Econ 200 Prin & Prob 201 Prin of Econ	3
Communication elective	3
Art Ed 230 Tech of Design (Fall)	3
Ed Fdn 290 Fdn of Ed	3
H Ec 125 Intro Nutrition	3

H Ec 250 Clothing & Human Behavior (Spring)	2
H Ec 252 Textiles	3
H Ec 218 Marriage and Pers Dev	3
	35

THIRD YEAR

General Ed electives	6
Multicultural elective	3
Ed Fdn 310 Lrng & Classrm	3
H Ec 341 House and Its Environ	3
H Ec 443 Family Decision Making (Fall)	3
H Ec Ed 437 Tchg of H Ec (Spring)	3
H Ec 444 Family Finance (Spring)	3
H Ec Ed 361 Pre-Stu Tchg in H Ec (Spring)	3
Electives (minor or major)	3
General Ed electives	3
	33

FOURTH YEAR

SATE 438 Rdg in Content Fld	3
H Ec 408L Gwth & Dev of Presch Child	3
H Ec 418 Family Relationships	3
Electives (minor or major)	9
H Ec 445L Home Management Lab	4
H Ec Ed 461 Stu Tchg in Sec Sch	6
H Ec Ed 465 Seminar: Voc H Ec Ed	3
	31

**Curriculum for Students Preparing for Nutri-
tion/Dietetics**

The curriculum leading to a Bachelor of Science in Home Economics—Nutrition/Dietetics is designed to provide students with the academic requirements necessary for membership in the American Dietetics Association. Following successful completion of the undergraduate degree, students will need additional training via a dietetic internship or master's degree to become eligible for status as a registered dietitian. To screen into the Nutrition/Dietetics program, students must have a 2.75 GPA and have successfully completed H Ec 120 or 125, and one chemistry, and one biology with grades of C or better.

Students are required to declare a minor field of study. The minor is subject to department approval. A double major in home economics education/nutrition-dietetics is available. Students should seek advisement for program planning.

Home Economics/Nutrition-Dietetics**FIRST YEAR**

H Ec 101 Freshman Seminar	2
H Ec 102 Infant Gwth and Dev	3
H Ec 120L Food Science	3
Chem 111L Elem Gen Chem	4
Biol 136 Hum Anat and Physiol	3
Biol 139L Hum Anat and Physiol Lab	1
Math 120 Intermed Algebra	3
Anth 130 Cultures of the World	3
Soc 101 Intro Sociology	3
Psych 102 Gen Psychology	3
Sp Comm 221 Interpers Comm	3
	31

*Restricted electives: 3 hours in one of the following: Foreign Language, Humanities, Mathematics, HPER, Fine Arts & Engineering.

SECOND YEAR

H Ec 125 Intro Nutrition	3
H Ec 222L Meal Management	3
Chem 212 Integ Org and Biochem	4
Biol 239L Microbiology	5
Econ 200 Prin & Prob or	
Econ 201 Prin of Econ	3
Engl 320 Technical Writing	3
H Ec restricted elective	3
Electives (approved minor)	6
Math 102 Statistics	3
	<hr/>
	33

THIRD YEAR

**H Ec 325 Adv Nutrition	3
**H Ec 427L Quality Food Prod	3
**H Ec 431L Exp Foods	3
Mgt 202 Prin of Finan Acctg	3
Mgt 361 Organizational Theory	3
Anth 388 Human Genetics	3
H Ec Ed 437 Tchg H Ec	6
Electives (approved minor)	6
Sp Com 221 Interpersonal Commun	3
	<hr/>
	33

FOURTH YEAR

**H Ec 434 Organization and Mgmt	3
**H Ec 428 Diet Therapy	3
H Ec electives	3
**H Ec nutrition electives	6
Biol 429 Cell Physiol and Biochem	4
Electives (approved minor)	9-12
H Ed 471 Intro Comm Hlth	3
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	31-34

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 following four areas:

1. H Ec 120L, 125, 222L, 325, 326L
2. H Ec 150L, 250, 252, 254L, 456L
3. H Ec 101, 102, 218, 318, 408L, 418, 468
4. H Ec 244, 341, 443, 444, 445L

Ten additional hours approved by the student's adviser in home economics. Twelve of the 34 hours must be upper division.

Minor Study. A minor study consists of a total of 24 hours, at least 9 hours numbered above 300, chosen from the following four areas and from the following courses:

1. Family relations and child development, 6 hours: H Ec 102, 218, 318, 408L, 418, 468.
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, home furnishings, and home management, 6 hours: H Ec 244, 341, 443, 444.

Any substitutions must be approved by the Chairperson of the Department.

Food Service Management. (Tourism, hospitality, hotel, and restaurant industries) Eligible students wishing to include in their bachelor's degree work preparation for careers in the field of hotel, motel, restaurant, tourism, and recreation in-

dustries may enroll in selected courses already being offered in management; computing and information science; economics; home economics; health, physical education, and recreation; and speech. Such courses may be used toward the 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 the department for detailed advisement and planning.

- H EC 125 Nutrition (3)
- H Ec 427 Large Quantity Food Production (3)
- H Ec 434 Organization and Management—Food Service (3)
- H Ec/Recrea 495-496 Directed Studies—Field Work, Internships
- Recrea 311 Man and Leisure (Education for Leisure) (3)
- Recrea 378 Outdoor Recreation (3)
- HPER 493 Tourism and Recreation (3)

Industrial Education

See p. 175 for information about programs in industrial education.

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)

(Leading to the degree of Bachelor of Music Education) See p. 244.

Minor in Music Education

Students may also minor in music education. See p. 246 for minor requirements.

Physical Education

See Health, Physical Education and Recreation.

Secondary and Adult Teacher Education

Statement of Purpose and Objectives

The Department of Secondary and Adult Teacher Education is involved in developing quality educational programs for all youth and adults. This effort is a cooperative endeavor with the New Mexico State Department of Education and the schools of New Mexico. In order to help achieve the goal of quality education, the Department carries on three major programs:

*Restricted electives: 3 hours in one of the following: Foreign Language, Humanities, Mathematics, HPER, Fine Arts & Engineering.

**Course offered alternate years.

1. The preparation of teachers in curriculum areas of the secondary schools, culminating in a bachelor's degree.
2. Post-bachelor's education for teachers of youth and adults in appropriate areas of curriculum and instruction, usually culminating in a master's degree.
3. A program of educational research in the theory and practice of youth 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 degree.

The Department consists of five distinct curriculum areas: Adult Education, Business Education, General Secondary Education, Industrial Education, and Vocational Education. The Adult Education program is offered at the graduate level only. Courses and degree programs at the undergraduate and graduate levels are offered in Business Education, General Secondary Education, Industrial Education and Vocational Education. Because course work and degree requirements vary in each of the five areas, persons interested in a specific area should contact an area adviser directly.

ADULT EDUCATION

The Adult Education program is strictly for graduate students. They can enroll in masters, educational specialist (certificate) and doctoral level programs, provided they meet formal entry requirements. The general purposes are to prepare professionals who will work with adults in a multiplicity of roles and to improve skills for practicing educators who will need to adjust to changing job responsibilities and challenges.

The learners represent various segments of the community; they come from such areas as business and industry, government, public schools, the military, social service agencies and post-secondary institutions.

Masters students are required to complete a minimum of 32 hours of credit, 15 of these hours are designated as departmental core courses, the remainder consists of Adult Education courses and electives. Students in an *Educational Specialist* program generally take 30 hours beyond the Masters, evenly divided between Adult Education courses and core courses. *Doctoral students* must complete a minimum of 72 graduate hours, plus a dissertation.

Business Education

Business Education offers two curricula which lead to the Bachelor of Science in Education and teacher certification: the comprehensive curriculum, which may include vocational office education, and the general curriculum. Graduates are certified to teach business subjects in the junior high school, the mid-school, and the secondary school; however, many are prepared as well for positions in post-secondary or technical-vocational institutes and private business schools.

General Secondary Education.

General Secondary Education offers undergraduate and graduate programs in areas such as: Mathematics, Science, English, Social Studies, Bilingual Education, Communication Arts, and Reading, Teaching English to Speakers of Other Languages, to list a few.

Industrial Education.

Industrial Education offers undergraduate and graduate programs in preparation for industrial/technical careers, and service courses in the industrial/technical areas. Technical laboratory courses emphasize the application of contemporary technological theory and process, and are applicable for students in Architecture, Engineering, and Management, etc., as well as students in education.

Vocational Education

The Vocational Education Program offers a variety of courses designed to enable students to meet state certification requirements in vocational areas. The certification courses are designed to include instruction in the following areas: curriculum development, teaching methods, classroom and laboratory organization and management, philosophy of vocational education, principles of learning, tests and measurements local planning/needs assessment, instructional materials/ audiovisual aids, leadership development, internships and/or student teaching, and coordination techniques.

Undergraduate Program. The undergraduate programs of the Department are based on a broad general education. Beyond this general education, the program involves both pursuit of knowledge in areas of study in which students propose to become competent to teach and experiences and course work in foundations of education, curriculum, and instruction.

General Education. To meet the general education requirements in Secondary and Adult Teacher Education, students must complete the general education requirements as prescribed by each curriculum area. It is strongly recommended that multiculturalism be one of the areas represented in the general education component.

Departmental Programs. The following curricula, leading to the bachelor's degree, are designed for students preparing to teach in middle schools, junior high schools, or senior high schools. For graduation from the College of Education through this Department, 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). The composite major shall total at least 51 semester hours of credit.

All students who wish to elect teaching major and minor concentrations will consult with the Department of Secondary and Adult Teacher Education for detailed information and requirements.

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 the Department of Secondary and Adult Teacher Education. No minor of less than 24 hours, for example, will suffice for certification.

Any student wishing to be certified in any major or minor must be admitted to secondary teacher education before the semester in which he/she enrolls in 300-level professional education courses.

Professional Sequence

The following professional sequence is required of all students working toward certification through this Department.

Ed Fdn 290, Foundations of Education. 3 semester hours. May be taken prior to admission to secondary teacher education.

Pre-Student Teaching. This consists of a 12 semester hour block including SATE 361, 438, Ed Fdn 303, and Ed Fdn 310. Requirements include several hours of observation and classroom work in schools.

Student Teaching Preparation and Internship. Full time student teaching for at least one semester is required as defined by each SATE program

Overall, the secondary teacher professional sequence may require from two to four semesters. Students are urged to consult an adviser in the Department of Secondary and Adult Teacher Education as early in their college career as possible.

Certification Requirements

Successful completion of departmental requirements prepares the graduating senior for application for a four-year, provisional secondary, teaching certificate issued by the New Mexico State Department of Education. Students planning to teach in other states should insure that the Department's program meets the requirements of those states. Certification beyond the four-year provisional certificate depends upon experience and additional academic and professional course work.

Persons already holding a bachelor's degree who wish secondary or vocational certification should consult with the department chairperson about available programs. Students who are working toward degrees through colleges other than the College of Education and who expect to gain certification in the teaching areas under the jurisdiction of this Department are subject to the same regulations as students in the College of Education.

Majors and Minors Offered by the Department

ADULT EDUCATION: Graduate program only—see Graduate Programs Bulletin.

BUSINESS EDUCATION

Business Education Programs offer two curricula which lead to the Bachelor of Science in Education and teacher certification; the comprehensive curriculum, which may include vocational office education, and the general curriculum. Graduates are certified to teach business subjects in the junior high school, the mid-school, and the secondary school; however, many are prepared as well for positions in post-secondary or technical-vocational institutes and private business schools.

In general, business teacher education students must complete a teaching major in business subjects, a teaching minor of 24 hours, 27 hours of professional education courses, and 48 hours of general education requirements. Consultation with an adviser in business education and program approval is required.

The first-year student in one of the business teacher education programs may follow the associate of arts degree program in secretarial studies and office administration with the following exceptions: during the first year, the students should: (1) enroll in 6 hours of a natural science; (2) enroll in Speech Communication 270, Speech Communication for Teachers; and (3) start the Gregg shorthand sequence.

The student who wishes to minor in business education (comprehensive) must take Bus Ed 253 and 262 and 18 additional hours in business education, economics, and management. Adviser approval of the program of study is required.

The student who wishes to minor in management (general business) must take Bus Ed 262, Mgt 101, Mgt 102, and 15 additional hours of courses in business education, economics, and management. Adviser approval of this program of study is required.

ASSOCIATE OF ARTS DEGREE IN SECRETARIAL STUDIES AND OFFICE SUPERVISION. Students admitted to any business education program should consult with an adviser for proper placement and credit before enrolling in skill courses Bus Ed 111, 112, 113, and 114, and for selection of appropriate courses and electives.

First Semester

Bus Ed 112 Interm Typing
Bus Ed 113A Shorthand Theory (Gregg)
or

3

Bus Ed 113B Shorthand Theory (Forkner)	3
Engl 101 Wrtg w/Rdgs in Expos	3
Sp Com 101, 130, or 270	3
*Math (See Math Dept for placement)	3
Elective	1
	<hr/> 16

Second Semester

Bus Ed 114 Shorthand Dict (all systems)	3
Bus Ed 262 Adv Typing	3
Engl 102 Analytic Wrtg	3
Hist Electives (approved by adviser)	3
Electives	4
	<hr/> 16

Third Semester

Bus Ed 293 T/Bus Math/Electronic Cal	3
Bus Ed 253 Shorthand Trans (symbol systems only)	3
**Bus Ed 201 Intro to Data Proc	3
Bus Ed 257 Secretarial Admin	3
Econ 200 or 201 Prin and Prob	3
Electives	1
	<hr/> 16

Fourth Semester

Bus Ed 265 Business Comm	3
Bus Ed 350 Voc Off Lab (may be waived if student has had adequate office experience. Elective may be substituted)	3
Mgt 201 Secretarial Acctg	3
Electives	7
	<hr/> 16

Sixty-four hours are required for graduation. Four hours of nonprofessional physical education may be elected.

Complete information on all business education programs may be obtained from a business education adviser. Students who wish to enter any of the above program should see an adviser as soon as the decision is made. Students who have had typewriting or shorthand prior to enrollment at UNM should see an adviser in business education for proper placement in these sequences.

General Secondary Education

Majors and Minors

Available **only** to students in the College of Education are majors in mathematics education, bilingual education, teaching English to speakers of other languages, and composite majors in social studies, science, and communication arts in secondary education. Minors are available in bilingual education, teaching English to speakers of other languages, and teaching of reading in the secondary schools.

Most majors and minors offered by departments of the College of Arts and Sciences and approved for certificate endorsement by the New Mexico State Department of Education may be used as majors and minors for graduation from the College of Education through this Department.

Acceptable as major or minor concentrations are: biology, chemistry, English, French, geography, geology, German, history, mathematics, physics, political science, psychology, sociology, Spanish, speech communication, and theatre arts.

**Prerequisite for MGT 201

Acceptable as **minor** concentrations only are: anthropology, economics, journalism, Latin, library science, and special education.

Composite Teaching Areas

The composite major in a teaching 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. The composite majors are available only to students pursuing a degree through the College of Education. No minor is required for the composite major.

COMPOSITE IN COMMUNICATION ARTS IN SECONDARY EDUCATION. The composite major consists of at least 54 hours of interdisciplinary study including course work in each of these areas: linguistics, English, communication arts, and cultural diversity.

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.

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), geography 351, and 20 hours of geology. The balance of the 54 hours will 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 Psych 240 and 441. The balance of the 54 hours may be selected from chemistry, physics, or geology.

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 two courses in United States history and two 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. A minor is strongly recommended.

Other Majors and Minors

BILINGUAL EDUCATION. Students interested in the major or the minor in bilingual education should consult the departmental adviser at an early time in their university career. The programs require proficiency in English and another language, two certifiable teaching fields, and intensive study in bilingual education.

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, and 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.

MINOR IN TEACHING OF READING IN SECONDARY SCHOOLS. Students minoring in teaching of reading in secondary schools must pursue a major in another certifiable teaching field. The minor in teaching of reading in secondary schools consists of 24 semester hours which include: reading in the secondary schools, elementary reading programs, diagnosis of reading, remedial reading, reading in content areas, and practicum. Candidates for admission into the minor should apply for special screening at the time they apply for admission into the College of Education.

MAJOR AND MINOR IN TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES. The major consists of a minimum of 36 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. 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.

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 student then augment the major of 36 hours with 21 additional hours in foreign language and English for a total of 57 semester hours.

INDUSTRIAL EDUCATION

This curriculum, leading to the degree of Bachelor of Science in Industrial Education, is primarily designed to prepare persons to teach industrial arts in mid-, junior, and senior high schools. Minimum requirements for the industrial education major are met with completion of 54 semester hours of technical course work. The major contains a core of lower division courses and an upper division program. All students in industrial education are required to complete the core courses and, with the approval of an industrial education adviser, to select and complete an upper division program.

In addition to the industrial education major, candidates must complete professional and general education requirements.

The professional education requirements are met with successful completion of 27 prescribed semester hours. General education requirements are met with a minimum of 48 approved semester hours. The program of studies in general education consist of 23 semester hours of prescribed courses, 18 semester hours of course work in prescribed areas, and 7 semester hours of free electives.

A. General Education requirements (48 semester hours)

1. <i>Behavior Sciences</i> elective	3 sem. hrs.
2. <i>Communicative Arts</i> English Writing courses only	3 sem. hrs.
Speech elective	3 sem. hrs.
SATE 438—Reading in Content Field	3 sem. hrs.
3. <i>Multicultural Studies</i> elective	3 sem. hrs.
4. <i>Fine and Practical Arts</i> I.E. 105—Introduction to Ind Ed	2 sem. hrs.
elective	3 sem. hrs.
5. <i>Humanities and Social Sciences</i> elective	6 sem. hrs.
6. <i>Mathematics</i> Math 120	3 sem. hrs.
Math elective	3 sem. hrs.
7. <i>Natural Sciences</i> Chemistry 111	4 sem. hrs.
Physics 102	3 sem. hrs.
8. <i>Health, Physical Education</i> <i>Professional</i> Health Ed 164	2 sem. hrs.
9. <i>General Education</i> electives	7 sem. hrs.
Total	48 sem. hrs.

B. Professional Education requirements (27 sem. hrs.)

Ed Fdn 290 Fdn of Education	3 sem. hrs.
SATE 361 Pre-Student Teaching Exper	3 sem. hrs.
Ed Fdn 303 Human Growth and Development	3 sem. hrs.
Ed. Fdn. 310 Learning and the Classroom	3 sem. hrs.
I Ed 463 Student Teaching Profess Block	15 sem. hrs.
Total	27 sem. hrs.

C. Industrial education (54 sem. hrs.)

I E 110L Machine Woodworking	3 sem. hrs.
I E 111L Intro to Graphic Comm	3 sem. hrs.
I E 112L Graphic Communication	3 sem. hrs.
I E 120L Metal Technology	3 sem. hrs.
I E 165L Safety, Service, & Preventive Maintenance	3 sem. hrs.
I E 230L Power Mechanics	3 sem. hrs.
I E 280L Intro to Electronics	3 sem. hrs.
I E 285L Welding	3 sem. hrs.
I E 312L Architectural Drafting	3 sem. hrs.
I E 320L Manufacturing Technology	3 sem. hrs.
I E 335L Inter Power Mechanics	3 sem. hrs.
I E 350L Cabinetmaking	3 sem. hrs.
I E 365L Adv Machine Metalworking	3 sem. hrs.
I E 280L Adv Electronics	3 sem. hrs.
I E 386L Metal Fabrication	3 sem. hrs.
I E 410L Industrial Plastics	3 sem. hrs.
I E 415L Hot Metal Processes	3 sem. hrs.
I E 470L Construction Technology	3 sem. hrs.
Total	54 sem. hrs.
Grand Total	129 sem. hrs.

The student interested in pursuing a degree in industrial education should contact the Industrial Education Program for a list of required and recommended courses to be taken

in the general education, professional, and technical major areas. Intended majors should meet with an industrial education adviser after completion of six (6) hours in industrial education core courses for the purpose of planning a tentative program of studies. Before a student officially becomes an industrial education major, he/she must be admitted to, and enrolled in, the College of Education.

VOCATIONAL EDUCATION

The Vocational Education Program offers a variety of courses designed to enable students to meet state certification requirements in vocational areas. The certification courses are designed to include instruction in the following areas: curriculum development, teaching methods, classroom and laboratory organization and management, philosophy of vocational education, principles of learning, tests and measurements local planning/needs assessment, instructional materials/ audiovisual aids, leadership development, internships and/or student teaching, and coordination techniques. Certification courses are sequentially scheduled; therefore, it is advisable for the students to inquire early as to when specific courses will be offered. Upon completing this certification program and receiving certification endorsement from the State Department of Education, individuals are qualified to develop Vocational-Technical programs that relate to their specific subject matter areas in the schools when they are employed.

Vocational education concepts and principles have the potential for affecting every subject matter discipline offered in the schools. This program not only welcomes teachers from all classrooms and that will make every teacher's instruction more relevant and meaningful. One of the ways that this is accomplished is through integrating basic skills/lifefskills/occupational skills/career education concepts in the curriculum and training teachers to master this process in the classroom. Students interested in further information concerning the process are advised to seek consultation from the Vocational-Technical program head within the department.

A special program has recently been designed and implemented to help facilitate the growth and certification process for teachers at vocational-technical institutes. On site educational courses, which include several of the same components listed above, are taught. Workshops, developed to provide in-service instruction in critical need areas, are organized. Internship programs, designed to provide teachers with experiences to achieve "mastery of teaching" skills, are arranged. These are but a few of the many services the Vocational-Technical Program offers to the institutes.

The curriculum is designed to achieve three basic educational objectives. The first of these is to offer sufficient instruction in the classes summarizing the most current educational practices and trends affecting today's curriculum. The second objective is to allow students the opportunity to apply this instruction to their specific subject matter areas. Consequently, individualized instruction is not only greatly encouraged, but also integrated into the planning process. The third objective is to integrate a multicultural, non-sexist approach to lesson plan development. By incorporating this last component, teachers learn strategies and techniques for helping all their students to develop their full human potential in a fast changing, highly technological society.

The goal of the Vocational Program at UNM is to ensure excellence in education. Since this is a relatively new program in the department, many plans for expansion are currently being formulated. All interested students are urged to contact the program head or department chairperson to keep informed of new developments.

Graduate Courses

See course listing under Education, Secondary and Adult Teacher. For program, see department Coordinator of Graduate Studies and/or Assistant Chairperson for Business Education or Industrial Education.

Special Education

Minor Program of Studies

The Department of Special Education requires a minimum of twenty (20) hours in the noncertification minor program of studies. The courses to be taken are noted on the Program of Studies Contract. Students are encouraged to take additional courses in the Department if they wish to pursue an endorsement program in Special Education or if they plan to enter a graduate program in the future.

The following courses are required for all students with a minor in special education:

- Sp Ed 201 Education of the Exceptional Person
- Sp Ed 204 Introduction to Special Education
- Sp Ed 306 Introduction to Behavior Management
- Sp Ed Nature and Needs course
- Sp Ed—Six hours approved by adviser in Sp Ed Department

One of the four Nature and Needs courses (Mentally Retarded, Learning Disabled, Behaviorally Disordered, or Gifted) are required. Students will be encouraged to take the course that will cover the particular area of exceptional children in which they are interested or intend to study at the graduate level. They may take more than one Nature and Needs course if they so desire. Other courses required to complete the non-teaching minor may be selected with adviser assistance and approval.

Students should plan to take minor coursework during the regular academic year since most of these courses are not offered during the summer.

Please check with the undergraduate program adviser in the Special Education Department to determine how it is possible to work toward an endorsement at the undergraduate level.

Requirements

Students must earn a grade of B or better in Special Education 201 and 204 (must be taken concurrently) and must have a minimum overall GPA of 2.0 prior to acceptance into the minor in special education. Those students wishing to minor in non-teaching special education must be screened and endorsed by the Department of Special Education. Upon screening into the minor program, the student will be assigned an adviser who will assist in the preparation of the program of studies (contract). This contract must be on file in both the major and minor departments.

In order to remain in the Department as a minor, a student must maintain a B average in all special education courses. A grade of D in any special education course will not be accepted toward the minor program.

Screening

Applicants must contact the Special Education Department for information on screening procedures.

Vocational Education

See *Secondary and Adult Teacher Education*.

The English Second Language Writing Program

This English 100, 101 option provides a special service to those who speak English as a second language or College English as a second dialect. Classes are composed of only fifteen students, meet five hours a week, and give full credit (3 hours each). Admission is voluntary, but the number admitted is limited.

For information, contact the English Second Language Writing Program, Marron Hall, Room 217, or telephone the secretary, 277-5426. Applications should be submitted early. Registration is by instructor permission only.

Intensive English Institute. The intensive English Institute offers full-time English language classes (non-credit) for students planning to attend an American university. Student visas may be obtained for the program. A Certificate of Attendance or Certificate of Completion is awarded. Classes are offered in summer, fall and spring according to the regular university schedule. Inquiries should be made at the Office of International Programs and Services.

COURSES OF INSTRUCTION

ART EDUCATION

James Srubek, Chairperson
Art Education-Masley Hall, 277-4112.

PROFESSORS:

Howard McConeghey, Ed.D., Michigan State University
James Srubek, Ph.D., Pennsylvania State University
Neal Townsend, M.A., University of New Mexico

ASSOCIATE PROFESSOR:

Beverly Schoonover, M.A., University of New Mexico

ASSISTANT PROFESSOR:

Phil Peterson, M.A., New York University

MAJOR CERTIFICATION CURRICULUM—OPTIONS I AND II

See p. 164.

MINOR STUDY

See p. 165.

ART EDUCATION (ART ED)

120. Techniques of Craft Education. (1-3)

Beginning crafts and teaching methods for recreation situations. Special fee required. (Spring)

214. Art in Elementary and Special Classrooms I. (3)

Understanding the art process as it relates to the growth and development of children. Experiences, methods, and curriculum for art education in the elementary school. Sequel course is 215. Special fee required. (Summer, Fall, Spring)

215. Art in Elementary and Special Classrooms II. (3)

Continuation of Art Ed 214 with more emphasis on expanding art forms, media and concepts for art teaching in elementary and special classrooms. Special fee required.
Prerequisite: 214. (Offered upon demand)

220. Teaching Art in the Elementary School. (3) Peterson
Philosophical, psychological, theoretical and practical con-

cepts about teaching art in the elementary school, including observation of the involvement in art teaching situations. Initial screening course and prerequisite for K-12 and 7-12 art certification curricula. Special fee required. {Fall, Spring}

230. Techniques of Design Education. (3)

Design in everyday life. Special fee required. {Fall}

285. Recreation Arts and Crafts. (3) Townsend

Exploration of recreational arts and crafts including application of techniques, materials, and methodology of teaching and supervising arts and crafts activities in all age groups of a heterogeneous nature. Course includes laboratory and field experiences in preselected sites. Course designed to develop full potential of students for recreation. Special fee required. {Fall}

293. Topics. (1-3)†

Courses on a variety of topics are offered according to need and interest. Different section numbers indicate different topics. {Offered upon demand}

320. Teaching Art in Secondary School. (3) McConeghey, Townsend

Philosophical, psychological, theoretical and practical concepts about teaching art in the middle/junior and senior high school, including observation of and involvement in art teaching situations. Additional screening course when indicated in individual cases.

Prerequisite: 220. {Fall, Spring}

357. Media-Arts and Women. (3)

(Also offered as Women St. 357.) Will present overview of women in art and media; will survey history of women in communications media; will serve as a workshop for developing skills; will interpret how the media influences status of women.

Prerequisite: WS 200. {Offered upon demand}

391. Problems. (1-3)

Individual problems are studied and researched under the supervision of a faculty member.

Permission of faculty member involved is required. {Summer, Fall, Spring}

§400. Elementary Student Teaching in Art. (3, 6, 9, to a maximum of 15) Peterson, Schoonover

Directed and supervised student teaching in art at the elementary level (grades 1-6) in a school plus a seminar on campus dealing with theory and practice relevant to art in the elementary school.

Prerequisites: 220, 320, and approval of the Department's Director of Elementary Student Teaching. {Fall, Spring}

414. Art Education in Elementary School Teaching. (3)

Schoonover, Peterson

Direct experience with the art process set in a theoretical context for elementary school teaching oriented toward curriculum development in art, integration of art with the rest of the curriculum, art as non-verbal communication and the multi-cultural aspects of art. Special fee required. {Offered upon demand}

420. Art Education in Early Childhood. (3) Peterson

Theory, methods, curriculum for teaching art with children ages 4-7 emphasizing the teachers response to the creative needs of young children as a part of their total growth and learning. Special fee required. {Spring}

430. Studio Art in the School: _____. (3) Srubek,

Townsend, McConeghey, Peterson, Schoonover

Studio experience in art for school situations. Different art forms are emphasized in different offerings of the course—e.g., Studio Art in the School: Ceramics; Studio Art in the Schools: Weaving, etc. May be repeated for credit as studio area varies; may be taken twice with same studio area. Special fee required. {Summer, Fall, Spring}

§460. Student Teaching in the Middle/Junior High School.

(3, 6, 9) Schoonover

Directed and supervised student teaching in art at the middle/junior high level (grades 6-9) in a school plus a seminar on campus dealing with theory and practice relevant to art in the middle/junior high school.

Prerequisites: 220, 320, 400, and approval of the Department's Director of Secondary Student Teaching. {Fall, Spring}

§461. Student Teaching in the Senior High School. (3, 6, 9)

Schoonover

Directed and supervised student teaching in art at the senior high level (grades 9-12) in a school plus a seminar on campus dealing with theory and practice relevant to art in the senior high school.

Prerequisites: 220, 320, 400, 460 and approval of the Department's Director of Secondary Student Teaching. {Fall, Spring}

465. Art and the Exceptional Child. (3) Schoonover

(Also offered as Spec Ed 465.) Course designed to acquaint teachers with the value and therapeutic uses of art in special education classrooms and to acquaint art education majors with adaptations of art to various exceptional cases. Special fee required. {Fall}

468. The Image and Imagination in Art Education and Art Therapy. (3) McConeghey

Metaphorical aspect of art and reality, and importance of man's images in relation to art education and art therapy. Imaginal basis of memory and cognition, psychological source of image in the unconscious and its fundamental importance in human motivation and experience. {Spring}

470. Art in Multicultural Education. (3) Peterson

Survey of the major cultural elements relating to the American Southwest and attempts to affect the inclusion of the cultural element into the teaching of art as well as provide a methodology and curricular component. Special fee required. {Fall, Spring}

475. Art, Architecture and Environmental Education in the Schools. (3)

(Also offered as Arch 462.) The use of art and architecture in the school curriculum. The aesthetics of the built environment in relation to design and behavior and the order and delicate design in nature and buildings. Design of learning environments are also explored. Special fee required. {Offered upon demand}

492. Workshop. (1-4)†

Different workshops are offered about various aspects of art education according to interest and need. Different sections indicate different workshops.

Prerequisite: varies with workshop content. {Offered upon demand}

493. Topics. (1-3)†

Courses on a wide variety of topics about art education are offered according to interest and need. Different sections indicate different topics.

Prerequisite: varies with course topic. {Offered upon demand}

495. Field Experience. (3-6, to a maximum of 12)

Planned and supervised professional laboratory or field experiences in agency or institutional setting.

Prerequisite: permission of instructor.

***500. Seminar in Art Education. (1-3)† McConeghey, Srubek**

{Fall}

§A maximum of 15 hours of student teaching combined (all levels) is allowed.

BUSINESS EDUCATION

See *Secondary and Adult Teacher Education*.

COUNSELOR EDUCATION

Darrell E. Anderson, Chairperson
Mesa Vista 4021, 277-4535

PROFESSORS:

Darrell E. Anderson, Ph.D., University of Nebraska
Lewis A. Dahmen, Ed.D., Arizona State University
William R. Fishburn, Ed.D., University of Arizona
Wayne R. Maes, Ph.D., Michigan State University
Robert Micali, Ed.D., Rutgers University

ASSOCIATE PROFESSORS:

Marion J. Heisey, Ph.D., Kent State University
John R. Rinaldi, Ed.D., Texas Tech University
Gordon A. Zick, Ed.D., University of Illinois

ASSISTANT PROFESSORS:

H. R. (Hank) Cellini, Ph.D., Southern Illinois University
V. O. Long, Ph.D., Washington State University
Clifford O. Morgan, Ph.D., University of Arizona

PROFESSOR EMERITI:

George L. Keppers, Ed.D., University of Colorado
Helen Whiteside, Ed.D., Columbia University

COUNSELOR EDUCATION (COUNS)

***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) Long
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. {Fall}

420. Foundation 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}

430. Dynamics of Human Behavior. (3) Maes, Zick
To permit the student to achieve a broader base with respect to 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}

***510. Curriculum Development in Art Education.** (3) McConeghey, Srubek
{Spring}

***514. Art Education in Elementary School Teaching.** (3) Schoonover, Peterson
{Offered upon demand}

***520. Art Education in Early Childhood.** (3) Peterson
{Spring}

***530. Studio Art in the School:** _____. (3) Srubek, Townsend, McConeghey, Peterson, Schoonover
May be repeated for credit as studio area varies. May be taken twice with same studio area. {Summer, Fall, Spring}

***561. Practicum in the Supervision of Instruction.** (3)†
{Summer, Fall, Spring}

***565. Art and the Exceptional Child.** (3) Schoonover
(Also offered as Sp Ed 565.) {Fall}

***568. The Image and Imagination in Art Education and Art Therapy.** (3) McConeghey
{Spring}

***570. Art in Multicultural Education.** (3) Peterson
{Spring}

***574. [564.] Art for the Gifted.** (3) Schoonover
(Also offered as Sp Ed 574). Special fee required. {Spring}

***575. Art, Architecture and Environmental Education in the Schools.** (3)
(Also offered as Arch 562.) {Offered upon demand}

***585. Research Applied to Art Education.** (3) Srubek
(Also offered as Ed Fdn 500.) {Fall}

***590. Current Trends and Issues in Art Education.** (3) McConeghey, Srubek
{Spring}

***591. Problems.** (1-3, to a maximum of 6)
{Summer, Fall, Spring}

***592. Workshop.** (1-3)†
{Offered upon demand}

***593. Topics.** (1-3)†
{Offered upon demand}

***595. Advanced Field Experiences.** (3-6, to a maximum of 12)
Prerequisite: permission of instructor. {Summer, Fall, Spring}

***598. Directed Reading in Art Education.** (1-3, to a maximum of 6)
{Summer, Fall, Spring}

***599. Master's Thesis.** (1-6 hrs. per semester) McConeghey, Srubek, Townsend
See the Graduate Programs Bulletin for total hour requirements. {Summer, Fall, Spring}

***610. Curriculum Development in Art Education.** (3) Srubek, McConeghey
Prerequisite: Permission of instructor. {Spring}

***696. Internship.** (3-6, to a maximum of 12)
{Summer, Fall, Spring}

***698. Directed Readings in Art Education.** (1-6, to a maximum of 12) McConeghey, Srubek
{Summer, Fall, Spring}

***699. Dissertation.** (3-12 hrs. per semester) McConeghey, Srubek
See the Graduate Programs Bulletin for total hour requirements. {Summer, Fall, Spring}

476. Medical Aspects in Counseling. (3)

An introduction to medical information for the counselor who has a need to understand and interpret information about clients who have a disability or who are on medication. The counselor must be conversant with medicine because he/she may be professionally involved with people who have experienced severe and disabling illness. {Fall}

***492. Workshop in Counseling. (1-4) Staff**

Carries graduate credit when specifically approved by the Office of Graduate Studies. {Offered upon demand}

493. Topics. (1-3) Staff**510. Techniques of Parent-Teacher Counseling. (1, 2, 3) Micali**

(Also offered as Spec Ed 508.) Prerequisite: 420 or permission of instructor.

***511. Rehabilitation Resources and Placement Laboratory. (1-3)**

Corequisite: 410. {Fall}

***512. Differential Diagnosis I. (3) Heisey, Micali**

Prerequisite: permission of instructor.

513. Socio-Economic Information in Counseling. (3) Dahmen**514. Organization and Supervision of Counseling Services. (3) Rinaldi*****515. Using Tests in Counseling. (3) Anderson, Micali*****516. Clinical Case Study. (3) Anderson, Micali**

{Fall, Spring}

***517. Theories of Counseling. (3) Fishburn, Maes, Morgan**

Prerequisite: 520, 530. {Summer, Fall, Spring}

***518. Group Counseling. (3) Fishburn, Heisey, Rinaldi, Morgan**

Pre- or corequisite: 517.

520. Foundation of Counseling. (3) Staff**530. Dynamics of Human Behavior. (3) Maes, Zick*****531. Theories of Human Interaction. (3) Staff**

{Fall, Spring}

540. Counseling in the Elementary School. (3) Dahmen, Long, Heisey**541. Counseling and Play Therapy with Children. (3) Heisey*****550. College Personnel Work. (3)*****560. Family Counseling. (3) Zick**

Prerequisites: 420, 430, 517 and a course in the study of the family.

***575. Values Clarification. (3) Heisey**

Prerequisite: permission of instructor.

***576. Medical Aspects in Counseling. (3) Cellini**

{Fall}

***580. Psychosocial Aspects of Disability. (3) Fishburn**

{Spring}

***590. [519.] Practicum in Counseling. (1-6) Staff**

Prerequisites: 520, 530, 517, 518, and permission of instructor.

***591. Problems. (1-3, to a maximum of 6) Staff**

Prerequisite: permission of instructor.

***592. Workshop in Counseling. (1-4) Staff**

For degree restrictions, consult the Graduate Programs Bulletin.

593. Topics. (1-3) Staff**596. Internship in Rehabilitation. (1-12) Cellini**

Prerequisites: 420, 430, 517, 518, 590.

***599. Master's Thesis. (1-6 hrs. per semester) Staff**

See the Graduate Programs Bulletin for total credit requirements.

620. Seminar in Counseling. (3) Staff**621. Advanced Theories of Counseling and Psychotherapy. (3) Fishburn, Maes*****622. Advanced Group Counseling and Psychotherapy. (3) Fishburn, Maes*****630. Advanced Practicum in Counseling, Counselor Education, and Supervision. (3-6) Maes, Micali*****696. Internship. (3-6, to a maximum of 12) Maes, Micali*****699. Dissertation. (3-12 hrs. per semester) Staff**

See the Graduate Programs Bulletin for total credit requirement.

EDUCATIONAL ADMINISTRATION

Paul A. Pohland, Chairperson
Education 207, 277-4533

PROFESSORS:

Ronald E. Blood, Ph.D., Claremont Graduate School
David Colton, Ph.D., University of Chicago
Richard E. Lawrence, Ed.D., Columbia University
Paul A. Pohland, Ph.D., Washington University
Alex Sanchez, Ed.D., New Mexico State University
Richard F. Tonigan, Ed.D., Columbia University
Horacio Ulibarri, Ed.D., University of New Mexico

ASSOCIATE PROFESSORS:

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Manuel J. Justiz, Ph.D., Southern Illinois University
Richard A. King, Ph.D., State University of New York
Carolyn J. Wood, Ph.D., Washington University

ASSISTANT PROFESSORS:

Virginia C. Higbie, Ph.D., University of New Mexico
Ruth A. Luckasson, J.D., University of New Mexico

LECTURER:

Ernest S. Stapleton, M.A., University of New Mexico

PROFESSORS EMERITUS:

Frank Angel, Ph.D., University of California
Harold Wade Lavender, Ph.D., University of New Mexico
Paul Vernon Petty, Ph.D., University of Texas
Chester C. Travelstead, Ph.D., University of Kentucky

The programs offered in this department are at the graduate level. For information concerning these programs, consult the Graduate Programs Bulletin.

EDUCATIONAL ADMINISTRATION (ED AD)

***509. Introduction to Educational Administration. (3) Blood, Wood**
{Summer, Fall, Spring}

- *510. School-Community Relations. (3)** Lawrence
Prerequisite: 509. {Summer, Fall, Spring}
- *512. Public Education in New Mexico. (3)** Cordova, Stapleton
{Summer, Fall, Spring}
- *520. The School Principalship. (3)** Blood
Prerequisite: 509. {Summer, Fall, Spring}
- *521. Public School Finance. (3)** King
{Summer, Fall}
- *522. School Business Management. (3)** King
{Summer, Fall, Spring}
- *526. Educational Planning and the School Plant. (3)** Tonigan
{Summer, Spring}
- *530. Administration of Adult Education. (3)** Cordova
{Fall}
- *531. Administration of Staff Personnel. (3)** Pohland
Prerequisites: 509, 520. {Summer, Spring}
- *532. Current Educational Problems. (3)** Staff
{Offered upon demand}
- *560. Supervision of Instruction (Elementary and Secondary). (3)** Pohland, Wood
(Also offered as Ed Ed 560.)
Prerequisites: 509, 520 for administration majors. {Summer, Fall, Spring}
- *561. School Law. (3)** King, Luckasson
Prerequisite: 509. {Summer, Fall, Spring}
- *564. School and Community Surveys. (3)** Tonigan
Prerequisite: 510. {Summer, Fall}
- *571. State and Federal Educational Administration. (3)** Lawrence
Prerequisites: 509, 510. {Summer, Spring}
- *581. Seminar in Educational Administration. (3)** Staff
Prerequisite: permission of instructor. {Summer, Fall, Spring}
- *591. Problems. (1-3, to a maximum of 6)** Staff
{Summer, Fall, Spring}
- *592. Workshop in Educational Administration. (1-4)** Staff
{Offered upon demand}
- *593. Topics. (1-3)** Staff
{Summer, Fall, Spring}
- *595. Advanced Field Experiences. (3-6, to a maximum of 12)** Staff
Prerequisite: acceptance into a graduate program and permission of instructor. {Offered upon demand}
- *596. Internship. (3-6, to a maximum of 12)**
Masters and Ed Spec students only.
- *598. Directed Readings in Educational Administration. (3-6, to a maximum of 6)**
- *599. Master's Thesis. (1-6 hrs. per semester)** Staff
See Graduate Programs Bulletin for total credit requirements.
- *605. Qualitative Research in Education. (3)** Pohland
(Also offered as Ed Fdn 605.)
Prerequisite: Ed Fdn 501 or equivalent. {Fall}
- *626. Educational Buildings and Equipment. (3)** Tonigan
Prerequisite: 526. {Offered upon demand}
- *629. Seminar for Practicing School Administrators. (1-3)** Staff
{Offered upon demand}
- *630. Administration in Higher Education. (3)** Blood, Justiz, Lawrence
Prerequisite: permission of instructor. {Fall}

- *695. Field Experiences in Educational Administration. (1-6, to a maximum of 6)** Staff
{Offered upon demand}
- *696. Internship. (3-6, to a maximum of 12)**
Doctoral students only.
- *698. Directed Readings in Educational Administration. (3-6, to a maximum of 12)**
- *699. Dissertation. (3-12 hrs. per semester)** Staff
See the Graduate Programs Bulletin for total hour requirements.

EDUCATIONAL FOUNDATIONS

Albert W. Vogel, Chairperson
Education Office Building 215, 277-5141

PROFESSORS:

Mary B. Harris, Ph.D., Stanford University
Vera P. John-Steiner, Ph.D., University of Chicago
Wayne P. Moellenberg, Ed.D., Colorado State College
James C. Moore, Ph.D., Arizona State University
Paul E. Resta, Ph.D., Arizona State University (Associate Dean)
Albert W. Vogel, Ed.D., American University
John T. Zepper, Ed.D., University of Missouri

ASSOCIATE PROFESSORS:

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Peggy J. Blackwell, Ph.D., Texas Technological University
Candace G. Schau, Ph.D., Iowa State University
Rupert A. Trujillo, Ed.D., University of New Mexico (Dean, Continuing Education)
Guy A. Watson, Ed.D., University of Southern California

ASSISTANT PROFESSORS:

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Shiame Okunor, Ph.D., University of New Mexico
Gladys Levis-Piiz, Ph.D., Northwestern University
Nevada W. Thomason, Ed.D., University of Colorado
Andrea Vierra, Ph.D., University of New Mexico

AFFILIATED FACULTY

Charles D. Biebel, Ph.D., University of Wisconsin (Madison)
Dan D. Chavez, Ph.D., University of Michigan
John W. Oller, Ph.D., University of Rochester

PROFESSORS EMERITI:

James G. Cooper, Ed.D., Stanford University
Louis A. Rosasco, Ed.D., New York University

EDUCATIONAL FOUNDATIONS (ED FDN)

181. Seminar for Returning Women Students. (3)
(Also offered as Women St 181.) Designed for women who are entering or returning to school after an interruption; will identify problems associated with re-entry; will review academic skills; will provide an opportunity to begin to define educational needs and issues.

193. Topics. (1-3)

203. Introduction to Human Development. (3)
Designed to serve either as an introduction to a sequence of four courses in the area of human development, or as a self-contained resource for students requiring a basic orientation with a practical emphasis.

210. Introduction to Classroom Learning. (3)

Designed to serve either as an introduction to a sequence of four courses in the area of education psychology and learning, or as a self-contained resource for students requiring a basic orientation with a practical emphasis.

262. Introduction to Linguistic Analysis. (3)

(See Ling 292L.)

290. Foundations of Education. (3) Bachelor, Vogel, Zepper

An introduction to the philosophical, social, historical, and comparative foundations of education. {Summer, Fall, Spring}

291. Problems. (1-3)**293. Topics. (1-3)*****303. Human Growth and Development. (1-3)** Harris, John-

Steiner, Levis-Pilz, Moellenberg, Schau
Principles of growth and development and implications for the school curriculum. {Summer, Fall, Spring}

310. Learning and the Classroom. (3) Blackwell, Harris,

John-Steiner, Moellenberg, Schau
The basic principles of learning and their application to classroom situations. {Summer, Fall, Spring}

***353. Bilingual Education: History and Theory. (3)**

(Also offered as Ling 353.) Survey of multilingual education throughout the world; principles and practices.
Prerequisite: an introductory linguistic course.

***362. Language Testing. (3)**

(Also offered as Ling 362.) Survey of language testing procedures with special application in multilingual and bilingual education programs.

Prerequisite: an introductory linguistics course; some knowledge of statistics recommended.

374. Principles of Educational and Psychological Measurement. (3) Blackwell, Harris, Moellenberg, Moore

An analysis of the educational and psychological tests used in a school testing program.

383. Education of the Mexican-American: Trends, Issues, Problems. (3)

(Also offered as Spec Ed 383.)

384. Women and Self-Education. (3)

An analysis of how to take the tools of learning into one's own hands in order to change women's second-class position in society.

Pre- or corequisite: at least one other course in women studies or education.

391. Problems. (1-3)***401. U. S. Politics and Education. (3)** Garcia

(Also offered as Pol Sci 303.) 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.

***403. Principles of Human Development. (3)** Mollenberg

A survey of major developmental theories and their implications for educational practices. Intended for advanced undergraduates, in-service teachers, and graduate students with limited background in developmental theory. {Summer, Spring}

***410. Principles of Classroom Learning. (3)** Moellenberg

A survey of major learning theories and their implications for educational practices. Intended for advanced undergraduates, in-service teachers, and graduate students with limited background in learning theory. {Summer, Fall}

***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, soci-

ologists, and philosophies to educational thought and practice in the U.S.A.

Prerequisite: a course in American history.

***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: course in world history.

415. Philosophies of Education. (3) Vogel, Zepper

A survey of philosophical systems and their application to education.

Prerequisite: 290 or equivalent. {Summer, Fall, Spring}

***420. Small Group Communication. (4)** Rosenfeld

(Also offered Sp Com 425.) 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)** Levis-Pilz

An overview of educational implications from the field of anthropology. {Fall, Spring}

***456. Science, Technology, and Human Values: Implications for Education. (3)**

(Also offered as I Ed, SATE 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.

***474. Principles of Educational and Psychological Measurement. (3)** Blackwell, Harris, Moellenberg, Moore

An analysis of the educational and psychological tests used in a school testing program.

***481. [483.] Education Across Cultures in the Southwest. (3)**

(Also offered as SATE and El Ed 481.) {Summer, Fall, Spring}

486. Psychological Development of Women. (3)

Prerequisites: an introductory course in psychology and/or a course in the psychology of personality. An introductory course in women's studies is recommended but not necessary.

487. Sexism in Education. (3)

(Also offered as Women St 487.) Course will focus on an historical and sociological analysis of discrimination as well as the psychological effects on children and adults. Will include the development of sex roles, the effects of curricula materials and Title IX.

Prerequisites: 290, Women St 200, and permission of instructor.

493. Topics. (1-3)**495. Field Experience. (3-6, to a maximum of 12)**

Planned and supervised professional laboratory or field experiences in agency or institutional setting.

Prerequisite: permission of instructor. {Summer, Fall, Spring}

***500. Research Applications to Education. (3)** Bachelor,

Levis-Pilz, Vierra, Vogel, Zepper
(Also offered as Art Ed 585.) {Summer, Fall, Spring}

***501. Fundamental Statistics in Education I. (3)** Blackwell,

Harris, Moellenberg, Moore
{Summer, Fall, Spring}

***503. Seminar in Human Growth and Development.** (3) Blackwell, Harris, Moellenberg
(Also offered as H Ec 503.)

***504. Computer Applications to Education.** (3) Blackwell, Schau

***505. Planning and Conducting Educational Research.** (3) Harris
Prerequisite: 501 or equivalent.

***507. Research Design in Health, Physical Education, and Recreation.** (3)
(Also offered as PE, H Ed, Rec 507.)

***510. Seminar in Classroom Learning.** (3) Blackwell, Harris, Moellenberg
{Spring}

***515. Philosophies of Education.** (3) Vogel, Zepper
Graduate students taking this course for certification only should enroll in Ed Fdn 415. {Summer, Fall, Spring}

***516. Educational Classics.** (3) Zepper

***517. Educational Ideas in Literature.** (3) Vogel

***518. Comparative Education.** (3)† Bachelor, Zepper

***524. Computers in the Educational Process.** (3)
Prerequisite: 504.

***533. Behavior Modification in Education.** (3) Blackwell, Harris

***555. Seminar in Educational Linguistics.** (1-3)† John-Steiner, Oller
(Also offered as Ling 555.)

***562. Seminar.** (3)†
(Also offered as Ling 562.)

***563. 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.)

***586. Psychological Development of Women.** (3)
Prerequisite: an introductory course in the psychology of personality. An introductory course in women's studies is recommended but not necessary.

***591. Problems.** (1-3 hrs. each semester)

***592. Workshop in Foundations of Education.** (1-4)†
For degree restrictions see p.** of this catalog or consult the Graduate Programs Bulletin.

***593. Topics.** (1-3)†

***595. Advanced Field Experiences.** (3-6, to a maximum of 12)
Prerequisites: acceptance into a graduate program and permission of instructor. {Summer, Fall, Spring}

***598. Directed Readings in Educational Foundations.** (3-6, to a maximum of 6)

***599. Master's Thesis.** (1-6 hrs. per semester)
See Graduate Programs Bulletin for total credit requirements.

***603. Statistical Design and Analyses in Education.** (3) Blackwell, Harris, Moore
{Summer, Fall, Spring}

***604. Multiple Regression Techniques as Applied to Education.** (3) Blackwell, Moore, Schau

***605. Qualitative Research in Education.** (3)
(Also offered as Ed Admin 605.)
Prerequisite: 501 or equivalent.

***606. Statistical Designs and Analyses for Multiple Dependent Measures.** (3) Schau

Prerequisites: 603 and 604 or permission of instructor. {Fall}

***615. Contemporary Philosophies of Education.** (3) Vogel, Zepper

***645. Advanced Seminar in Foundations of Education.** (3)†

***650. Dissertation Seminar.** (1-3) Harris, Resta

***696. Internship.** (3-6, to a maximum of 12)

***698. Directed Readings in Educational Foundations.** (3-6, to a maximum of 12)

***699. Dissertation.** (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

LIBRARY/MEDIA

The area of library/media includes library science and media courses. Three programs in library science are offered: a minor of 24 semester hours credit for undergraduates in other departments in the College of Education, an outside minor of 21 hours for undergraduates in the College of Arts and Sciences and a M.A. Program in Educational Foundations for those who hold a B.A. Students interested in certification as a school library/media specialist should contact the Department of Educational Foundations for current requirements.

MAJOR STUDY

Not offered.

MINOR STUDY FOR UNDERGRADUATES IN EDUCATION

Consult Educational Foundation Department Chairperson.

MINOR STUDY FOR UNDERGRADUATES IN ARTS AND SCIENCES

Consult Educational Foundations Department Chairperson.

LIBRARY/MEDIA (LIB MED)

235. Video Laboratory for Educators. (1) Watson
Laboratory instruction and practice in the operation of portable 1/2", color video recording and editing of individual tapes. Lab fee.
Prerequisite: permission of instructor. {Summer, Fall, Spring}

247. Library and Media for Educators. (3)
An introductory course for educators. This course will explore the resources of library and media centers.
Not intended for Library/Media certification.

391. Problems. (1-3)
Prerequisite: permission of instructor.

424. Fundamentals of Library Science. (3)
This basic course in library media is to give students knowledge, skills, and motivation to integrate people, materials, equipment and facilities into the school curriculum.

425. Reference and Bibliography. (3)
Study of materials and methods for locating information in general works, encyclopedias, dictionaries, indexes, biographical works, media guides, and other major tools in subject fields.

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 nonbook materials.

432. Production and Utilization of Instructional Materials. (3)

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. Lab fee required. {Summer, Fall, Spring}

433. Instructional Design and Development—A Systems Approach. (3)

Application of instructional design and development principles to the 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 instructions.

Prerequisite: 432 recommended as introductory course.

434. TV Techniques and Use in Education. (3) Watson
Research into education uses of TV, operation of portable TV equipment; graphic, audio, lighting lab, and editing lab; planning and producing a Storyboard script and producing a video tape program. Lab fee.

Prerequisite: 432 recommended as introductory course.

***435. Video Laboratory for Educators. (1)**

Laboratory instruction and practice in the operation of portable, 1/2", color video recording and editing equipment. Students will record and edit individual tapes. Lab fee.

Prerequisite: permission of instructor required. {Summer, Fall, Spring}

436. 8mm Film-Production and Use in Learning Environments. (3) Watson

Research on use and value of film in education; social, cultural, and experiential variables affecting learning from film. Operation and use of 8mm cameras, editors, and projectors; principles of design, scripting, and Storyboard preparation; lighting, editing, and animation labs, production of two films.

437. Selection of Materials for Libraries and Media Centers. (3)

Study of the principles of selection and evaluation for developing collections of print and nonprint materials; includes acquisition policies, criteria, and tools for selection. {Summer, Spring}

438. Still Photography Techniques and Use in Education. (3)

Research into uses and values in education; research related to effect of culture, social level, and experience on the interpretation of photography; operation of 35mm cameras; processing film; printing and enlarging; lighting, composition mounting prints; teaching photography to students and inexpensive substitutes for photo equipment. Lab fee.

Prerequisite: 432 recommended as introductory course.

441. Children's Literature. (3)

(Also offered as El Ed 441.)

Pre- or corequisite: El Ed 331. {Summer, Fall, Spring}

451. Books and Related Materials for Young Adults. (3)

A survey of books and nonbook materials suitable for students of junior and senior high school age. Emphasis on utilization and evaluation of materials, adolescent reading, viewing and listening interest.

457. Government Documents. (1-3)

Introduction to U.S. federal, state, and international government publications, the acquisition, organization, and reference service of government publications, and the field of government document librarianship.

460. The Organization and Administration of Media Centers. (3)

Study of the organization and management of media centers, of facility design and services related to the production and distribution of materials and equipment.

470. Automation in School Library Media Centers. (3)

To instruct library media specialists in the basics of computer technology, its application to school library media centers, and how to program a typical library problem.

492. Workshop. (1-4)

Carries graduate credit when specifically approved by the Office of Graduate Studies. Consult this catalog and the Graduate Programs Bulletin for restrictions.

524. Fundamentals of Library Science. (3)**525. Reference and Bibliography. (3)*****527. Classification and Cataloging. (3)*****532. Production & Utilization of Instruction Materials. (3)*****533. Instructional Design and Development-A Systems Approach. (3)*****534. TV Techniques and Use in Education. (3)**

Prerequisite: 432 recommended as introductory course.

536. 8mm Film Production and Use in Learning Environment. (3)**537. Selection of Materials for Libraries and Media Centers. (3)*****538. Still Photography Techniques and Use in Education. (3)**

Prerequisite: 432 recommended as introductory course.

541. Children's Literature. (3)**551. Books and Related Materials for Young Adults. (3)*****557. Government Documents. (1-3)*****560. Organization and Administration of Media Centers. (3)*****570. Automation in School Library Media Centers. (3)*****592. Workshop. (1-4)**

Consult the Graduate Programs Bulletin for restrictions.

ELEMENTARY EDUCATION

Donald Kelly, Chairperson
Mesa Vista 2043, 277-4114

PROFESSORS:

F. Keith Auger, Ed.D., University of Illinois
David W. Darling, Ed.D., University of Texas
Mari-Luci Jaramillo, Ph.D., University of New Mexico
Donald E. Kelly, Ed.D., Arizona State University
Catherine E. Loughlin, Ed.D., Rutgers University
Paul W. Tweeten, Ph.D., University of Iowa

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Guillermo Engelbrecht, Ph.D., Arizona State University

Marlis Mann, Ed.D., Arizona State University
 Leroy Ortiz, Ph.D., University of New Mexico
 Anita Pfeiffer, M.A., University of Arizona
 Sara Dawn Smith, Ph.D., University of Maryland
 Richard Van Dongen, Ed.D., University of New Mexico

ASSISTANT PROFESSORS:

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 Luisa C. Duran, Ph.D., University of New Mexico
 Zelda Maggart, Ph.D., University of New Mexico
 Patrick (Rick) B. Scott, Ed.D., Columbia University

EMERITI FACULTY:

Harold D. Drummond, Ed.D., Stanford University
 Miles V. Zintz, Ph.D., University of Iowa

ELEMENTARY EDUCATION (EL ED)

§128. Directed Experience with Children for Auxiliary Personnel, Level I. (1-6)

Designed to provide classroom experiences to adults working with children. Student has opportunity to develop skills in theory and practice which accommodates the learning styles of children.

§192. Workshop: The Paraprofessional in the Classroom. (1-6)

To be taken concurrently with Elementary Education 128, and provides the cognitive referents for the classroom experiences. Enables the student to gain practical and theoretical knowledge.

§200. Directed Experience with Children for Auxiliary Personnel, Level II. (1-6)

Provides the sequel necessary to extend skills introduced in Elementary Education 128, and the opportunity for students to initiate extensive development of activities, classroom management, and teacher skills.

291. Problems. (1-3)

Prerequisite: permission of instructor.

§292. Workshop: Working with Children in Elementary Schools. (1-6)

Offered to follow 192 and to correlate with 200. Offers the opportunity for students to do extensive investigations regarding teaching techniques, child development and classroom organization.

Prerequisite: 192.

293. Topics. (1-3)

298. Music for the Elementary Teacher. (3)

(Also offered as Music Ed 298.) Designed to prepare elementary classroom teachers to teach music education in a self-contained classroom in traditional and open situations. {Fall, Spring}

300. Bilingual Teaching Methods-Materials and Techniques. (3-9) Duran, Jaramillo, Ortiz

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) Engelbrecht, Loughlin, Mann, Oxford

Strategies and materials of effective learning experiences and classroom organization for young children. {Summer, Fall, Spring}

319. Physical Education in the Elementary School. (3)

(Also offered as PE 217.) 4 class meetings a week. {Summer, Fall, Spring}

321L. Teaching of Social Studies in the Elementary School. (3) Auger, Kelly, Ortiz, Pfeiffer

Development of conceptual framework for study of community-based curriculum with emphasis on the diverse cultures of the southwest and value clarification. Supervised work with children allows for in-depth analysis of both content and process. 3 lectures, 1 hr. lab. {Fall, Spring}

331L. Teaching of Reading in the Elementary School. (3) Altwerger, Maggart, Van Dongen

Establishing a theoretical framework for exploring various approaches to reading/language development, instruction and evaluation in multicultural classroom settings. 3 lectures, 1 hr. lab. {Fall, Spring}

333L. Teaching Oral and Written Language in the Elementary School. (3) Duran, Engelbrecht, Ortiz

Study of oral and written forms of language. Background theory in language development and use in teacher-child interactions is presented and followed by carefully designed experiences with children. 3 lectures, 1 hr. lab. {Fall, Spring}

341. Techniques of Literary Presentations. (2-3) Van Dongen

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}

***353L. Teaching of Science in the Elementary School. (3)** Duran

Methods, processes, content and management of children's science observation, exploration, discovery, and invention; attitudes of inquiry, and wonderment. Science integrated with math and other areas of life. 3 lectures, 1 hr. lab. {Fall, Spring}

361L. Teaching of Mathematics in the Elementary School. (3) Darling, Scott

Strategies and materials appropriate for traditional and innovative instructional programs in elementary school mathematics. Supervised work with children allows for in-depth analysis of both content and process.

Prerequisite: see Department of Mathematics. 3 lectures, 1 hr. lab. {Fall, Spring}

391. Problems. (1-3)

Prerequisite: permission of instructor. {Summer, Fall, Spring}

400. Student Teaching in the Elementary School. (3-6-9-12-15) Staff

Pre- or corequisite: 321L, 331L, 333L, 353L, 361L. See additional requirements on p. 162. Special fee of \$10 is charged. {Fall, Spring}

***421. The Social Studies Program in the Elementary School. (Estudios Sociales en las Escuela Primaria.) (3)** Auger, Kelly, Ortiz

Overview and development of the social studies curriculum within the contexts of the elementary school program and multicultural community settings.

Prerequisite: 321L. {Summer 1983 and alternate years, Fall}

***433. Oral and Written Language Program in the Elementary School. (Lenguaje Oral y Escrito en la Escuela Primaria.) (2-3)** Duran, Engelbrecht, Ortiz

The development extension/elaboration and analysis of the language arts in both home language and English language. Creative methods and materials {Summer, Fall}

***435L. Remedial Reading Problems. (3)** Altwerger, Maggart

(Also offered as SATE 435L.) Designed to meet needs of

§Open to students in the A.A. in Education (Elementary) program only.

elementary classroom teachers in understanding and teaching children with reading problems; includes a supervised tutoring experience of 3 hours weekly. Includes 3 hrs. supervised laboratory each week.

Prerequisite: Permission of instructor. 3 lectures, 1 hr. lab. {Fall, Spring, alternate Summers}

***436. Diagnosis and Prescription in Elementary School Reading. (3)** Altwerger, Maggart

Study and administration of a variety of formal and informal assessment procedures. Collected data is reviewed for instruction. Designed to provide experiences for teachers in the use of many informal reading diagnostic instruments and techniques.

Prerequisite: El Ed 331 or permission of instructor. {Fall}

***441. Children's Literature. (Literatura Infantil.) (3)** Van Dongen

(Also offered as Lib/Media 441.)

Pre- or corequisite: 331L. {Summer, Fall, Spring}

***442. Games and Songs of New Mexico. (3)** Duran

Course to cover theory and content of the games and songs of the culture in which the course is offered.

Prerequisite: proficiency in the language in which the course is taught. {Summer, and upon demand}

***448. Career Education. (3)** Wagoner, Runge

(Also offered as SATE 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. {Offered upon demand}

***453. The Science Program in the Elementary School. (3)** Duran, Tweenen

Prerequisite: 353L. {Summer 1983 and alternate years, and upon demand}

***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. {Offered upon demand}

***461. The Mathematics Program in the Elementary School. (3)** Darling, Scott

{Summer, Spring}

***470. Supervision of Student Teaching in Elementary Schools. (3)** Auger, Smith

Overview of teacher preparation programs including program of UNM. Restricted to cooperating teacher working with program.

Prerequisite: graduate or non-degree status.

***481. Education Across Cultures in the Southwest. (3)** Duran, Engelbrecht, Ortiz, Pfeiffer, Zintz

(Also offered as SATE, Ed Fdn 481.) {Summer, Fall, Spring}

***482. Teaching English as a Second Language. (3)** Brodkey, Duran, Ortiz, Pfeiffer, White

(Also offered as SATE 482.)

Prerequisite: Ling 292 or Engl 440 (may be taken concurrently) and permission of instructor. {Summer, Fall, Spring}

***490. Reading in the Content Area—Music. (3)** Dodson, Van Dongen

(Also offered as Music Ed 493.) Discovering the ways music education can be employed as a positive influence in teaching verbal reading. The similarities which exist in note and verbal reading are covered. The necessity of a workable means of integrating the teaching of reading with other content areas (e.g., music) will be given attention. {Spring}

***492. Workshop. (Taller Pedagógico.) (1-4)**

Carries graduate credit when specifically approved by the

Graduate Committee. For degree restrictions consult the Graduate Programs Bulletin. {Offered upon demand}

***493. Topics. (1-3)±**

{Offered upon demand}

***495. Field Experience. (3-6, to a maximum of 12)**

Planned and supervised professional laboratory or field experience in agency or institutional setting.

Prerequisite: permission of instructor. {Summer, Fall, Spring}

497. Reading and Research in Honors. (3-6)

Prerequisite: see p. 161. {Fall, Spring}

***500. Advanced Instructional Strategies. (3)** Auger, Loughlin, Ortiz

Prerequisite: permission of instructor. {Fall, Alternate Summers}

***501. Curriculum for Early Childhood. (3)** Englebrecht, Loughlin, Mann, Smith

Prerequisite: H Ec 408L. {Summer, Fall, Spring}

***505. Seminar in Early Childhood Education. (3-12)** Englebrecht, Loughlin, Mann, Smith

Prerequisite: 501 and permission of instructor. {Summer, Fall, Spring}

***506. The Middle School. (3)** Kelly, Smith

(Also offered as SATE 506.)

***507. Developing Curriculum for Middle Schools. (3)** Kelly, Smith

(Also offered as SATE 507.) {Fall or Spring upon demand}

***508. Instructional Strategies for Middle Schools. (3)** Kelly, Smith

(Also offered as SATE 508.) {Fall or Spring, Summer upon demand}

***511. Curriculum in the Elementary School. (3-12)** Auger, Darling, Kelly, Ortiz, Smith

{Summer, Fall, Spring}

***512. Arranging Learning Environments. (3)** Auger, Loughlin, Ortiz, Van Dongen

{Spring, Upon demand}

***521. Seminar in the Social Studies. (3-12)** Kelly, Ortiz, Pfeiffer

***531. [431.] The Reading Program in the Elementary School. (El Programa de Lectura en la Escuela Primaria.) (2 or 3)** Altwerger, Duran, Maggart, Van Dongen

Prerequisite: 331L. {Fall, alternate Summers}

***532. The Reading Process. (3)** Altwerger, Maggart, Van Dongen

(Also offered as SATE 532.)

Prerequisites: El Ed 531 and 535L and permission of instructor. {Spring 1984 and alternate Summers.}

***533. Seminar in the Language Arts. (3-12)** Altwerger, Engelbrecht, Ortiz, Van Dongen

***534. [531.] Seminar in Teaching Reading. (3-12)** Altwerger, Maggart, Van Dongen

{Spring and alternate Summers}

***535. [515.] Remedial Teaching Techniques. (3)** Altwerger, Maggart

(Also offered as SATE 515.)

***537. [535L.] Practicum in Learning Disabilities (Reading). (3)** Maggart

(Also offered as SATE 535L.) Includes 3 hrs. supervised laboratory each week.

Prerequisites: 435L and El Ed 531 or SATE 520. 3 lectures, 1 hr. lab. {Summer}

***538. Teaching Reading in the Content Fields. (3)** Altwerger

(Also offered as SATE 438.)

***541. Seminar in Children's Literature. (3-12)** Van Dongen

***542. Principles of Curriculum Development. (3)** Auger, Darling, Kelly, Smith
(Also offered as SATE 542.)

***553. Seminar in Teaching Elementary Science. (3-12)** Duran, Tweenen

***560. Supervision of Instruction (Elementary). (3)** Auger, Kelly, Smith
(Also offered as Ed Adm 560.)

***561. Seminar in Teaching Mathematics. (3-12)** Darling, Scott

***562. Practicum in the Supervision of Instruction. (3)** Auger, Smith
(Also offered as SATE 562.) May be repeated for a maximum of 12 hrs. {Fall, Spring}

***581. Seminar in Bilingual Education. [Bilingual Education.] (3)** Duran, Engelbrecht, Ortiz, Pfeiffer
(Also offered as SATE 581.) {Fall and upon demand}

***582. Curriculum Development for Bilingual/Bicultural Programs. (3)** Duran, Engelbrecht, Ortiz, Pfeiffer
(Also offered as SATE 582.) Offered with either Spanish-English emphasis (competency in Spanish language required) or with Navajo-English or other Southwest Indian language and English.
Prerequisite: 581 and permission of instructor. {Spring and upon demand}

***591. Problems. (1-3, maximum of 6)**
Summer, Fall, Spring}

***592. Workshop. (1-4)**

For degree restriction consult the Graduate Programs Bulletin.

***593. Topics. (1-3)**

***595. Field Experience. (3-6, maximum of 12)**
Prerequisites: acceptance into a graduate program and permission of the instructor. {Summer, Fall, Spring}

***598. Directed Reading in Elementary Education. (3-6, to a maximum of 6)**

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

***601. Curriculum Appraisal and Improvement of School Programs. (3)** Darling, Kelly, Smith
(Also offered as SATE 611.)

***643. Curriculum Theory Seminar. (3)** Darling, Drummond, Kelly, Smith
(Also offered as SATE 643.)
Prerequisite: permission of instructor.

***696. Internship. (3-6, to a maximum of 12)**
{Summer, Fall, Spring}

***698. Directed Readings in Elementary Education. (3-6, to a maximum of 12)**

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.

HEALTH, PHYSICAL EDUCATION, AND RECREATION

Leon E. Griffin, Chairperson
Johnson Gym 168, 277-3104

GENERAL ISSUE 1983-85

PROFESSORS:

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Frances McGill, Ph.D., Ohio State University
Nicolaas J. Moolenijzer, Ph.D., University of Southern California
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Richard L. Papenfuss, Ph.D., University of Utah (Coordinator, Health Education Program)
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Paul B. Dearth, Dr. P.H., University of California (Los Angeles)
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Vivian Heyward, Ph.D., University of Illinois
Ernest Lange, Ed.D., University of New Mexico, (Director, Therapeutic Programs)
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Russell D. Mitchell, M.S., Southern Illinois University
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LECTURERS:

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ADJUNCT ASSOCIATE PROFESSORS:

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Waneta Coester Tuttle, Ph.D., University of New Mexico

ADJUNCT ASSISTANT PROFESSORS:

Edward G. Case, B.S., University of New Mexico
Jack Albert Loeppky, Ph.D., University of New Mexico
Catherine Salvesson, M.S., University of New Mexico

The Department offers a number of programs. The service program in physical education (see *Basic Instruction Program*) 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. A non-teaching option in Physical Education Exercise Technologist is also offered. In addition, it offers undergraduate and graduate degree programs in recreation designed to train recreation leaders and administrators.

HEALTH EDUCATION (H ED)

164. First Aid. (3)

Preparation in knowledge and skills to meet the needs in most situations where first aid care is needed. Students eligible for Advanced First Aid Certificate and CPR 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, psycho-social, and ethical components. Broad consideration of sexual behavior. Emphasis on discussion of viable topics from varying points of view. {Fall, Spring}

247. Consumer Health. (3)

Preparation in knowledge and skills related to consumers of health products and services.

Prerequisite: 171. {Spring}

260. Introduction to Health Education. (3)

For those considering becoming health majors or minors in school health or community health. Exploration of the basic philosophy and fundamental practices currently utilized in health education.

Prerequisite: 171. {Fall, Spring}

292. Workshop. (1-4)

{Summer, Fall, Spring}

293. Topics. (1-3)

301. General Safety Education. (3)

Basic principles of safety education. Current safety programs as they apply to school, home, community, and occupational settings. {Spring}

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.

Prerequisites: 171, 260, Ed Fdn 290, 303, 310 or permission of instructor. {Fall, Spring}

345. Professional Experience in School and Community Health Education. (1-4)

Prerequisite: health education majors only. {Fall}

391. Problems. (1-3)

Prerequisite: permission of health education faculty member. {Summer, Fall, Spring}

400. Student Teaching in Elementary Schools. (1-6)

{Fall, Spring}

402. Traffic Safety Education in Secondary Schools. (3)

Those enrolling must be licensed drivers. Discussion includes improvement 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, records for behind-the-wheel training; classroom teaching methods; and physical tests for drivers.

Prerequisites: basic first aid course and permission of instructor. {Offered upon demand}

442. Emergency Health Care. (3)

Information and skills in recognizing and managing emergencies due to illness or injuries. Prepares students to be eligible for First Aid Instructor Certification and CPR Instructors. Limited to juniors/seniors.

Prerequisite: 164 or permission of the instructor. {Summer, Fall, Spring}

451. Curriculum in Health Education. (3)

A course designed to provide knowledge of curriculum in Health Education for school and Community Health Educators.

461. Student Teaching in the Secondary Schools. (1-6, to a maximum of 15)

{Fall, Spring}

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 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, promoting a health 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 303, or permission of instructor. {Fall}

***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.

Prerequisites: 171, 260, 333, Ed Fdn 290, 303, 310, Lib/Media 432 or permission of instructor. {Fall, Spring}

***471. Introduction to Community Health. (3)**

New developments in research in major health problems, the ecology of local, national, and world health problems. A basic foundation in the history of public health, principles in environmental health and control of disease in communities. {Fall, Spring}

***475. Alternative Approaches in Drug Education. (3)**

Substance abuse information will be presented utilizing effective teaching skills necessary to communicate effectively in this subject matter. Emphasis on methodology, curriculum, teacher qualities and the current psychological, physiological and sociological aspects.

Prerequisite: permission of instructor. {Spring}

***482. Multicultural Health Beliefs in New Mexico. (3)**

An overview of the health beliefs of people in New Mexico with a proportional emphasis towards the Hispanic population and Native Americans. The implications of these beliefs will be addressed by various learning experiences.

Prerequisites: Permission of instructor, upper division or graduate status. {Fall}

***492. Workshop. (1-4)**

Carries graduate credit when specifically approved by the Office of Graduate Studies. For degree restrictions see p. 161 of this catalog or consult the Graduate Program Bulletin. {Offered upon demand}

***493. Topics. (1-3)**

***495. Field Experience. (3-6, to a maximum of 12)**

Planned and supervised professional laboratory or field experiences in agency or institutional setting.

Prerequisites: permission of field experience supervisor, 345. Limited to health education majors. {Summer, Fall, Spring}

497. Readings and Research in Honors. (3-6)

Prerequisite: see College of Education departmental honors section.

***501. Contemporary Health Issues. (3)**

***504. Research Seminar. (1)**

***506. Health Behavior. (3)**

{Spring}

***507. Research Design in Health Education, Physical Education, and Recreation. (3)**

(Also offered as PE, Rec, and Ed Fdn 507.)

Prerequisite: senior standing.

#Limited to junior and seniors only.

***511. Administrative Aspects of School and Community Health. (3)**
{Fall}

***516. Seminar in Health Education. (3)**
{Offered upon demand}

***520. Teaching Human Sexuality. (3)**
Prerequisite: 212 or permission of instructor. {Spring}

***560. Perspectives in Health Education. (3)**
Prerequisites: graduate status and H. Ed 171.

***572. Community Health Education Program Planning, Development, and Evaluation. (3)**
Prerequisite: graduate status in Health Education.

***574. Epidemiological Principles for Health Educators. (3)**
{Spring}

***591. Problems. (1-3, to a maximum of 6)**
Permission of health education faculty member. {Summer, Fall, Spring}

***592. Workshop. (1-4)**
{Offered upon demand}

***593. Topics. (1-3)**

***595. Advanced Field Experiences. (3-6, to a maximum of 12)**
Prerequisites: acceptance in health education graduate program and permission of field work supervisor. {Summer, Fall, Spring}

***598. Directed Readings in Health Education. (3-6, to a maximum of 6)**

***599. Master's Thesis. (1-6 hrs. per semester)**
{Summer, Fall, Spring}

***604. Research Seminar. (1)**
(Also offered as PE and Recrea 604.)
Prerequisite: Departmental required research skills sequence.

***696. Internship. (3-6, to a maximum of 12)**

***698. Directed Readings in Health Education. (3-6, to a maximum of 12)**

***699. Dissertation. (3-12 hrs. per semester)**
{Summer, Fall, Spring}

PHYSICAL EDUCATION (PE)

BASIC INSTRUCTION PROGRAM—PHYSICAL EDUCATION

Most activity courses are offered every semester.

101. Beginning Swimming. (1)
Instruction for students who have not been in the water or have a fear of water.

102. Intermediate Swimming. (1)
Instruction in all basic strokes. For students who can swim.

103. Advanced Swimming. (1)
Instruction and practice in perfecting all swimming strokes; competitive skills; synchronized skills.

104. Diving. (1)
Instruction in basic fundamentals of springboard diving, primarily on one-meter board.

105. Water Polo. (1)
Basic skills, strategy, rules, and terminology to play and officiate the game.

106. Lifesaving. (1)
Instruction and practice in lifesaving techniques which lead to advanced Red Cross Lifesaving Certificate.
Prerequisite: ability to swim, basic strokes.

107. 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.

108. Small Water Craft Operation. (2)
Instruction and practice in canoeing, sailboating, kayaking, and in operation of small motor craft.

109. 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.

110. Advanced Scuba. (2)
Special fees. Instruction in technical aspects of diving such as repetitive, deep decompression and high altitude diving, equipment maintenance and repair, underwater navigation, search and recovery, light salvage diving, life saving, and first aid.

115. Women's Gymnastics. (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. Men's Apparatus Stunts. (1)
Instruction in activities in tumbling, vaulting, parallel bars, and trampoline to better acquaint the student with gymnastics.

118. Individual Tumbling. (1)
A class for the beginner to help develop coordination, agility, flexibility, a kinesthetic sense, and neuromuscular control.

120. American Square 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 108.) 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 the Mexican-New Mexican folk dance.

135. Wrestling. (1)
Instruction in the techniques and strategies of collegiate wrestling.

136. Personal Defense. (1)
Instruction in the basic skills needed to defend oneself against assault.

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.

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.

160. Weight Training and Physical Conditioning. [Weight Training.] (1)

Individual training programs for development of general strength, tone, endurance, and weight control.

161. Developmental Physical Education—Weight Control. (1)

Combined weight training and running for overall development.

163. Aerobics. (1)

Individualized running programs for improved cardiorespiratory endurance.

164. Movement Fundamentals. (1)

Individualized programs for improvement and development of posture and fitness.

165. Yoga. (1)

Introduction to five areas of yoga which are particularly significant to the Western World.

167. Basketball. (Women) (1)

Instruction and practice of game skills with consideration given to the ability levels of students.

168. Basketball. (Men) (1)

Instruction and practice of game skills with consideration given to the ability levels of students.

169. Beginning Judo. (1)

Ancient Japanese methods of bare-handed fighting. A special uniform is necessary.

170. Volleyball. (1)

Instruction and practice of basic game skills, with emphasis upon power techniques.

172. Field Hockey. (1)

Instruction and practice of basic skills and the rules of field hockey.

173. Soccer. [Soccer-Speedaway.] (1)

Instruction and practice of basic skills of soccer and speedway.

174. Softball. [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.

175. Flag Football. (1)

Instruction and practice of basic game skills of flag football.

176. Ice Skating. (1)

Special fees. Basic and intermediate skating, including figure skating, basic broom hockey, ice skating, and precision skating.

177. Beginning Skiing. (1)

Special fees. Instruction leading to wide-track parallel skiing.

178. Intermediate Skiing. (1)

Special fee. Review of beginning skills including beginning parallel skiing and instruction in more advanced techniques.

179. Cross Country Skiing. (1)

Special fees. Instruction and practice in techniques leading to cross country touring.

180. Camping Experiences. (2)

Instruction and field experiences designed to develop skills in shelter, food, warmth, and safety.

181. Horseback Riding. (1)

Special Fees. Basic fundamentals of western horsemanship in relationship to trail and recreation riding. (First meeting at Johnson Gymnasium.)

183. Wilderness Experience. (2)

Creation of stressful situation in the wilderness environment to help students learn more about themselves.

185. Bicycling. (1)

Instruction in bicycle maintenance, safety, speed trail riding, and touring; includes speed trails and tours of various distances.

188. Therapeutic Physical Education. (1)**190. Casting and Angling. (1)**

Instruction in skills and techniques for fishing in New Mexico.

193. Topics. (1-2)

New activities offered on an exploratory basis.

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.

202. Theory and Practice of Baseball. (2)

The professional course in the coaching of baseball. 4 class meetings per week. {Fall}

203. Theory and Practice 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 the coaching of track and field. 4 class meetings per week. {Spring}

205. Fundamentals of Basketball. (2)

The professional coaching course in the fundamentals of basketball. 4 class meetings per week. {Fall}

206. Fundamentals of Football. (2)

The professional coaching course in the fundamentals of football. 4 class meetings per week. {Spring}

207. Theory and Practice of Swimming. (2)

The professional course in swimming.
Prerequisite: ability to swim. 4 class meetings per week. {Fall, Spring}

209. Foundations of Human Performance. (3)

Physiological, kinesiological, and psychological variables which affect human performance in exercise and sport skills. {Fall}

211. Competency in Sports and Dance I. (1-4)

{Fall, Spring}

212. Competency in Sports and Dance II. (1-4)

{Fall, Spring}

217. Physical Education in the Elementary School. (3)

(Also offered as El Ed 319.) 4 hrs. per week. {Summer, Fall, Spring}

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 in 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. {Fall}

231. Basketball, Volleyball, Flag Football, Flickerball. (1)

Staff
Instruction and practice of advanced game skills, tactics and strategy of basketball, volleyball, flag football, and flickerball. Prerequisite: physical education major or minor. {Fall}

232. Golf and Dance. (1) Staff

Comprehensive skill and knowledge in golf, folk dance, square dance, and ballroom dance.
Prerequisite: physical education major or minor. {Fall}

233. Soccer, Speedaway, Racquetball. (1)

Instruction and practice of advanced game skills tactics and strategy of soccer, speedaway, and racquetball.
Prerequisite: physical education major or minor. {Spring}

234. Track and Field. (1)

Comprehensive skill and knowledge of track and field.
Prerequisite: physical education major or minor. {Fall, Spring}

235. Tennis, Aerobics. (1)

Comprehensive skill and knowledge of tennis. Knowledge of factors involved in designing an aerobics program and participation in a variety of aerobic programs.
Prerequisite: physical education major or minor. {Fall}

236. Personal Defense, Archery. (1)

Comprehensive skill and knowledge of personal defense and archery.
Prerequisite: physical education major or minor. {Fall, Spring}

237. Softball, Team Handball, Badminton. (1)

Instruction and practice of advanced game skills, tactics and strategy of softball, team handball, and badminton.
Prerequisite: physical education major or minor. {Spring}

238. Wrestling or Modern Dance, Weight Training. (1)

Comprehensive skill and knowledge of wrestling or modern dance and weight training. Student selects either wrestling or modern dance during first class meeting.

Prerequisite: physical education major or minor. {Spring}

245. Professional Laboratory Experience in Physical Education. (2)†

For physical education majors only. May be repeated to a maximum of 8 semester hours. {Fall, Spring}

260. Officiating in Sports. (2)†

Discussion and practice in officiating techniques in soccer, speedaway or field hockey, volleyball, basketball, etc.
Prerequisite: permission of instructor. 4 hours per week. Not restricted to education students. {Fall}

273. Introduction to Athletic Training. (2)

{Fall, Spring}

277. Kinesiology. (3)

Science of human motion.
Prerequisites: 289, Math 120, Biol 136, and 139. {Fall, Spring}

284. Clinical Program for Corrective Therapy or Athletic Training (1-2-3-6-9-12)

Clinical experience in corrective therapy or Athletic Training. {Summer, Fall, Spring}

288. 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. {Fall, Spring}

289. Tests and Measurements in Physical Education. (3)

Techniques to determine abilities, needs, and placement in the physical education program.
Prerequisite: Math 120. {Fall, Spring}

292. Workshop. (1-4)

{Summer, Fall, Spring}

293. Topics. (1-3)

{Summer, Fall, Spring}

301. Teaching of Team Sports. (2)

Prerequisites: 231, 232, 234, 237, or permission of instructor. 4 hours per week. {Fall}

302. Teaching of Individual and Dual Sports. (2)

Prerequisites: 233, 235, 236, 238, or permission of instructor. 4 hours per week. {Spring}

303. Methods of Teaching Skiing. (3)

Prerequisite: Skiing ability and experience and permission of instructor. {Fall}

309. Teaching of Gymnastics. (2)

Prerequisite: 115 or 117 or permission of instructor. 4 hours per week. {Spring}

310. Teaching of Dance in Schools. [Folk Dance in the School Program.] (2)

Prerequisite: 232 or permission of instructor. 4 hours per week. {Fall}

326L. Fundamentals of Exercise Physiology. (3)

Prerequisite: 289, Biol 136, 139. {Fall, Spring}

366. Theory and Practice of Teaching Dance. (3)

(Also offered as Dance 466.) Selection of methods and materials for teaching modern dance. Supervised practice teaching in local schools; elementary, junior, and high school levels. {Fall, 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, 277, and H. Ed 164. {Spring}

378. Principles of Physical Education. (3)

The aims and objectives of physical education; physiological, psychological, and sociological principles which underlie practices in the profession.

Prerequisite: permission of instructor. {Fall, Spring}

386. Women in Sports. (3)

(Also offered as WS 386.) An historical and sociological study of women and sports in American culture and an examination of the recent changes in women's athletics.

391. Problems. (1-3)

Prerequisite: permission of Physical Education Coordinator. {Summer, Fall, Spring}

400. Student Teaching in the Elementary School. (3-6-9, to a maximum of 15)

Prerequisites: Ed Fdn 290, 303, 310, PE 107, 217, 245, 277, 288, 289, 301, 302, 309, 310, 326L, 444, 445. {Fall, Spring}

444. Teaching of Physical Education I. (4)

(Also offered as SATE 444.)

Prerequisites: Ed Fdn 290, PE 106, 217, 245, 288, 289. {Fall}

445. Teaching of Physical Education II. (4)

Prerequisites: Ed Fdn 290, PE 106, 217, 245, 288, 289, 444. {Spring}

452. Organization of Sports Programs. (3)

Organization and administration of games and sports in intramural, interschool, and community recreation programs. Prerequisite: permission of instructor. {Fall, Spring}

461. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15)

Prerequisites: 107, 217, 245, 277, 288, 289, 301, 302, 309, 310, 326L, 444, 445, Ed Fdn 290, 303, 310.

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15)

Prerequisites: 107, 217, 245, 277, 289, 326L, 301, 302, 309, 310, 444, 445, Ed Fdn 290, 303, 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. {Spring}

465. Theory of Basketball. (3)

To review and enlarge the student's knowledge of the basic 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: 107. {Fall, Spring}

***467. Survey of Physical Defects and Pathology. (3)**

(Also offered as Spec Ed 467.) To investigate the etiology, characteristics, and treatment programs necessary for teaching the physically handicapped child.

Prerequisite: Spec Ed 201 or permission of instructor. {Fall}

***470. Designs for Fitness. (3)**

Focuses on physical fitness assessment and exercise prescription and includes (1) use of field tests and laboratory tests to appraise physical fitness levels, (2) designs of individualized physical fitness programs, and (3) evaluation of exercise programs.

Prerequisites: PE 277, 289, and 326 or equivalents. {Spring}

479. Organization and Administration of Physical Education. (3)

Program building, including criteria for the selection of ac-

tivities and progression, and other factors affecting course of study such as facilities, equipment, budget, laws, policies, professional responsibilities.

{Fall, Spring}

***481. Administration of Varsity Athletics. (3)**

{Summer}

***482. History of Physical Education. (3)**

{Spring}

***484. Clinical Program for Corrective Therapy or Athletic Training. (1-3-6-9-12)**

Lecture and actual clinical experience in corrective therapy or athletic training.

Prerequisite: 273 for athletic training students. {Summer, Fall, Spring}

***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}

***487. Physical Activity and Aging. (3)**

This course is concerned with the process of aging as it affects physical activity and the potential of physical activity in adjustment to the process of aging. {Fall}

***490. Supervision of Physical Education Programs. (3)**

Supervisory techniques stressing cooperative planning for the improvement of instruction and programs.

Prerequisite: permission of instructor. {Fall}

***492. Workshop. (1-4)**

Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 161 of this catalog or consult the Graduate Programs Bulletin. {Summer}

***493. Topics. (1-3)**

{Summer, Fall, Spring}

495. Practicum. (3-6, to a maximum of 12)

Planned and supervised professional laboratory of field experiences in agency or institutional setting.

Prerequisite: permission of instructor. {Summer, Fall, Spring}

497. Reading and Research in Honors. (3-6-9)

Prerequisite: see p. 161. {Summer, Fall, Spring}

***505. Foundations for a Philosophy of Physical Education. (3)**

Prerequisite: at least 3 hours in history, principles or methods of physical education. {Spring}

***506. Assessment Theory and Principles for Physical Education. (3) Heyward**

Prerequisites: PE 289 or equivalent; Ed Fdn 501 or equivalent. {Spring}

***507. Research Design in Health, Physical Education, and Recreation. (3)**

(Also offered as H Ed, Rec, and Ed Fdn 507.)

Prerequisite: graduate standing. {Summer, Fall}

***510. Curriculum Construction in Physical Education. (3)**

{Fall}

***514. Kinesiotherapy. (3)**

{Spring}

***516. Seminar in Physical Education. (3)**

{Spring}

***521. Motor Learning of the Handicapped. (3)**

(Also offered as Spec Ed 521.) {Fall}

***522. Motor Learning of the Handicapped. (3)**

(Also offered as Spec Ed 522.) {Spring}

***523. Biomechanics. (3)**

{Fall}

***526. Motor Assessment of the Handicapped. (3)**

(Also offered as Sp Ed 526.)

Prerequisite: Undergraduate major or minor in physical education, recreation, special education or permission of instructor. {Spring}

***528. Neuromuscular Basis of Human Performance. (3)**

Prerequisites: PE 326 or equivalent. {Fall}

***530. Laboratory Procedures and Instrumentation in Applied Physiology. [Laboratory Procedures in Exercise Physiology.] (3)**

Prerequisites: undergraduate course in exercise physiology and permission of instructor. {Spring}

***540. Sports in American Culture. (3)**

Prerequisite: Soc 101 or equivalent. {Spring}

***569. International Foundation of Physical Education and Sport. (3)**

Prerequisite: PE 482 or permission of instructor. {Spring}

***570. The Analysis of Teaching Physical Education. (3)**

Prerequisite: permission of instructor. {Spring}

***571. Concepts Teaching in Physical Education. (3)**

{Summer and alternate Spring}

***575. Facilities Planning, Construction, and Utilization. (3)**

{Spring}

***586. Principles of Therapeutic Recreation. (3)**

(Also offered as Rec 586.) {Spring}

***588. Psychological Aspects of Sports. (3)**

Prerequisite: Psych 230 or 332 or equivalent. {Fall}

591. Problems. (1-3, to a maximum of 6)**592. Workshop. (1-4)**

Carries graduate credit when specifically approved by the Office of Graduate Studies. For degree restrictions consult the Graduate Programs Bulletin. {Summer}

***593. Topics. (1-3)**

{Summer, Fall, Spring}

***595. Advanced Field Experiences. (3-6)**

Prerequisites: acceptance into a graduate program and permission of instructor. {Summer, Fall, Spring}

598. Directed Readings in Physical Education. (3-6, to a maximum of 6)**599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

***604. Research Seminar. (1)**

(Also offered as Hlth Ed, Recrea 604.)

Prerequisite: Departmental required research skills sequence. {Summer, Fall, Spring}

***627. Seminar in Applied Physiology. (3)**

{Fall}

***691. Problems. (1-3, to a maximum of 6)**

Prerequisite: permission of instructor. {Summer, Fall, Spring}

***695. Advanced Field Experiences. (3-6, to a maximum of 12)**

Prerequisite: permission of instructor.

***696. Internship. (3-6, to a maximum of 12)**

{Summer, Fall, Spring}

698. Directed Readings in Physical Education. (3-6, to a maximum of 12)**699. Dissertation. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

RECREATION (RECREA)

175. Foundations of Recreation. (3)

History of leisure and recreation; concepts of play and recreation; major recreation agencies. {Fall, Spring}

221. Recreational Leadership. (3)

Methods and materials in recreation leadership; theory, principles, and practice.

Prerequisites: 175, 290. {Summer, Fall, offered upon demand}

245. Field Work in Recreation. (3)

Practical Experiences in a variety of settings.

Prerequisite: majors/minors only. {Summer, Fall, Spring}

275. Camp Leadership. (3)

To introduce students to camp experiences and to study camping skills with emphasis on leadership functions. Field Trips. {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}

291. Music in Recreation. (3)

(See Music 291.)

292. Workshop. (1-4)

{Offered upon demand}

293. Topics. (1-3)

{Offered upon demand}

301. Recreational Sports. (3)

The professional course in recreational sports. Field trips. {Fall}

302. Recreational Sports. (3)

Expansion of 301 to include development of campus recreation. Field trips. {Spring}

311. Leisure in Society. [Man and Leisure.] (3)

Background in leisure problems of today with emphasis on the individual's role and relationship to those problems. {Fall}

378. Outdoor Recreation. (3)

The development and organization of outdoor recreation in the United States. Includes economics, land planning, trends, and projections. Field trips. {Fall}

385. Leisure Services for Special Populations. [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}

386. [486.] Tourism and Recreation. (3)

The role of tourism and its relationship to recreation in the United States with emphasis on the Southwest and New Mexico. {Fall, Spring, upon demand}

391. Problems. (1-3)

Prerequisite: permission of the instructor. {Summer, Fall, Spring}

400. Environmental Awareness in Outdoor Recreation Areas. (3)

Prerequisite: 378. Field trips. {Spring}

407. History and Philosophy of Parks and Recreation. (3)
The historical development of recreation concepts and philosophies. {Fall}

***454. Development of Recreation Programs. (3)**
The course is concerned with all phases of planning and evaluating recreation programs: promotion, utilization of resources and facilities, and leadership.
Prerequisites: 221, 245 and for majors/minors only. {Fall}

***477. Leisure Services in Special Settings. [Recreation in Special Settings.] (3)**
Knowledge of procedures and principles related to leisure services in institutional, commercial, private, and industrial setting. Also includes interrelations of special settings. Field trips. {Spring}

***479. Park Management. (3)**
The principles, practices, and problems involved in public park management, with emphasis upon facility design, maintenance, finance, and administration. Field trips. {Spring}

480. Administration of Recreation Programs. (3)
The organization, administration, and conduct of recreation programs in public and private agencies.
Prerequisite: 454. {Spring}

***485. Interpretative Services in Outdoor Recreation Areas. (3)**
An overview of the interpretive process including planning aspects, media selection, and techniques of interpretation. Field trips. {Spring}

***492. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Office of Graduate Studies. For degree restrictions see appropriate sections of this catalog, or consult the Graduate Programs Bulletin. {Offered upon demand}

***493. Topics. (1-3)**
{Offered upon demand}

495. Field Experience. (3-6)
Prerequisite: 245, majors/minors only. {Summer, Fall, Spring}

497. Reading and Research in Honors. (3-6)
Prerequisite: see honors requirements in this catalog. {Offered upon demand}

***504. Research Seminar. (1)**
(See PE 604.)

***507. Research Design in Health, Physical Education, and Recreation. (3)**
(Also offered as Ed Fdn, H Ed, PE 507.)
Prerequisite: graduate standing.

***508. Organization and Administration of Public Recreation. (3)**
{Spring}

***516. Seminar in Recreation. (3)**
{Spring}

***524. Evaluation of Park and Recreation Resources and Programs. (3)**
{Fall}

***540. Outdoor Recreation Planning. (3)**
{Spring}

***555. Contemporary Leisure Concepts. (3)**
{Fall}

***586. Principles of Therapeutic Recreation. (3)**
(Also offered as PE 586.) {Spring}

***591. Problems. (1-3, to a maximum of 6)**
Prerequisites: majors only and permission of the recreation coordinator. {Summer, Fall, Spring}

***592. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Office of Graduate Studies. Consult the Graduate Programs Bulletin for restrictions. {Offered upon demand}

***593. Topics. (1-3)**
{Offered upon demand}

***595. Advanced Field Experiences. (3-6, to a maximum of 12)**
Prerequisites: acceptance into a graduate program and permission of instructor. {Summer, Fall, Spring}

***598. Directed Readings in Recreation. (3-6, to a maximum of 6)**
{Offered upon demand.}

***599. Master's Thesis. (1-6 hrs. per semester)**
See Graduate Programs Bulletin for total credit requirements. {Offered upon demand}

***604. Research Seminar. (1)**
(Also offered as Hlth Ed, PE 604.)

***696. Internship. (3-6, to a maximum of 12)**
{Summer, Fall, Spring}

***698. Directed Readings in Recreation. (3-6, to a maximum of 12)**
{Offered upon demand}

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements. {Summer, Fall, Spring}

HOME ECONOMICS

Mary M. Smith, Chairperson
Education Office Building 110, 277-4316

PROFESSORS:

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Ednell M. Snell, Ed.D., Teachers College, Columbia University

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Richard M. Smith, Ed.D., Oklahoma State University
Pauline H. Turner, Ph.D., University of Texas

ASSISTANT PROFESSORS:

Kathleen M. Koehler, Ph.D., University of Illinois (Urbana-Champaign)
Wendy M. Sandoval, Ph.D., Oklahoma State University

INSTRUCTOR:

Pamela N. Olson, M.S., Oregon State University

MAJOR STUDIES AND CURRICULUM

See p. 171.

HOME ECONOMICS (H EC)

101. Freshman Seminar. (2)
Individual's role as a home economist and his/her relationship with families. Required of all majors. {Fall}

102. Infant Growth and Development. (3)
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. 2 lectures, 3 hrs. lab. {Fall, Spring}

125. Introductory Nutrition. (3)

Nutritive needs of normal individuals of all age groups; relation of nutrition to health. {Fall, Spring}

150L. Clothing Construction. (2)

Fitting and altering patterns and garments, methods of techniques in construction processes, use and upkeep of equipment. Two 2-hour labs. {Fall, Spring}

218. Marriage and Personal Development. (3)

Research in premarital and marital studies with direct application for interpersonal relationships will be reviewed. {Fall, Spring}

222L. Meal Management. (3)

Principles of selection and allocation of resources in management of meals. Meal planning and service.

Prerequisite: 120L or equivalent. 1 lecture, 4 hrs. lab. {Fall}

244. Consumer Decisions. (3)

Understand the role of the consumer in the marketplace and the resources available for purchase decisions. {Fall, Spring}

250. Clothing and Human Behavior. (2)

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 230. {Spring}

252. Textiles. (3)

Construction, identification, use and care of clothing and household textiles. Consumer education related to textile products. {Fall, Spring}

254L. Tailoring. (3)

Methods of construction with specified fabrics in a lined jacket or coat and choice of knit fabric project, fitting. 1 lecture, 4 hrs. lab. {Fall}

293. Topics. (1-3)†**318. Adolescent Development in the Family. (3)**

The course will focus on emotional, physical, personality development, and communication patterns of adolescents within the family setting. Also included is an examination of self-concept, dating, pre-marital sex, career and vocational decisions influenced by the family.

325. Advanced Nutrition. (3)

Nutrition related to the chemistry, physiology of the human body; interrelationships of nutrients, analysis of nutritive value of foods.

Prerequisites: 125, organic and inorganic chemistry. {Fall}

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}

391. Problems. (1-3)**406. Seminar, Community Nutrition. (3)**

Classic and recent literature on community nutrition integrated with student experience.

***408L. Growth and Development of the Pre-School Child. (3)**

Developmental principles and recent research on social-emotional, cognitive, and physical development of the pre-school child. Laboratory experiences.

Prerequisite: 102, Psych 102, junior standing. 2 lectures, 3 hrs. lab experience. {Fall, Spring}

418. Family Relationships. (3)

Survey of research in family studies. Practical applications for families will be considered. {Fall, Spring}

425. Introduction to Clinical Nutrition. (3)

Determination of nutritional status of normal persons by the health team, using research methodology.

427L. Large Quantity Food Production. (3)

Standard methods of food production in quantity; food cost control; standardization of formulas, menu planning, and food service.

Prerequisites: 120L, 222L.

428. Diet Therapy. (3)

The adaptation of diets in the treatment of impaired digestive and metabolic conditions.

Prerequisites: Chem 111L, 212, H Ec 125, 325.

***431L. Experimental Foods. (3)**

Experimental methods applied to food preparation, food marketing and food laws.

Prerequisite: Chem 111L. 2 lectures, 3 hrs. lab.

434. Organization and Management. (3)

A study of the principles of organization and management applied to food service installations.

Prerequisite: Psych 102; pre- or corequisite: Mgt 361.

443. Family Decision Making. (3)

Family decisions in the allocation and use of resources to meet family goals.

Prerequisites: Soc and Anthro; junior standing. {Fall}

***444. Family Finance. (3)**

Economic problems of direct concern to the family.

Prerequisites: 443, a basic course in economics, psychology, and sociology. {Spring}

445L. Home Management Lab. (4)

Experiences in dealing with families with varying value structures and for identifying values and goals held by others.

Prerequisite: 443. {Fall, Spring}

***456L. Dress Design. (3)**

Dress designing by flat pattern, fitting, and altering.

Prerequisites: advanced standing. 1 lecture, 4 hrs. lab. {Spring}

***468. Aging and the Family. (3)**

The impact of environmental factors upon the aging family will be explored.

Prerequisite: 418 or permission of instructor.

493. Topics. (1-3)**503. Seminar in Human Growth and Development. (3)**

(Also offered as Ed Fdn 503.)

509L. Organization and Management of Nursery Schools and Kindergarten. (3)**510. Young Child at Home and School. (3)*****515. Parent Education. (3)**

Prerequisites: Graduate standing with a minimum of 6 credit hours in child development, early childhood education, adolescence, family relationships, and/or developmental psychology.

***518. Working with Parents and Children. (3)**

Prerequisite: B.A. in H Ec, Educ Psych, or related discipline.

520. Family Living in Modern Society. (3)**535. Seminar in Nutrition. (3)*****549. Managing Family Resources. (3)*****554. Socio-Psychological Aspects of Clothing. (3)*****555. Seminar in Textiles. (3)*****591. Problems. (1-3 hrs. each semester)*****592. Workshop. (1-4)**

For restriction, consult the Graduate Programs Bulletin.

***593. Topics. (1-3)**

*598. Directed Readings in Home Economics. (3-6, to a maximum of 6)

*696. Internship. (3-6, to a maximum of 12)

HOME ECONOMICS EDUCATION (H EC ED)

361. Pre-Student Teaching Experience in Secondary Education. (3)

2 hour lect., 3 hrs. field work weekly. Concurrent with 437. {Spring}

391. Problems. (1-3)

*437. Teaching of Home Economics. (3)
{Spring}

461. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15)

Prerequisite: 437; concurrent: 445, 465. {Fall, Spring}

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15)

{Fall, Spring}

463. Student Teaching in the Secondary Schools: Professional Education block. (6-15)

{Fall, Spring}

465. Seminar: Vocational Home Economics Education. (3)
Trends in vocational home economics education. {Fall, Spring}

*475. Evaluation in Home Economics. (3)

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)
Curriculum, methods, and facilities for courses which use home economics knowledge and skills.

Prerequisites: major in home economics and teaching experience. {Offered upon demand}

*492. Workshop. (1-4)

For degree restrictions see p. 161 of this catalog and the Graduate Programs Bulletin. Carries graduate credit when specifically approved by the Office of Graduate Studies. {Offered upon demand}

*493. Topics. (1-3)

495. Field Experience. (3-6, to a maximum of 12)

Planned and supervised professional laboratory or field experiences in agency or institutional setting.

Prerequisite: permission of instructor. {Summer, Fall, Spring}

497. Reading and Research in Honors. (3-6)

Prerequisite: see p. 161. {Offered upon demand}

*570. Seminar in Home Economics Education. (3)

*591. Problems. (1-3, to a maximum of 6)

*592. Workshop. (1-4)

*593. Topics. (1-3)

*595. Advanced Field Experiences. (3, to a maximum of 6)

Prerequisites: acceptance into a graduate program and permission of instructor. {Summer, Fall, Spring}

*598. Directed Readings in Home Economics Education. (3-6, to a maximum of 6)

INDUSTRIAL EDUCATION

See Secondary and Adult Teacher Education.

SECONDARY AND ADULT TEACHER EDUCATION

Roderic L. Wagoner, Chairperson
Mesa Vista 3036, 277-4115

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Norma Milanovich,
Charles O. Taylor, Ed.D., Temple University (Ind. Ed.)

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BUSINESS EDUCATION

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ASSISTANT PROFESSOR:

Charles O. Taylor, Ed.D., Temple University

In this Department, programs are offered for the preparation of teachers of secondary school students and adults in academic areas, business education, and industrial education. Also offered are programs and courses in curriculum and instruction for teachers and curriculum specialists.

SECONDARY AND ADULT TEACHER EDUCATION (SATE)

293. Topics. (1-3)

296. Internship. (3-6, to a maximum of 12)

§§361. Pre-Student Teaching Experience I. (3)

3 hrs. seminar, 6 hrs. field work weekly. {Fall, Spring}

362. Pre-Student Teaching Experience II. (3)

{Fall, Spring}

391. Problems. (1-3)

{Offered upon demand}

§§425L. Teaching of Biology. (3)

Prerequisites: 361, Biol 133L, 2 lectures, 3 hrs. lab. {Fall}

429. Teaching of Mathematics. (3) Mierzwa, Mitchell

Prerequisites: 361 and 362. {Fall}

430. Teaching of Communication Arts. (3) Hirshfield, White

Prerequisites: 361, 362, and Ling 292 or Engl 440. {Spring}

431. Teaching of Sciences. (3) Tweenen

Prerequisite for 461-Science. Prerequisite: to be taken concurrently with 362. {Fall, Spring}

432. Teaching of Social Studies. (3) Oshima

Prerequisite: consult instructor for prerequisites. {Fall, Spring}

433. Teaching of Industrial Subjects. (3) Nesbitt

(See I Ed 433.)

434. Teaching Art in Secondary School. (3)

(See Art Ed 460.)

*435L. Remedial Reading Problems. (3) Altwerger, Maggart, VanDongen

(Also offered as El Ed 435L.) Includes 3 hrs. supervised lab. each week.

Prerequisite: El Ed 431 or permission of instructor. 3 lectures, 1 hr. lab. {Summer, Fall, Spring}

436. Teaching of English. (3) Hirshfield, White

Prerequisites: 361, 362, and Ling 292 or Engl 440. Carries credit both in education and in English. {Fall}

*437. Teaching of Home Economics. (3) Snell

(See H Ec Ed 437.)

*438. Teaching Reading in the Content Field. (3) VanDongen, Kneen, Oshima, White

(Also offered as El Ed 538.)

Prerequisite: classroom teaching experience or permission of the department. {Offered upon demand}

439. Teaching of Business Subjects. (3)

(See Bus Ed 439.)

*440. Teaching of French. (3) T. Book

(Also offered as French 440.)

Prerequisite: SATE 361. {Spring}

*441. Teaching of Spanish. (3)

(Also offered as Spanish 441.) Applies linguistics basis acquired in Spanish 342 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: 361. {Fall, Spring}

*442. Teaching of Reading. (3) White

Includes two hours supervised lab each week.

Prerequisites: 361 and Ling 292 or Engl 440. {Fall}

*443. Coordination Techniques in Vocational Cooperative Programs. (3)

(Also offered as Bus Ed, I Ed, Vo 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)

(Also offered as PE 444.) {Fall}

*445. Teaching of German. (3)

(Also offered as German 445.) Includes practice teaching in UNM elementary courses. Intended for prospective German teachers but also may be taken by others who are interested in a teaching experience. By permission only.

Prerequisites: SATE 361 and 362. {Offered upon demand}

*448. Career Education. (3)

(Also offered as El Ed, Vo Ed 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. {Offered upon demand}

*449. Teaching the Native Language to the Native Speaker. (3)

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.), 361, 362, 441, and permission of instructor. {Fall and upon demand}

*450. Teaching in Bilingual Programs in Secondary Schools. (3)

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: 361, 362, and permission of instructor. {Spring and upon demand}

*456. Science, Technology, and Human Values: Implications for Education. (3)

(Also offered as Ed Fdn, I Ed 456.) Examinations 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.

461. Student Teaching. (3-6-9, to a maximum of 15)

Observation and teaching in secondary schools for one or more semesters. Weekly seminar meetings required with University supervisors.

Prerequisites listed on p. 162. {Fall, Spring}

462. Student Teaching. (3-6-9, to a maximum of 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.

*472. Exploring Albuquerque's Environment. (3)

(Also offered as Arch 472.) Lectures and student research on issues in the cultural, natural, and built environment in Albuquerque.

*480. Second Language Pedagogy. (3)

(Also offered as Mod Lang 480.)

§§Students in SATE 361 must enroll concurrently in the appropriate section of Ed Fdn 303 and 310.

- *481. Education Across Cultures in the Southwest. (3)** Carrillo, Pfeiffer
(Also offered as El Ed, Ed Fdn 481.) {Summer, Fall, Spring}
- *482. Teaching English as a Second Language. (3)** Brodkey, Pfeiffer, White
(Also offered as El Ed 482.)
Prerequisites: Ling 292 or Engl 440 (may be taken concurrently) and permission of instructor. {Spring}
- *485. Measurement and Evaluation Techniques. (3)**
(Also offered as I. Ed, Bus Ed, Vo Ed 485.)
- *492. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 161 of this catalog or consult the Graduate Programs Bulletin. {Offered upon demand}
- *493. Topics. (1-3)**
- 495. Field Experience. (3-6, to a maximum of 12)**
Planned and supervised professional laboratory or field experiences in agency or institutional setting.
Prerequisite: permission of instructor. {Summer, Fall, Spring}
- 497. Reading and Research in Honors. (3-6)**
Prerequisites: see p. 161. {Offered upon demand}
- *500. Advanced Instructional Strategies. (3)**
{Summer, Fall, Spring}
- *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)**
- *505. Development, Selection, Use, and Organization of Instructional Materials. (3)**
(Also offered as I Ed, Bus Ed, Vo Ed 505.)
- *506. The Middle School. (3)**
(Also offered as El Ed 506.) {Fall or Spring, Summer upon demand}
- *507. Developing Curriculum for Middle Schools. (3)**
(Also offered as El Ed 507.) {Fall or Spring, Summer upon demand}
- *508. Instructional Strategies for Middle Schools. (3)**
(Also offered as El Ed 508.)
- *509. Seminar in Supervision of Field Experiences. (1-3)**
- *510. Developments in Industrial and Vocational Education. (3)**
(Also offered as Bus Ed, I Ed, Vo Ed 510.)
- *511. Curriculum Appraisal and Improvement of School Programs. (3)** Stoughton, Stoumbis, Wagoner
(Also offered as El Ed 601.)
- *515. Remedial Teaching Techniques. (3)**
(Also offered as El Ed 535.) {Summer, Spring 1984 and alternate years}
- *520. Instructional Trends in the Communication Arts. (3)**
- *521. Seminar in English Curriculum and Instruction. (3)**
- *523. Administration of Industrial and Vocational Education. (3)**
(Also offered as I. Ed, Bus Ed, Vo Ed 523.)
- *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.)
- *530. Seminar in Science Teaching. (3)** Tweeten
- *532. The Reading Process. (3)** Altwerger, Van Dongen, White
(Also offered as El Ed 532.)
Prerequisites: 535L, El Ed 531, and permission of instructor. {Summer, Spring 1984 and alternate years}
- *535L. Practicum in Learning Disabilities (Reading). (3)** Van Dongen, Maggart
(Also offered as El Ed 537.) Includes 3 hrs. supervised lab, each week.
Prerequisites: 435L and El Ed 531 or SATE 520. {Summer, Fall, Spring}
- *538. Teaching Reading through the Content Field. (3)** Van Dongen, White, Oshima
(Also offered as El Ed 538.)
Prerequisite: classroom teaching experience or permission of the department. {Offered on demand}
- *540. Instructional Trends in the Social Studies. (3)**
- *542. Principles of Curriculum Development. (3)**
(Also offered as El Ed 542.) {Spring 1983, Summer, and alternate years}
- *546. Economic Education. (2 or 4)**
(Also offered as Econ and Bus Ed 546.)
- #*549. History Education. (3)**
(Also offered as Hist 549.)
- *550. Seminar in History Education. (3)**
(Also offered as Hist 550.)
- *556. Proseminar in Problems of Language Instruction. (3)**
(See Spanish 543.)
- *562. Practicum in the Supervision of Instruction. (3)** Auger, Tweeten
(Also offered as El Ed 562.) May be repeated for a maximum of 12 hrs. {Fall, Spring}
- *581. Seminar in Bilingual Education. [Bilingual Education.] (3)** Pfeiffer
(Also offered as El Ed 581.)
Prerequisite: permission of instructor. {Fall, Spring}
- *582. Curriculum Development for Bilingual/Bicultural Programs. (3)**
(Also offered as El Ed 582.)
Prerequisite: permission of instructor. {Fall, Spring}
- *590. Seminar. (3)** Tweeten, Wagoner
{Summer, Fall, Spring}
- *591. Problems. (1-3, to a maximum of 6)**
- *592. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Office of Graduate Studies. Consult the Graduate Programs Bulletin for restrictions.
- *593. Topics. (1-3)**
- *595. Advanced Field Experiences. (3-6, to a maximum 12)**
- *596. Internship. (3-6, to a maximum of 12)**
- *598. Directed Readings in Secondary and Adult Teacher Education. (3-6, to a maximum of 6)**
- *599. Master's Thesis. (1-6 hrs. per semester)**
See Graduate Programs Bulletin for total credit requirements.
- *611. Curriculum Appraisal and Improvement of School Programs. (3)**
(Also offered as El Ed 601.)

Available for graduate credit except for graduate majors in economics or history.

***643. Curriculum Theory Seminar. (3)**

(Also offered as El Ed 643.)

***690. Dissertation Seminar. (3)**

{Fall, Spring}

696. Internship. (3-6, to a maximum of 12)**698. Directed Readings in Secondary and Adult Teacher Education. (3-6, to a maximum of 12)*****699. Dissertation. (3-12 hrs. per semester)**

See Graduate Programs Bulletin for total credit requirements.

BUSINESS EDUCATION (BUS ED)

SECRETARIAL

NOTE: Students should consult with business education advisers for proper placement and credit before enrolling in skill courses Bus Ed 111, 112, 113, 114; Mgt 101, 102.

***111. Beginning Typewriting. (2)**

Use of the touch system in learning basic typewriting skills and applications. 1 lecture, 2 hrs. lab. {Offered upon demand}

***112. Intermediate Typewriting. (3)**

Development of speed and accuracy in business letters, forms, manuscripts, and tabulations.

Prerequisite: knowledge of typewriter keyboard and operation. 2 lectures, 2 hrs. lab. {Fall, Spring}

113. Shorthand Theory. (3)

113A Gregg: theory and essentials of writing shorthand; speed goal: 60 wpm minimum. 3 lectures, 2 hrs. lab. {Fall, Spring}

113B Forkner: theory and essentials of writing shorthand. Prerequisite: Bus Ed 111 or equivalent. {Fall}

***114. Shorthand Dictation. (3)**

Review of Gregg theory; building dictation speed and development of transcription; speed goal: 80 wpm minimum. Writers of alphabetic systems should enroll in this course for their second semester.

Pre- or corequisite: 112; prerequisite: 113A or equivalent. {Fall, Spring}

117. Office Machines and Filing. (2)

Laboratory work in printing and visual display electronic calculators, 10-key adding machine, transcription from recorded dictation, filing. (Substitute BE 293 starting Fall 81, 3 hrs.) Prerequisite: 112 or equivalent. 1 lecture, 2 hrs. lab. {Fall, Spring}

201. Introduction to Data Processing for Business Education. (3)

Introduction to basic data processing concepts, electronic data processing systems and designs, basic programming and coding techniques, and characteristics of selected computer languages. {Fall, Spring}

***253. Shorthand Transcription. (3)**

Review of theory; dictation and transcription from shorthand notes correctly and speedily. Speed goal: 100 wpm minimum.

Prerequisites: 112, 114 (Gregg), or equivalent. 2 lectures, 2 hrs. lab. {Spring}

205. Business Mathematics through Electronic Calculators. (3)

A variety of business problems are approached through the logic of electronic display and/or printing calculators. Problems are presented and discussed in lectures; then students work similar problems using the calculator.

Prerequisite: Math 100 or equivalent.

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}

***122. 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.

Prerequisite: 112 or equivalent. 2 hrs. lecture, 2 hrs. lab. {Fall, Spring}

265. Business Communications. (3)

Development of psychologically sound business communications, both oral and written, in correct and forceful English. All major assignments must be typewritten. {Fall, Spring}

293. Topics. (1-3)**350. Vocational Office Laboratory. (2-3) Weber**

Work experience (6-9 hours per week) for college credit under supervision in approved work station.

Prerequisites: business education skills courses and permission of instructor. {Fall, Spring}

357. Advanced Secretarial Administration. (3)

The course is designed to acquaint the student with the responsibilities of the executive secretary, administrative assistant, or office manager. It will continue to refine basic procedures necessary to the operation of the office.

PROFESSIONAL**391. Undergraduate Problems. (1-3) Staff****439. Teaching of Business Subjects. (3) McQueen**

{Offered upon demand}

***443. Coordination Techniques in Vocational Cooperative Programs. (3) Weber, Cunico**

(Also offered as SATE, I Ed, Vo Ed 443.) Development of present practices in work experience programs for secondary school and post secondary students. Special emphasis is given to organization and administration of vocational education cooperative part-time plans for distributive, office, and industrial occupations.

461. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15) McQueen, Weber

{Fall, Spring}

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15) McQueen, Weber

{Fall}

463. Student Teaching in the Secondary School: Methods. (6-15) McQueen, Weber

{Fall}

***485. Measurement and Evaluation Techniques. (3)**

(Also offered as I Ed, SATE, Vo Ed 485.)

***492. Workshop in Business Education. (1-4)**

{Offered upon demand}

493. Topics. (1-3)*495. Field Experience. (3-6, to a maximum of 12) Weber**

Planned and supervised professional laboratory or field experiences in agency or institutional setting.

Prerequisite: permission of instructor. {Summer, Fall, Spring}

GRADUATE***501. Foundations of Vocational Business Education. (3)**

†No credit allowed toward a degree in Colleges of Arts and Sciences and Pharmacy.

*Maximum of 6 hours credit allowed in Arts and Sciences and Pharmacy.

503. Readings in Vocational Business Education. (3)**505. Development, Selection, Use and Organization of Instructional Materials. (3)**

(Also offered as I Ed, SATE, Vo Ed 505.)

***510. Developments in Industrial and Vocational Education. (3)**

(Also offered as SATE, I Ed, Vo 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)*****523. Administration of Industrial and Vocational Programs. (3)**

(Also offered as I Ed, SATE, Vo Ed 523.)

#*546. Economic Education. (2 or 4)

(Also offered as Econ, SATE 546.)

591. Graduate Problems. (1-3 hrs. each semester)**592. Workshop in Business Education. (1-4)*****593. Topics. (1-3)*****595. Advanced Field Experiences. (3-6, to a maximum of 12)**

Prerequisite: permission of instructor.

INDUSTRIAL EDUCATION (I ED)

TECHNICAL

Courses in this section may be offered upon demand in summer session.

101. Technical Math. (3) Cunico, Nesbitt

Practical application of algebra, geometry, and trigonometry in the solution of applied problems found in industrial education. Also to include graphical mathematics, metrification, and the use of handbooks and data tables. 3 lectures. {Spring}

102. Modern Industry. (3) Cunico, Field, Nesbitt, Taylor

{Offered upon demand}

110L. Machine Woodworking. (3) Staff

Introduction to the set-up and safe operation of common woodworking tools. Includes project design and construction involving hand and power woodworking processes, turning, and lamination. 2 lectures, 3 hrs. lab. {Fall, Spring}

111L. Introduction to Graphic Communication. (3) Nesbitt, Cunico

Introduction to graphical representation including the graphic language, geometric construction, multiview projection, dimensioning, sectional views, and auxiliary views. 2 lectures, 3 hrs. lab. {Fall}

112L. Intermediate Graphic Communications. (3) Nesbitt, Cunico

Designed to continue the study of basic drafting techniques studied in I Ed 111L. Includes a study of tolerance dimensioning, pictorial representation, threads and fasteners, detail

and assembly, charts and graphs, and descriptive geometry. 2 lectures, 3 hrs. lab.

Prerequisite: 111L. {Spring}

120L. Metal Technology. [Machine Metalworking.] (3) Field, Nesbitt

Survey of the four major metalworking areas (Machine Metalworking, Bench, Sheet Metalworking, Foundry/Casting, and Welding), with emphasis on the traditional processes and practice utilized by contemporary industries. All students will have opportunity to experience each area as they proceed through the structured laboratory activities. This course is designed to provide the basic foundation for other I.E. metalworking courses. 2 lectures, 3 hrs. lab. {Fall}

165. Safety, Service and Preventive Maintenance. (3) Cunico, Taylor

The principles, practices, and applications of industrial education laboratory safety combined with service and preventive maintenance of laboratory equipment and tools. 2 lectures, 3 hrs. lab. {Fall}

230L. Power Mechanics. (3) Nesbitt, Taylor

A survey course relative to the internal combustion engine in today's society. Experiences in the maintenance and repair, with reference to the consumer, of automotive and various small engines. 2 lectures, 3 hrs. lab. {Fall}

280L. Introduction to Electronics. (3) Cunico

Survey of electrical theory and its application in the fields of communications and electronics. Individual and group experiences derived through experimentation and construction of electrical projects. 2 lectures, 3 hrs. lab. {Fall, Spring}

285L. Welding. (3) Cunico, Field, Nesbitt

Survey of the welding processes, including electric, acetylene, and limited inert gas. Techniques, methods and practices are covered with emphasis on the joining and cutting of common metals. 2 lectures, 3 hrs. lab. {Fall, Spring}

312L. Architectural Drafting. (3) Taylor

A study of architectural drafting techniques. Standard foundation plans, floor plans, elevations, electrical, plumbing, plot layouts, and construction details for residential dwellings. 2 lectures, 3 hrs. lab.

Prerequisite: 111L. {Spring}

320. [220L.] Manufacturing Technology. (3) Field

Survey course dealing with the careers and activities relative to the manufacturing industries in the United States. Students will be exposed to and involved in such areas as management functions, research and development, production engineering, production, marketing, industrial relations, and financial affairs. 2 lectures, 3 hrs. lab. {Spring}

325. [225L.] Industrial/Technical Design. [Design in Industrial Arts.] (3) Cunico, Field, Taylor

Design theory and principle as applied to the research and development functions of industry. Product development via team organization, brainstorming, data analysis, oral presentations, and creative problem solving. 2 lectures, 3 hrs. lab. {Offered upon demand}

335L. Intermediate Power Mechanics. (3) Nesbitt, Taylor

Hydraulic, pneumatic, and mechanical methods of transmitting power. Theory and function of gear and hydraulic power transmission. 2 lectures, 3 hrs. lab.

Prerequisite: 230L or equivalent. {Spring}

350L. Cabinet Making. (3) Taylor

A study of standard cabinetmaking design and procedures. Includes basic case construction, frame and panel construction, shelves and interiors, tops, legs, rails, door, and drawer construction. Individual students are required to research and

#Available for graduate credit except for graduate majors in economics or history.

set-up advanced machine operations for production work. 2 lectures, 3 hrs. lab. Prerequisites: 110L and 111L. {Fall}

361. [261L.] Advanced Technical Drafting. [Drafting Conventions and Simplified Standards.] (3) Arrowless and tabular dimensioning, simplified drafting, point-to-point dimensioning, datum line dimensioning, and true positional dimensioning. 1 lecture, 3 hrs. lab.

365L. Advanced Machine Metalworking. (3) Field, Nesbitt Building upon the processes and practices of I Ed 120L, metallurgy, machine design, and advanced processes on the vertical milling machine, and tool grinder are emphasized. 2 lectures, 3 hrs. lab.

Prerequisite: 120L or equivalent. {Spring}

380L. Advanced Electronics. (3) Cunico

Application of the theories and principles involved in the use of vacuum tubes, power supplies, amplifiers, receivers, and transmitters. Introduction to transistor principles and their application. 2 lectures, 3 hrs. lab.

Prerequisite: 280L or equivalent. {Fall}

386L. Metal Fabrication. (3) Field, Nesbitt

Application of the various aspects and processes in the hot and cold forming of metal. Techniques in the use of tools and equipment for metal fabrication such as sheet metal, metal spinning, forging and ornamental metal. 2 lectures, 3 hrs. lab.

Prerequisite: 285L or equivalent. {Fall}

410L. Industrial Plastics. (3) Field

A study of the materials, processes, and equipment utilized in the production of plastic materials and products, as well as an introduction to the industry itself. Students will be introduced to the characteristics of plastics, major principles of mold design and construction, and the characteristics of various molding, forming, fabricating, and finishing processes. 2 lectures, 3 hrs. lab.

Prerequisites: 110L and 120L. {Summer or Spring}

415L. Hot Metal Processes. (3) Field, Nesbitt

Hot metal processes, including basic foundry technology (pattern making, core boxes, and nonferrous casting), forging, and heat treatment of metal (casehardening, tempering, and annealing). 2 lectures, 3 hrs. lab.

Prerequisites: 110L and 120L. {Spring}

470. [270L.] Construction Technology. (3) Taylor

A survey course dealing with the materials and processes common to residential construction. A study of planning, leveling, excavating, foundations, walls, partitions, roof structures, plumbing, electrical, insulation, heating and air conditioning. 2 lectures, 3 hrs. lab. {Fall}

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. Arranged hours.

Prerequisites: 120L, 285L, and 415L. {Fall, Spring}

480L. Wood Technology. (1-3) Taylor, Cunico

Advanced course designed to meet individual needs of students wishing to concentrate in a specialized area of woodworking. Arranged hours.

Prerequisites: 110L and 470L. {Fall, Spring}

PROFESSIONAL

105. Introduction to Industrial Education. (2) Cunico, Field, Nesbitt, Taylor

Seminar in history, philosophy, and current trends of industrial education; including an orientation to teaching and the UNM Industrial Education Teacher Preparation Program. 2 lectures. {Spring}

293. Topics. (1-3)

391. Problems. (1-3)

Individually designed research in industrial education.

Prerequisite: permission of instructor. {Offered upon demand}

***425. [515.] Industrial Accident Prevention.** (3) Nesbitt, Cunico

433. Teaching of Industrial Subjects. (3) Cunico, Field, Nesbitt, Taylor

Methods of developing instructional units, teaching methods associated with industrial curricula, and the selection and evaluation of teaching materials used in the classroom. {Offered upon demand}

461. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 12) Field, Cunico

Prerequisite: 433.

463. Student Teaching in the Secondary Schools: Professional Education Block. (6-15) Field, Cunico

Prerequisite: application and approval during the spring semester immediately preceding student teaching. {Fall}

466. Theory and Organization of Industrial Education. (3) Cunico, Field, Nesbitt, Taylor

An analysis of organizing and teaching of industrial subjects as found in the modern school. {Offered upon demand}

492. Workshop in Industrial Education. (1-4)

For degree restrictions, see p. 161 of this catalog. {Offered upon demand}

493. Topics. (1-3) Staff

495. Field Experience. (3-6, to a maximum of 12) Field, Cunico, Taylor

Planned and supervised professional laboratory of field experiences in agency or institutional setting. {Offered upon demand}

GRADUATE STUDY

Will be offered upon demand.

***410. Industrial Plastics.** (3) Field

***443. Coordination Techniques in Vocational Cooperative Programs.** (3) Cunico,
(Also offered as SATE, Bus Ed, Vo Ed 443.)

***456. Science, Technology, and Human Values: Implications for Education.** (3)

(Also offered as Ed Fdn, SATE 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.

***482. Instructional Analysis.** (3) Cunico, Nesbitt

***483. World of Construction.** (3) Field, Cunico, Taylor
{Summer only}

***484. Manufacturing Curriculum/Development and Implementation.** (3) Field
{Summer only}

***485. Measurement and Evaluation Techniques.** (3) Cunico
(Also offered as SATE, Bus Ed, Vo Ed 485.)

***493. Topics.** (1-3) Staff

***505. Development, Selection, Use, and Organization of Instructional Materials.** (3) Cunico, Field, Taylor, Nesbitt
(Also offered as SATE, Bus Ed, Vo Ed 505.)

***510. Development in Industrial and Vocational Education.** (3) Nesbitt, Taylor, Cunico, Field
(Also offered as Bus Ed, SATE, Vo Ed 510.)

- *511. Laboratory Planning and Design. (3)** Field, Nesbitt
- *523. Administration of Industrial and Vocational Programs. (3)** Cunico, Field, Nesbitt
(Also offered as SATE, Bus Ed, Vo Ed 523.)
- *525. Advanced Technical Knowledge and Skills. (3)††**
Cunico, Field, Nesbitt, Taylor
- *591. Problems. (1-3)**
- *592. Workshop. (1-4)**
For degree restrictions consult the Graduate Programs Bulletin.
- *593. Topics. (1-3)**
- *595. Advanced Field Experience I and II. (3, to a maximum of 6)††**

VOCATIONAL EDUCATION (VOC ED)

CURRICULUM AND INSTRUCTION

- 293. Topics. (1-3)**
- 296. Internship. (3-6, to a maximum of 12)**
{Fall, Spring}
- 371. Vocational Instructional Planning. (3)** Staff
Includes an introduction to vocational technical education in area schools, learning theory, instructional planning with performance objectives, units and lessons, and selection of materials and methods. {Fall, Spring}
- 372. Vocational Instructional Implementation. (3)** Staff
Includes use of individualized modules in learning, motivation, total vocational technical curriculum, methods and strategies in teaching adults. {Fall, Spring}
- 391. Problems. (1-3)**
{Offered upon demand}
- *420. Curriculum Development in Health Occupation Education. (3)**
Introduction to the principles of curriculum development in health occupations education.
- *421. Teaching Health Occupations. (3)**
Methods of developing instructional units and reading methods for health occupations teachers.
- *422. Organization and Administration of Health Occupations Education Programs. (3)**
Methods and techniques of organizing health occupations programs.
- *423. Instructional Evaluation in Health Occupations Education. (3)**
Principles of evaluation of instruction applied to health occupations education. Includes two hours supervised lab each week.
- *443. Coordination Techniques in Vocational Cooperative Programs. (3)**
(Also offered as Bus Ed, I Ed, SATE 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}
- *448. Career Education. (3)**
(Also offered as Ei Ed, SATE 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. {Offered upon demand}
- *456. Science, Technology, and Human Values: Implications for Education. (3)**
(Also offered as Ed Fdn, I Ed 456.) Examinations 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.
- 461. Student Teaching. (3-6-9, to a maximum of 15)**
Observation and teaching in secondary schools for one or more semesters. Weekly seminar meetings required with University supervisors.
Prerequisites listed on p. 162. {Fall, Spring}
- 462. Student Teaching. (3-6-9, to a maximum of 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.
- *485. Measurement and Evaluation Techniques. (3)**
(Also offered as I Ed, Bus Ed, SATE 485.)
- *492. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions see p. 161 of this catalog or consult the Graduate Programs Bulletin. {Offered upon demand}
- *493. Topics. (1-3)**
- 495. Field Experience. (3-6, to a maximum of 12)**
Planned and supervised professional laboratory or field experiences in agency or institutional setting.
Prerequisite: permission of instructor. {Summer, Fall, Spring}
- *505. Development, Selection, Use, and Organization of Instructional Materials. (3)**
(Also offered as I Ed, Bus Ed, SATE 505.)
- *509. Seminar in Supervision of Field Experiences. (1-3)**
- *510. Developments in Industrial and Vocational Education. (3)**
(Also offered as Bus Ed, I Ed, SATE 510.)
- *523. Administration of Industrial and Vocational Education. (3)**
(Also offered as I. Ed, Bus Ed, SATE 523.)
- *562. Practicum in the Supervision of Instruction. (3)** Auger, Tweenen
(Also offered as Ei Ed 562.) May be repeated for a maximum of 12 hrs. {Fall, Spring}
- *591. Problems. (1-3, to a maximum of 6)**
- *592. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Office of Graduate Studies. Consult the Graduate Programs Bulletin for restrictions.
- *593. Topics. (1-3)**
- *595. Advanced Field Experiences. (3-6, to a maximum of 12)**
- *596. Internship. (3-6, to a maximum of 12)**
- *598. Directed Readings in Secondary and Adult Teacher Education. (3-6, to a maximum of 6)**

SPECIAL EDUCATION (SP ED)

Gary W. Adamson, Chairperson
Education Administration Building 100, 277-5018

PROFESSORS:

Gary W. Adamson, Ed.D., University of Kansas
Roger L. Kroth, Ed.D., University of Kansas
Richard L. McDowell, Ed.D., University of Kansas
Frank E. Papsky, Ph.D., New York University
Marian N. Shelton, Ph.D., University of Oklahoma
Deborah D. Smith, Ed.D., University of Washington
Billy L. Watson, Ed.D., University of California

ASSOCIATE PROFESSORS:

James S. Everett, Ed.D., University of Kansas
Eloy R. Gonzales, Ph.D., University of New Mexico
Ernest K. Lange, Ed.D., University of New Mexico
Henry J. Pepe, Ed.D., University of Kansas
Glen D. Van Etten, Ed.D., University of Kansas

ASSISTANT PROFESSOR:

Virginia Cavalluzzo, Ph.D., George Peabody College for Teachers

VISITING ASSISTANT PROFESSOR:

Ruth Luckasson, J.D., University of New Mexico

LECTURER:

M. Carlene Van Etten, Ed.S., George Peabody College for Teachers

201. Education of the Exceptional Person. (3) Everett

A survey of the characteristics and educational needs of exceptional children. Includes definition, etiology, characteristics, and various educational alternatives for each of the exceptionalities.

Corequisite: 204. {Fall, Spring}

202. Communicative Disorders. (3)

(Also offered as Com Dis 202.) Nature of communicative disorders, including speech, hearing, and language disorders in children and adults. Methods of identification and remediation.

204. Introduction to Special Education. (2) Staff

Work experience and seminars in special education settings. Required of all undergraduates.

Corequisite: 201. {Fall, Spring}

294. Teaching Music in Elementary Schools. (3)

(Also offered as Mus Ed 346.) Designed for music education majors dealing with teaching music in grades K-6. Encompasses the role of the consultant, curriculum development and materials of instruction.

Prerequisite: Music 194. {Fall, Spring}

297. Music for Special Education. (3)

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.

302. 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.

Prerequisites: Com Dis or Sp Com 280 or permission of instructor. {Fall, Spring}

306. Introduction to Behavior Management. (3)

Provides an introduction to behavioral principles and procedures in application with children and youth. The course covers planning, environmental organization and behavioral principles.

Prerequisites: Spec Ed 201 and 204. {Fall, 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.

391. Problems. (1-3, to a maximum of 6)

Prerequisite: permission of instructor. {Offered upon demand}

*408. Special Education in the Regular Classroom. (3) Everett

Provides regular educators with skills to assist mildly handicapped children in the regular class and provides special educators with skills and strategies to assist regular teachers with mildly handicapped children in their class. {Fall, Spring}

409. Affective Education and the Exceptional Person. (3) Shelton

Develops communication skills, values clarification methods, non-verbal skills, and other effective techniques related to the exceptional person and teacher. Emphasis is placed on social and psychological problems in special education. {Fall, Spring}

420. Nature and Needs of the Mentally Retarded. (3) G. Van Etten

This course offers an intense study of the social, medical, emotional, physical, and mental characteristics of mentally retarded persons. Emphasizes classification, diagnosis and treatment from medical, psychological, sociological, and educational points of view.

Prerequisite: 201. {Fall}

*427. Problems of the Hearing Impaired. (3)

(Also offered as Com Dis 427.) Problems encountered by the deaf and hard of hearing, including communication abilities, psychological and sociological adjustment, educational achievement, and vocational placement. {Fall, Spring}

430. Nature and Needs of the Behavior Disordered Person. (3) McDowell

Covers the characteristics of emotionally or behaviorally disordered children. Emphasis is on identification, behavioral description, classification, and intervention strategies in various therapeutic environments. {Fall}

440. Nature and Needs of Learning Disabled Persons. (3)

G. Van Etten, Watson
Covers the characteristics of the learning disabled person. Emphasis is on historical development of the field, characteristics, diagnosis, and definitions, and research findings. {Fall}

452. Teaching the Severely/Profoundly Handicapped. (3)

Strategies and techniques for teaching the severely handicapped (TMR) child.

Prerequisites: 201, 204, 420, and program of studies (contract) on file. {Spring}

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15)

463. Student Teaching in the Secondary Schools: Professional Education Block. (6-15)

{Offered upon demand}

465. Art and the Exceptional Child. (3)

(Also offered as Art Ed 465.) {Fall, Spring}

*467. Survey of Physical Defects. (3) Staff

(Also offered as PE 467.) To investigate the etiology, characteristics, and treatment programs necessary for teaching the physically handicapped child.

Prerequisites: 201, 204, and program of studies (contract) on file. {Fall}

*492. Workshops in Special Education. (1-4)

Prerequisite: permission of instructor. Carries graduate credit

when specifically approved by the Office of Graduate Studies. Consult this catalog and the Graduate Programs Bulletin for degree restrictions. {Offered upon demand}

***493. Topics in Special Education. (1-3) Staff**

495. Field Experience. (3-6, to a maximum of 12) Staff
Planned and supervised professional laboratory or field experiences in agency or institutional setting.
Prerequisite: permission of instructor. {Summer, Fall, Spring}

***501. The Psychology and Education of Exceptional Persons. (3)**
{Fall, Spring}

***502. Verbal and Non-verbal Communication in Special Education. (3) Shelton**
Prerequisite: permission of instructor. {Spring}

***503. Instructional Strategies in Special Education. (3) C. Van Etten**

***504. Practicum in Special Education. (3-6) Staff**
Prerequisites: major in department and permission of instructor. See Department for other restrictions. {Offered on demand}

***505. Seminars in Special Education. (3) Staff**
May be repeated as topics vary.

***506. Sex Education for Exceptional Persons. (3) Shelton**
Prerequisite: enrollment by permission of the instructor. {Fall}

***508. Techniques of Parent-Teacher Counseling. (1,2,3) Kroth**
(Also offered as Couns 510.) {Fall, Spring}

***509. Affective Education and the Exceptional Person. (3) Shelton**
{Fall, Spring}

***512. Teaching the Secondary Work Study Student. (3) Everett, Gonzales**
{Fall}

***513. Curriculum Development in Special Education. (3) C. Van Etten**
{Fall}

***519. The Application of Applied Behavior Analysis in the Special Education Classroom. (3) McDowell, D. Smith, G. Van Etten**
Prerequisite: major in the Department. {Fall, Spring}

***520. Nature and Needs of the Mentally Retarded. (3) G. Van Etten**
{Fall}

***521. Motor Learning of the Handicapped. (3)**
(Also offered as PE 521.)

***522. Motor Learning of the Handicapped. (3)**
(Also offered as PE 522.)

***523. Teaching the Educable Mentally Handicapped. (3) Luckasson, C. Van Etten**
Prerequisites: 420, 520, department major only. {Spring}

***526. Motor Assessment of the Handicapped. (3)**
(Also offered as PE 526.)
Prerequisite: undergraduate major or minor in physical education, recreation, special education or permission of instructor.

***530. Nature and Needs of the Behavior Disordered. (3) McDowell**
{Fall, Spring}

***532. Education of Behaviorally Disordered. (3) McDowell**
{Spring}

***540. Nature and Needs of Learning Disabled Persons. (3) G. Van Etten, Watson**
{Fall, Spring}

***542. Teaching the Learning Disabled. (3) D. Smith**
{Fall, Spring}

***552. Teaching the Severely/Profoundly Handicapped. (3) C. Van Etten**
Prerequisites: 420/520 and Department majors only or permission of instructor. {Offered upon demand}

***564. Administration and Use of Diagnostic Tests in Special Education. (3) Gonzales, Pepe, Watson**
Prerequisite: Ed Fdn 474 or permission of instructor; Department majors only. {Fall, Spring}

***565. Art for the Exceptional Child. (3)**
(Also offered as Art Ed 565.)

***566. Differential Diagnosis I. (3) Gonzales, Pepe**
Prerequisites: 564 or permission of the instructor. {Fall}

***567. Differential Diagnosis II. (3) Gonzales, Pepe, Watson**
Prerequisite: 566. {Spring}

***568. Diagnosis of Multicultural Exceptional Children. (3) Gonzales**
Prerequisite: 566. {Spring}

***569. Clinical Internship in Diagnosis. (3-6) Gonzales, Pepe, Watson**
Prerequisites: 567 and 568. {Offered upon demand}

***570. Nature and Needs of the Gifted. (3) Adamson**
{Fall}

***572. Teaching the Gifted Person. (3) Staff**
Prerequisite: 570 and department majors only. {Spring}

***573. Instructional Strategies in Education of the Gifted. (3)**
Prerequisite: 572 and department majors only. {Fall}

***574. Art for the Gifted. (3) Schoonover**
(Also offered as Art Ed 574.) Special fee required. {Spring}

***588. Organization and Supervision of Special Education Programs. (3) Everett**
{Offered upon demand}

***591. Problems. (1-3 hrs. each semester) Staff**
Prerequisite: permission of instructor. {Offered upon demand}

***592. Workshops in Special Education. (1-4) Staff**
Carries graduate credit when specifically approved by the Office of Graduate Studies. Consult this catalog and the Graduate Program Bulletin for degree restrictions. {Offered upon demand}

***593. Topics. (1-3) Staff**
{Offered upon demand}

***595. Advanced Field Experience. (3-6, to a maximum of 12) Staff**
{Summer, Fall, Spring}

***599. Master's Thesis. (1-6 hrs. per semester) Staff**
See Graduate Programs Bulletin for total credit requirements.

***601. Professional Seminar in Special Education. (3)**
Prerequisite: admission to post-masters work in special education or permission of instructor. {Fall}

***608. Seminar: Parents and Families of Exceptional Persons. (3) Kroth**
Prerequisites: 508 or permission of the instructor. Masters students may enroll only with permission of the instructor. {Spring}

***615. Trends and Issues in Special Education. (3) Adamson, D. Smith**

Prerequisites: doctoral intermediate status in Special Education and permission of instructor. {Spring}

***619. The Application of Applied Behavior Analysis to Academic Research in Special Education. (3)** D. Smith

Prerequisites: 519 or permission of instructor. {Fall in odd years}

***625. Seminar in Mental Retardation. (3)** G. Van Etten
Prerequisites: 522, 529 or permission of instructor. May be repeated for credit when topics differ. Masters students may enroll with permission of instructor. {Fall}

***630. Clinical and Behavioral Aspects of Behavior Disorder. (3)** McDowell {Spring in even years}

***635. Seminar in Behavioral Disorders. (3)** McDowell
Prerequisite: permission of the instructor. {Spring in odd numbered years}

***640. Clinical Aspects of Learning Disabilities. (3)** Watson
{Fall in odd years}

***645. Seminar in Learning Disabilities. (3)** D. Smith
Prerequisites: 440, 542, or permission of the instructor. {Fall in even years}

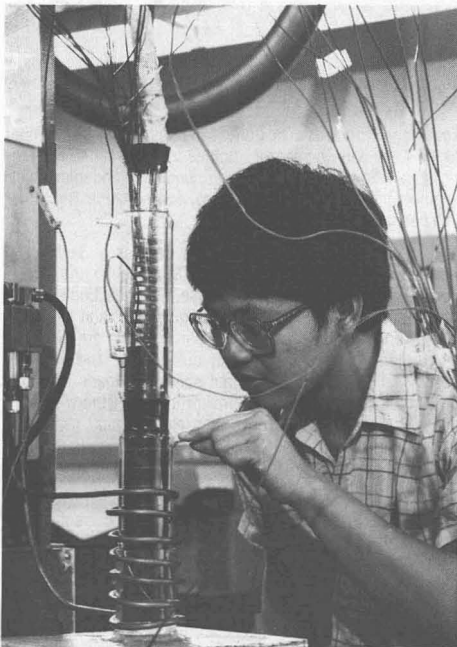
***675. Seminar on the Gifted. (3)** Adamson
Prerequisite: masters candidates with experience and training may enroll with permission of the instructor. {Spring}

***696. Internship. (3-6, to a maximum of 12)** Staff

***699. Dissertation. (3-12 hrs. per semester)** Staff
See Graduate Programs Bulletin for total credit requirements.

VOCATIONAL EDUCATION

See *Secondary and Adult Teacher Education*.



COLLEGE OF ENGINEERING

Gerald W. May, Dean
College of Engineering
Farris Engineering Ctr. 107, 277-5521

ENGINEERS are problem solvers, creators, and builders. They direct their imagination, ingenuity, resourcefulness, and intelligence to the economical use of our natural resources. Few professions offer individuals greater challenge, stimulation, and satisfaction of creative accomplishment. In these days, when breathtaking technological advances are commonplace and the impacts of technology are widely recognized, engineers require ever greater breadth and depth of mathematical and scientific cognition, combined with a sympathetic appreciation of social, economic, ecological, and human values. Engineers are not only the couplers of science and mathematics into human needs; they also are managers of people, resources, and machines in effecting the satisfaction of these needs.

The College seeks to educate persons as engineers and computer scientists who are readily employable, who contribute significantly in their jobs, have a strong public responsibility, and continue to learn. It also seeks to meet continuing education needs of post-baccalaureate engineers, computer scientists, and others who need to extend or strengthen their capabilities.

The several curricula of the College of Engineering are designed to give students suitable education, attitudes, and motivations for their entry into successful careers as practicing engineers, computer scientists, administrators, researchers, or educators. The undergraduate programs are solidly founded on mathematics and the natural sciences, with additional emphasis placed upon human values and relations. Many graduates continue their formal education at the post-graduate level and work toward master's or doctor's degrees. Students must realize, however, that education does not stop with college graduation. More accurately, that is just the first phase of education. True professional engineers and computer scientists 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 be registered as a Professional Engineer.

Students in the College of Engineering have opportunities for scholarly study, laboratory exercise, and research participation. They may interact with nationally recognized engineers. The University of New Mexico strongly believes that teachers must be competent professionals in their own right; faculty members are encouraged to participate actively in professional practice and research. This experience keeps the faculty involved with new developments, increases their understanding of subjects taught, and gives students 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 the Bureau of Engineering Research, which provides administrative support for faculty research projects, and the New Mexico Engineering Research Institute, which performs research relating to structures, soils, blasts, instrumentation, and energy matters.

High School Preparation

It is important that high school students wishing to pursue professional engineering or computer science 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.

High School students intending to study engineering or computer science should take all of the high school 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 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 and Registration 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. 208. Computer science freshman students should take the course of study set forth by the department.

Admission to the College of Engineering

To be eligible for admission to the Engineering College from the University College, from other degree-granting colleges or from other accredited institutions, the student must meet the following requirements:

Completion of 26 hours of acceptable credit for a degree in the College of Engineering. Of these 26 hours of credit, at least 18 must be from the courses required in the freshman year, excluding English, humanities and social science courses.

In addition to requiring a 2.20 grade point average for all courses presented, it is required that the 18 credits also yield at least a 2.20 grade point average and a grade of "C" or better in each course.

For additional regulations to enter the Computer Science Department, see the Computer Science departmental regulations.

The College grants credits for courses in its degree programs for performance on nationally administered examinations only when specific course equivalency has been established by the University department associated with the subject matter of the course. (See *CLEP Subject Examination*, and *CEEB Advanced Placement Program*.)

A transfer student from another university who does not meet the above requirements for acceptance in the Engineering College may be eligible to enroll in the University College to make up any deficiencies in admission requirements. If a transfer student is ineligible to enroll in the University College, when a total of 64 credits have been earned, the student should seek advisement in the Engineering Advisement Office.

Academic Advisement

Academic advisement is required for all students who plan to complete bachelor's degree requirements in the College of Engineering. The Engineering Advisement Office is located in the Farris Engineering Center. Each student is responsible for meeting prior to registration with the assigned academic adviser in his/her major field.

Probation

The Engineering College uses two probational procedures:

1. A student enrolled in the College of Engineering will be placed on academic probation if the student's cumulative

grade point based on all work taken at UNM falls below a 2.00.

2. A student enrolled in the College of Engineering will be placed on **Engineering College Probation** under either of the following conditions:

- a. A cumulative grade point based on work taken at UNM and accepted toward a particular College of Engineering degree falls below a 2.00.
- b. Unsatisfactory progress towards a College of Engineering degree.

Suspension or Dismissal

A student on academic probation during any regular semester or summer session may, at the end of that semester or session, be suspended from the University if the condition for the academic probation has not been removed. A student on academic probation and not making satisfactory progress towards a College of Engineering degree may be dismissed from the Engineering College.

A student on Engineering College Probation during any regular semester or summer session may, at the end of that semester or session, be dismissed from the Engineering College if the condition for the Engineering College Probation has not been removed.

No student is subject to suspension from the University or dismissal from the College of Engineering until the end of the semester or summer session in which the cumulative hours attempted at UNM exceeds 16.

A student suspended from the University may not apply for readmission to the University for a minimum period of one calendar year from the date of suspension.

A student dismissed from the College of Engineering may not apply for readmission to the College of Engineering for a minimum period of one calendar year from the date of dismissal. A student dismissed from the College of Engineering may transfer to another college in the University subject to that college's regulations. However, a student dismissed from the College of Engineering is not permitted to register for any course offered by the College of Engineering.

Courses of Study

Four-Year Programs. The College of Engineering is a member of the American Society for Engineering Education. The curricula in chemical, civil, computer, electrical, and mechanical engineering are accredited by the Accreditation Board for Engineering and Technology.

The College of Engineering offers the degrees of Bachelor of Science in Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Electrical Engineering, Mechanical Engineering, Nuclear Engineering, and the Bachelor of Engineering. 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 anticipate more than eight regular semesters to complete requirements for their degree.

Options and Special Fields. In addition to the seven 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 program. These three options are: biomedical engineering, energy and power systems, and microelectronics processing. 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 Engineering Advisement Office. In

addition, it is possible to specialize by choosing appropriate elective courses within the basic curriculum of one of the major departments.

Courses Offered upon Demand. Engineering departments attempt to schedule courses listed in the *Bulletin* as "offered upon demand" so as to satisfy student needs. Students may present a petition for a specific departmental course for consideration by the chairperson, at least two weeks before the beginning of open registration. This petition is to include the names of those students who will enroll.

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. Students enrolled in the Air Force ROTC or the Naval ROTC can 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 chairperson concerned in planning their program.

Special Programs. The College of Engineering recognizes that the role of minorities in the engineering profession is expanding and that role in New Mexico is particularly important. To encourage this expansion, the College of Engineering has instituted the Native American Program in the College of Engineering (NAPCOE), and the Hispanic Engineering Program (HEP). Each program provides opportunities for students to meet others having the same interests, opportunities, and problems. These programs help students obtain scholarships, provide personal and academic counseling and offer class work tutoring.

Students interested in further information about NAPCOE, or HEP are encouraged to contact the appropriate program director through the College of Engineering, Dean's Office.

Cooperative Education Program. The College of Engineering offers a cooperative education program (Co-op) for students majoring in any field in the College of Engineering. The Co-op curriculum is a program that combines classroom study alternated with a planned program of related engineering or computer science work experience in industry and government agencies. The program extends the period necessary to complete a student's degree to at least five years.

Co-op students gain work experience that enhances their academic studies and provides the opportunity to earn a major portion of college expenses.

A student in good standing with a minimum degree GPA of a 2.0 may enter the Engineering Co-op Program if a suitable employer can be found to sponsor the student. However, the majority of employers seek students with 2.5 GPA's or better. The student must have completed at least two semesters at the University of New Mexico, carrying a full-time load and having completed the normal first semester freshman curriculum. A transfer student from some other university or college shall become eligible for the Co-op Program upon completion of 12 hours in a degree program in the College of Engineering. To remain in the Co-op Program, the student must maintain a minimum GPA of a 2.0 and otherwise be in good standing in a degree program in the College of Engineering.

While on each work phase Co-op students must register in Engineering Co-op 105 and pay an appropriate fee. This registration maintains student academic status, including eligibility for dormitory, activity card, library, and insurance. After completing each work phase, the Co-op student is encouraged to register in one of the Engineering College courses,

Evaluation of Co-op Work Phase, for one credit hour. A maximum of six hours of academic credit earned from the Co-op work phase may be counted as technical elective credit toward the student's degree with the approval of the student's department.

A student who successfully completes the Co-op Program that includes at least 50 weeks of satisfactory work in the work phase of the program, and writes at least two reports for 2 units of academic credit, will be given a certificate stating that he/she is a graduate of the Engineering Cooperative Education Program. This fact will also be noted in the Commencement Program.

Graduate Study. A program of graduate studies is offered by the College of Engineering leading to the Master of Science in Chemical Engineering, Civil Engineering, Computer Science, Electrical and Computer Engineering, Mechanical Engineering, and Nuclear Engineering. A fifth year of study leading to the master's degree is strongly recommended for students of good academic ability.

A program of graduate study in **mechanics** is offered jointly by the Departments of Civil and Mechanical Engineering. Graduate students should consult the engineering departmental listings in the Graduate Programs Bulletin for additional information on 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 Office of Graduate Studies a program leading to the degrees of Doctor of Philosophy in Engineering and Doctor of Philosophy in Computer Science. Study concentrations within the doctorate may be pursued in a variety of engineering and computer science fields. Consult the current Graduate Programs 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 p. 29). Special attention is called to the rules on probation and suspension of the Engineering College (see p. 207).

Courses Numbered 300 or Above. Students may be admitted to courses numbered 300 or above in the College of Engineering if: (1) they are not more than 8 hours short of completing all freshman and sophomore requirements, (2) they have completed all prerequisites for the course in question, (3) the remaining lower-division requirements appear on their program, and (4) they obtain approval from 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 or more hours.

Graduation Requirements

Specific graduation requirements are as follows:

1. Candidates for the bachelor's degree in any of the engineering majors must complete all of the work outlined in their respective curricula. *The student is solely re-*

sponsible for completing all requirements for graduation.

- Students must file applications for degree with their major 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.
- 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.
- For minimum residence requirements, see p. 33.
- Physical education activity courses are not acceptable toward bachelor degree requirements in the College of Engineering, except in Computer Science Department.

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 various options available under the bachelor of engineering program are listed. Descriptions of the courses offered will be found, listed by departments, in the Courses of Instruction section of this catalog.

Course of Study for Engineering Students

FIRST YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Chem 121L Gen	4	(3-3)
Engl 101 Wrtg w/Rdgs in Expos	3	(3-0)
Engr-G 115L Intro to Engr/Lab	1	(1-1)
Engr-G 120L Engr Computing	3	(2-2)
or		
Engr-G 122L Intro Engr Methods	3	(2-4)
Math 162 Calculus I	4	(4-0)
	15	(13-6)

Second Semester

Engr-G 120L Engr Computing	3	(2-2)
or		
Engr-G 122L Intro Engr Methods	3	(2-4)
Physcs 160 Gen	3	(3-0)
Math 163 Calculus II	4	(4-0)
†Engl 102 Analytic Wrtg	3	(3-0)
†Science elective	3 or 4	(3-3)
	16 or 17	(15-5)

Notes

- Special freshman requirements for students majoring in computer science are shown on p. 211.
- High school preparation for Math 162 should include at least 2 units of algebra, 1 of geometry, and 1/2 of trigonometry or college-preparatory mathematics. Students who do not qualify for Math 162 will be required to take remedial mathematics.
- Students with unsatisfactory scores in the ACT English area will be required to take remedial English.
- The courses listed in this first-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. 29 for an explanation of the grading system).

- Engr-G 120L and Engr-G 122L require that the student be eligible for Math 162.

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 design.

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; and consulting. These opportunities are worldwide in industries which have produced an array of synthetic chemical products: antibiotics, fibers, fertilizers, paper, explosives, rocket propellants, 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. Teaching laboratories for the engineering sciences, fluid mechanics, and process control 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 3032 and DEC/VAX computers. 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 Chairperson or the Director of Cooperative Education.

†Students who major in chemical engineering, biomedical engineering, or nuclear engineering are encouraged to take Chem 131L and must take Chem 122L or 132L for the science elective. Students who major in civil engineering or electrical and computer engineering must take Chem 122L or 132L for the science elective. Others should consult their major advisers.

‡See the College Advisement Office for information on authorized proficiency test substitutes for English 102.

Curriculum in Chemical Engineering

Hours required for graduation: 130

SECOND YEAR**First Semester**

	Cr.	Hrs. Lect.-Lab.
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen	3	(3-0)
Chem 301 and 303L Organic	4	(3-3)
Ch E 251L Chem Proc Calc	3	(2-2)
†Econ 200 Prin and Prob	3	(3-0)
	17	(15-5)

Second Semester

Math 316 App Ord Diff Eq	3	(3-0)
Physcs 262 Gen	3	(3-0)
Basic Science Lab	1	(0-3)
Adv Chem elective	3	(3-0)
Ch E 252 Intro Trans Phen	3	(3-0)
†Engl 219 Tech Wrtg	3	(3-0)
	16	(15-3)

THIRD YEAR**First Semester**

	Cr.	Hrs. Lect.-Lab.
‡Ch E 301 Thermodynamics	3	(3-0)
Ch E 311 Unit Ops I	3	(3-0)
Ch E 317 Chem Engr Analysis	3	(3-0)
Chem 311 Physical	4	(4-0)
‡H&SS elective	3	(3-0)
	16	(16-0)

Second Semester

Ch E 302 Ch E Thermo	3	(3-0)
Ch E 312 Unit Ops II	3	(3-0)
Ch E 314L Chem Engr Lab I	2	(0-6)
Chem 312 Physical	4	(4-0)
‡Tech elective	3	(3-0)
‡H&SS elective	3	(3-0)
	18	(16-6)

FOURTH YEAR***First Semester**

	Cr.	Hrs. Lect.-Lab.
Ch E 315L Chem Engr Lab II	2	(0-6)
‡Ch E 450 Chem Engr Econ	3	(3-0)
Ch NE 451 Senior Seminar	1	(1-0)
Ch E 461L Chem Reactor Engr	3	(3-1)
Ch E 493L Intro to Design	1	(0-3)
‡H&SS elective	3	(3-0)
‡Tech elective—technology	3	(3-0)
	16	(13-10)

Second Semester

Ch E 454L Proc Dynamics&Contrl	1	(2-1)
Ch E 494L Ch E Design	3	(2-3)
‡EECE 203 Circuit Analysis I	3	(3-0)
‡H&SS elective	3	(3-0)
‡Tech elective—science	3	(3-0)
	13	(13-4)

Notes

1. At least 12 hours of electives are to be taken in the humanities and social sciences (H&SS). See department for approved list.
2. The advanced chemistry elective must be either Chem 302 or a 300- or 400-level course approved by the department.
3. Physics 163L or 264L or Chem 304L are acceptable for the basic science lab.
4. Technical electives are chosen from approved upper division courses in engineering, mathematics, and science. The department requires that one science and one technology elective be selected from the list of approved departmental courses. The chairperson may allow up to 6 hours of technical electives for students taking required ROTC courses in aerospace or naval science.
5. Prior to the completion of 95 semester hours, the student must file an application for the B.S. degree.

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 continue 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 that is offered by the Department of Civil Engineering. This option, which culminates in a Bachelor of Science in Civil Engineering, gives the student educational background in accounting and economics as well

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior year.

†Econ 200 and Engl 219 may be taken in either semester of the sophomore year.

‡Electives and general courses are flexible and should be taken whenever convenient.

as a working knowledge of construction costs, administration, contracts, management, methods, and equipment. Students who wish to follow the construction option should enter the program at the start of their sophomore year, and they are 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. 207 for further details). Additional information may be obtained from the Chairperson of the Department of Civil Engineering and the Director of the Cooperative Education Program.

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 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 Robert O. Anderson Graduate School of Management.

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. Throughout the curriculum the student is exposed to a variety of computational equipment ranging from departmental microcomputers to the University owned system. The department has digital micro and mini-computers available for student use as well as remote terminals connected to the University's central computer system.

Curriculum in Civil Engineering

Hours required for graduation: 130

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen	3	(3-0)
CE 270L Constr Mat	1	(0-3)
CE 202 Engr Statics	3	(3-0)
CE 281L Engr Meas	3	(2-3)
Engrl 219 Tech Wrtng	3	(3-0)
or		
Sp Com 130 Pub Spkng	3	(3-0)
	17	(15-6)

Second Semester

Math 316 Appl Ord Diff Eq	3	(3-0)
Physcs 262 Gen	3	(3-0)
CE 282L Engr Surveys	2	(1-3)
ME 206L Dynamics	3	(2-3)

EECS 203 Circuit Analysis I	3	(3-0)
H&SS elective	3	(3-0)
	17	(15-6)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
CE 340 Prob Mthds in Engr I	3	(3-0)
or		
Math 311 Vector Analysis	3	(3-0)
or		
Math 345 Stat Methodology	3	(3-0)
CE 302 Mech of Mat	3	(3-0)
CE 303L Mech of Mat Lab	1	(0-3)
CE 305 Struc Anal I	2	(2-0)
CE 331L Fluid Mech	4	(3-3)
CE 382 Transp Engr	3	(3-0)
	16	(14-6)

Second Semester

CE 360L Soil Mech	3	(2-3)
CE 306 Struc Anal II	3	(3-0)
CE 332 Intro to Hydrology	2	(2-0)
CE 324L Struc Des in Metals	3	(2-3)
CE 336L Wtr & Wast Wtr Trt	3	(2-3)
H&SS elective	3	(3-0)
	17	(14-9)

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
CE 411 Reinf Concr Des	3	(3-0)
CE 370 Engr Mat Science	3	(3-0)
CE 490 Aspects Prof Prac	2	(2-0)
Ch E-ME 301 Thermodynamics	3	(3-0)
Tech Elective	3	(3-0)
H&SS elective	3	(3-0)
	17	(17-0)

Second Semester

Econ 200 Prin and Prob	3	(3-0)
Tech Electives	8	(8-0)
H&SS elective	3	(3-0)
	14	(14-0)

Notes

1. H&SS electives are to be chosen from the humanities and social sciences. See Department Chairperson for list of approved courses.
2. See Department Chairperson for list of approved technical electives. Students enrolled in the ROTC programs may, with approval of the Department Chairperson, substitute aerospace studies or naval science for up to 6 hours of technical electives.

Computer Science

The program of this department is intended to provide students with a well rounded general education and a broad set of skills and knowledge in the basic areas of computer programming and computer science. The core requirements in

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior year.

mathematics, computer science, and electrical engineering cover the basic principles and methodologies of discrete mathematics, problem analysis and algorithm development, assembly language, PASCAL, FORTRAN, language design and implementation, operating systems, analysis of algorithms, and computer architecture.

Admission

Students wishing to enroll in the bachelor's program in computer science must apply for admission or transfer to the Department of Computer Science, College of Engineering. The admission request is initiated through the Office of Admissions and Records for students wishing to transfer to UNM from other institutions. Students transferring to the computer science program from another program at UNM should initiate the paperwork in their current college office.

Because of high enrollments and limited resources the Department of Computer Science has instituted a restrictive admissions policy. Students denied entrance to the department due to lack of sufficient credits or specific courses may enroll in computer science classes and reapply at a later time when they meet the entrance requirements. The criteria for admission to the department are:

1. A minimum of 26 hours of credit acceptable toward the degree with a grade of C or better in all courses counted in the 26 hours and an overall academic average for all courses taken at UNM of not less than 2.2.
2. 18 hours taken from among the computer science, mathematics, and laboratory science graduation requirements, with an academic average of not less than 2.5 in the 18 hours. CS 154, CS 155, and Math 162 must be included in the 18 hours.

Students wishing to enter the Computer Science program and having university level credit for course work completed at another institution will have their transfer credits evaluated on an individual basis. Grades earned in equivalent courses at other institutions will be used in determining eligibility for admission to the department.

Advanced Placement and Transfer Credit

The department subscribes to the general policy of the College of Engineering with regard to advanced placement credit earned by examination.

Students with university level course work from other institutions will have their academic records evaluated by an undergraduate adviser from the department on an individual basis. The student should be aware that the department has the final say about which transfer credits can be applied toward the graduation requirements listed below. Because computer science programs vary greatly, students transferring from other institutions should not assume that computer science courses they have taken elsewhere can be applied toward the 36 hour computer science course work graduation requirement. Courses not accepted toward the 36 hours may be applied toward the 130 semester hour graduation requirement as general electives at the discretion of the undergraduate adviser.

Graduation Requirements

To receive the degree of Bachelor of Science in Computer Science a student must satisfy all general UNM regulations concerning baccalaureate programs and the student must have completed all work defined by the following groups. Only courses with a grade of C or better may be used to satisfy any of the requirements defined herein.

1. Completion of 130 semester hours with at most 4 hours in health, physical education and recreation.
2. Completion of at least 40 hours in courses numbered 300 or above.
3. Completion of 36 hours in computer science and approved courses outside of the department with a GPA of not less than 2.5 in the 36 hours presented. The 36 hours must include the following courses:
CS 154 Foundations of Computing Science
CS 155 Introduction to Computer Programming
CS 253 Intermediate Programming
CS 255 Introduction to Computing Systems
CS 263 Fundamentals of Data Structures
CS 303 Fundamentals of Algorithms
CS 355 The Syntax and Semantics of Programming Languages
CS 357 Operating Systems Principles

The current list of courses outside of the department approved as technical electives toward satisfaction of this requirement are:

EECE 344L Microprocessors
EECE 438 Design of Computers

CS 300 may be substituted for CS 155 and CS 253. This does not lower the number of credits required in computer science from 36.

The following courses cannot be used to satisfy the computer science hour requirement but may be used to satisfy other requirements:

CS 150, CS 337, CS 390.

At most 3 hours of CS 499 may be used toward satisfaction of this requirement.

4. Completion of the mathematics sequence:
Math 162 Calculus I
Math 163 Calculus II
Math 317 Elementary Combinatorics

Two courses from the following list:
Math 314 Linear Algebra with Applications
Math 321 Linear Algebra
Math 340 Discrete Probability Theory
Math 375 Introduction to Numerical Computing

Math 314 and Math 321 cannot both be taken.
5. EECE 238L Computer Logic Design.
6. Six hours of writing skills. English 101 and 102.
7. Nine hours in humanities. The following general areas are considered humanities:

English, literature, modern and classical languages, philosophy, fine arts, American studies, history.
8. Six hours in the social and behavioral sciences. The following general areas are considered social and behavioral science: anthropology, geography, economics, political science, psychology, linguistics, sociology, speech communication;
9. One of the following sequences of laboratory science (note that only a complete sequence satisfies this requirement, not two courses from two different sequences):
Astronomy 270, 272L—271, 273L
Biology 121L—122L
Chemistry 121L—122L
Geology 101, 105L—102, 106L
Physics 160—161, 163L
10. Course work sufficient to satisfy requirements of a minor. Minors approved by the College of Arts Sci-

ences are also acceptable for computer science majors. Other portions of this bulletin should be consulted for the requirements for completing a minor in various fields of study. An interdisciplinary minor of not less than 24 hours can be developed to suit the goals of individual students; such a minor must be approved by the undergraduate curriculum committee of the department.

Students enrolling in the three-two M.B.A. program offered by the Anderson School of Management may satisfy this requirement with 18 hours of 500 level management courses, normally taken during their senior year. For more information contact the department or the Anderson School. Courses taken to satisfy this requirement may also be used to satisfy the requirements of categories 1, 2, 7, 8, and 9.

All courses taken to satisfy these requirements are subject to final approval by an undergraduate adviser. Basic skills courses (e.g. Engl 100) and mathematics courses prior to Math 121 will not count to satisfy any of the above requirements. A maximum of 24 semester hours taken for CR/NC may be applied toward the baccalaureate degree. Courses taken for CR/NC may not be used to satisfy the requirements of groups 3, 4, 5, 9, or 10. No one course may be used to satisfy more than one requirement of categories 3, 4, 5, and 10, with the exception of EECE 238L, which effectively reduces the minor in EECE to 20 hours.

Minor in Computer Science

A minor in computer science is available for students in other departments. The requirements for a minor are completion of the following courses:

CS-154, CS-155, CS-253, EECE-238L, CS-255, and CS-263

CS-300, may be substituted for CS-155 and CS-253, in which case the minor must consist of 21 or more hours.

No course with a grade of less than C may be counted in the 21 hours. Also, CS-150, CS-337, and CS-390 may not be counted in the 21 hours.

Advising

Students are required to see an undergraduate adviser within the department each semester prior to registering for classes. The student should check with an adviser about the advisability of classes used to satisfy graduation requirements 7, 8 and 10, as some courses offered by other departments are similar in nature to required courses and do not meet the spirit of these breadth requirements.

Associate of Applied Science in Computer Programming

Students who do not wish to pursue a four year degree may find the two year Associate of Applied Science in Computer Programming degree offered through the General College more suited to their needs and interests. Students should contact the department or the General College regarding this program and the applicability of courses taken in this program to the requirements for the four year degree.

Graduate Study

The department offers a Master of Science and a Doctor of Philosophy in Computer Science. For master's degree curricula, see the Graduate Programs Bulletin. Contact the Department of Computer Science for more information on the Ph.D. program.

In order to encourage students with backgrounds other than computer science to enter the field, the department gives a series of immigration courses which cover the essential background materials needed to begin work on an advanced degree. These courses are extremely intensive and should not be attempted by persons without a strong technical background in a related field.

Curriculum in Computer Science

The following schedule is intended as a model for students when planning their course load for any particular semester. It should be noted that the schedule must normally be adjusted to compensate for any deficiencies or advanced preparation on the part of the student prior to beginning the freshman year. All entering freshmen must take the mathematics placement exam, given free by the Department of Mathematics and Statistics, to aid the adviser in guiding the student into the appropriate entry level math course. Students must also have taken the ACT exam for the same purpose in math and English. Students should not be in any Computer Science courses until they have knowledge of mathematics equivalent to Math 150 (algebra and trigonometry). General electives include courses in humanities, social and behavioral sciences. It is not recommended that a student attempt more than 12 hours of technical material in one semester.

FIRST YEAR

First Semester

Engl 101 Wrtg w/Rdgs in Expos	3
General Electives*	6
Math 162 Calculus I	4
Laboratory Science I	4
	<hr/>
	17

Second Semester

CS 155 Intro Comp Prog	4
CS 154 Fdn of CS	3
Math 163 Calculus II	4
Laboratory Science II	4
	<hr/>
	15

SECOND YEAR

Third Semester

CS 253 Intern Program	4
EECE 238L Comp Logic Dsgn	4
‡English 102	3
Minor/General elective	6
	<hr/>
	17

Fourth Semester

CS 263 Fnd of Data Struct	4
CS 255 Intro Comp Systm	3
Math 317 Elementary Combinatorics	3
Minor/General elective	6
	<hr/>
	16

THIRD YEAR

Fifth Semester

CS 355 Synbx/Semtc Pro Lang	3
CS 303 Fdn of Algorithms	3
Math elective	3
Minor/General elective	6
	<hr/>
	15

*General electives generally include courses in the humanities, social and behavioral sciences.

‡See the College Advisement Office for information on authorized proficiency test substitutes for English 102.

Sixth Semester

CS 357 Oper Systm Prin	3
CS elective	3
Minor elective	3
General elective	3
Math elective	3
	<hr/>
	15

FOURTH YEAR

Seventh Semester

CS electives	3
Minor elect	3
General elective	12
	<hr/>
	18

Eighth Semester

CS elective	3
Minor elective	3
General elective	12
	<hr/>
	18

Electrical and Computer Engineering

The Department of Electrical and Computer Engineering (EECE) offers two undergraduate degree programs, one in electrical and one in computer engineering. The technology in both these fields changes very rapidly. For this reason the curricula in both electrical and computer engineering stresses fundamental concepts as well as current application methods.

Honors Program

Students with a B+ average in the Department of Electrical and Computer Engineering are encouraged to enroll in the Honors Program. EECE 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 Five-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-semesters, a planned program of related engineering work experience in industry.

For students who wish to combine a baccalaureate degree in engineering with a master's degree in business administration, there is available, in cooperation with the Robert O. Anderson Graduate School of Management, the "Three-Two" Program. The student must satisfy the academic requirements of both degrees, 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.

Electrical Engineering

Electrical engineering involves the design of electrical and electronic devices and systems. This includes the design of electronic and microelectronic circuits, solid-state devices, microwave devices, communication and control systems, lasers and optoelectronic devices and systems, electrical power devices and systems, signal and image processing systems, computers and digital systems, biomedical components and systems, etc. The B.S. degree in electrical engineering is a broad professional degree which provides the basic science, mathematics, and engineering design needed for the practice of electrical engineering. Some specialization is possible through technical electives in the senior year. Areas of specialization include:

Microwaves
Lasers/Optoelectronics
Electronics
Solid-State/Microelectronics
Electrical Power
Control Systems
Signal Processing and Communication
Computers/Digital Design
Biomedical Engineering

Curriculum in Electrical Engineering

Hours required for graduation: 130

SECOND YEAR

First Semester

	Hrs.	
	Cr.	Lect.-Lab.
Physcs 161 Gen	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
EECE 238L Comp Logic Dsgn	4	(3-3)
Math 316 Diff Eq	3	(3-0)
†H&SS Elective	3	(3-0)
	<hr/>	<hr/>
	16	(15-3)

Second Semester

EECE 206L EE Lab I	2	(1-3)
EECE 213 Circuit Analysis II	4	(4-0)
Physcs 262 Gen	3	(3-0)
Math 264 Calculus III	4	(4-0)
†H&SS Elective	3	(3-0)
	<hr/>	<hr/>
	16	(15-3)

THIRD YEAR

First Semester

	Hrs.	
	Cr.	Lect.-Lab.
EECE 314 Signals and Comm	3	(3-0)
EECE 344L Microprocessors	4	(3-3)
EECE 323 Intro Digital Electr	3	(3-0)
EECE 325L Electr Lab I	2	(1-3)
EECE 361 Fields and Waves I	3	(3-0)
	<hr/>	<hr/>
	15	(13-6)

Second Semester

CE 202 Engr Statics	3	(3-0)
EECE 324 Intro Analog Electr	3	(3-0)
EECE 326L Electr Lab II	2	(1-3)
EECE 362 Fields and Waves II	3	(3-0)
EECE 384 Electro Energy Con	2	(2-0)
EECE 371 EE Mat and Dev	4	(4-0)
	<hr/>	<hr/>
	17	(16-3)

†See approved list of Humanities and Social Science Electives.

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
ME 206L Dynamics	3	(2-3)
EECE 340 Probabilistic Methods	3	(3-0)
EECE 445L Intro to Control	3	(2-3)
EECE 418L Senior Lab	2	(1-3)
†H&SS Elective	3	(3-0)
+ + Math Elective	3	(3-0)
	17	(14-9)

Second Semester

	Cr.	Hrs. Lect.-Lab.
ChE-ME 301 Thermodynamics	3	(3-0)
**EECE Technical Electives	6	(6-0)
**EECE Lab Elective	2	(1-3)
†H&SS Elective	6	(6-0)
	17	(16-3)

Computer Engineering

The Computer Engineering program, which leads to a Bachelor of Science in Computer Engineering, is designed to meet the growing demand for engineers familiar with both computer hardware and computer software. The demand for computer engineers is expected to outstrip the supply for the foreseeable future. The emphasis in the program is on the design-oriented aspects of both computer hardware and software. In order to accomplish this goal, the first two years of the program lay a firm foundation of mathematics, physics, and engineering science. Courses in Electrical Engineering provide the student with an understanding of how a computer operates at the electronics level. Courses in computer logic, organization, and systems, provide the understanding at a higher level of abstraction. The software courses include programming at both the high level, such as FORTRAN, and at the low level, such as assembly language. In order to teach the design of good programs, such topics as data structures and block structured programming are included.

Computer Facilities

The department has a number of computers available for student use and instruction. These computers include a PDP-11/40, a PDP-11/44, three MINC Computer systems, four DEC VT103 computer systems, two HP 9845 systems, twelve M6802 microprocessor stations, a PDP-11/23, two EAI analog computers, an INTEL development system, four APPLE computer systems, and a TEKTRONIX 4052 graphics system. These machines are equipped with a variety of peripherals, including disks, magnetic tapes, floppy disks, printers, CRT terminals, digital plotters, and graphics devices. Hands-on experience with the computers is stressed. In addition to the department computers, students have available two VAX 11/780 systems, one for research and one for instruction, and an IBM 3032.

Curriculum in Computer Engineering

Hours required for graduation: 130

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
EECE 238L Comp Logic Design	4	(3-3)
EECE 203 Circuit Analysis I	3	(3-0)
Math 316 Diff Eq	3	(3-0)
Physcs 161 Gen	3	(3-0)
†H&SS Elective	3	(3-0)
	16	(15-3)

Second Semester

EECE 344L Microprocessors	4	(3-3)
EECE 213 Circuit Analysis II	4	(4-0)
EECE 206L EE Lab I	2	(1-3)
Math 264 Calculus III	4	(4-0)
Physcs 262 Gen	3	(3-0)
	17	(15-6)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
EECE 323 Intro Digital Electr	3	(3-0)
EECE 314 Signals and Comm	3	(3-0)
CS 300 Struct Program	5	(5-0)
Math 327 Discrete Structures	3	(3-0)
†H&SS Elective	3	(3-0)
	17	(17-0)

Second Semester

EECE 337 Intro Mini and Op Sys	3	(3-0)
EECE 340 Probabilistic Methods	3	(3-0)
EECE 325L Electr Lab I	2	(1-3)
CS 263 Data Structures	4	(4-0)
†H&SS Elective	6	(6-0)
	18	(17-3)

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
EECE 435 Comp Engr Design	3	(3-0)
EECE 437 Operating Systems	3	(3-0)
CE/ME 350 Engr Economics	3	(3-0)
EECE 438 Design of Computers	3	(3-0)
†H&SS Elective	3	(3-0)
	15	(15-0)

Second Semester

EECE 440 Computer Networks	3	(3-0)
***Tech Electives	6	(6-0)
*Electives	3	(3-0)
†H&SS Elective	3	(3-0)
	15	(15-0)

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,

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior year.

†See approved list of Social Science/Humanities electives.

+ + 300-level or higher math elective.

**Approval of adviser required.

***Technical electives: These electives will be developed in consultation with the computer engineering adviser from courses in EECE, CS, Math, Physics, and other areas of engineering to satisfy restrictions.

*Consult the computer engineering adviser for restrictions on this elective.

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 with basic principles for analysis, design, experimental work, and computer utilization. Many technical electives permit students to develop further according to their interest and aptitude.

Mechanical Engineering Laboratories

The mechanical engineering laboratories are used by the students in the instructional program to get experience with measurement techniques, test procedures and equipment representative of the type they may encounter in industry. Tests on equipment such as heat pumps and solar collectors are conducted.

Advanced Study

Mechanical engineering students wishing to continue their education at an advanced level have that opportunity. The Mechanical Engineering Department offers the M.S. and Ph.D. degrees, and the department's undergraduate program is excellent preparation for graduate study. More information on the graduate programs may be found in the Graduate Programs Bulletin.

The Mechanical Engineering program has proven to be excellent preparation for other professional schools too. Recipients of the B.S.M.E. degree have continued successfully their education in law schools, schools of business and administrative sciences, medical schools, and dental schools.

Cooperative Education Program

Mechanical engineering students may elect a cooperative education program in which they are employed full time by an industrial or governmental agency for a part of the year. They are full-time students for the remaining part of the year. Students who need financial aid or who wish to gain engineering experience will find this program attractive.

Financial Aid

There are a substantial number of scholarships and loans available to mechanical engineering students. There are also part-time job 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 Chairperson 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.

Curriculum in Mechanical Engineering

Hours required for graduation: 130§

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen	3	(3-0)
Econ 200 Prin and Prob	3	(3-0)
ME 201L Intro to Mech	1	(0-3)
CE 202 Engr Stat	3	(3-0)
†Elective	3	(3-0)
	<hr/> 17	<hr/> (16-3)

Second Semester

Math 311 Vector Analysis	3	(3-0)
Physcs 262 Gen	3	(3-0)
ME 206L Dynamics	3	(2-3)
EECE 203 Circuit Analysis I	3	(3-0)
†Elective	3	(3-0)
	<hr/> 15	<hr/> (14-3)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 316 Diff Eq	3	(3-0)
ME 301 Thermodynamics	3	(3-0)
ME 317 Fluid Mech	3	(3-0)
ME 314L Dyn of Mech Sys	3	(2-3)
EECE 204 Intro to Elec Engr	3	(3-0)
CE 302 Mech of Mat	3	(3-0)
	<hr/> 18	<hr/> (17-3)

Second Semester

ME 302 Thermodynamics II	3	(3-0)
ME 320 Heat Transfer	3	(3-0)
ME 357 Intro to Mech Vib	3	(3-0)
ME 318L ME Lab I	2	(0-6)
ME 370 Engr Mat Science	3	(3-0)
†Elective	3	(3-0)
	<hr/> 17	<hr/> (15-6)

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
ME 358L Design of Sol Sys	3	(2-3)
ME 351L ME Lab II	2	(0-6)
†Elective	3	(3-0)
**Tech elective	6	(6-0)
	<hr/> 14	<hr/> (11-9)

Second Semester

ME 359L Mech Eng Design	3	(1-6)
ME 363L Anal of Eng Sys	3	(2-3)
Tech Elective	6	(6-0)
Sr Science or tech elec	3	(3-0)
Elective	3	(3-0)
	<hr/> 18	<hr/> (15-9)

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior year.

§Only the humanities and social science electives may be taken on a CR/NC basis.

†The electives are to be chosen from the humanities and social sciences, with the approval of the department chairperson.

NOTE

1. Technical electives taken for degree requirements must be approved by the Department Chairperson. They may be selected from ME 273, 341, 350, 352L, 355, 356, 365, 367, 373, 382, 401, 402, 414, 425, 426, 430, 451-452, 455, 461-462, 465, 480, 481, 483, 490, and other engineering and science courses. Technical electives may not be taken on the CR/NC option.

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 that 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, nuclear fuel processing, 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 well as an understanding of 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.

Degree Programs

The Department of Chemical and Nuclear Engineering offers an undergraduate degree program leading to a Bachelor of Science degree in Nuclear Engineering.

Nuclear engineering graduate programs are available leading to a master of science and to a doctor of philosophy. Students from other disciplines who expect to do graduate work in nuclear engineering are advised to concentrate on physics, mathematics, and nuclear engineering in the undergraduate course work in addition to their regular program.

Nuclear Engineering Laboratories

The principal equipment in the nuclear engineering laboratories includes the following: AGN-201M critical reactor; 20,000 curie Co-60 facility, activation analysis cell; pulsed neutron generators; natural uranium, sub-critical reactor; gamma-ray spectrometer; multichannel analyzers; graphite pile; intense particle beam accelerators for plasma physics research; and supporting radiation counting equipment.

In addition to the well-equipped laboratories on campus, the advanced reactors and radiation equipment of the Sandia Laboratory, Los Alamos Scientific Laboratory, and the Air Force Weapons Laboratory are utilized for both instruction and research.

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 3032 and DEC/VAX computers. Numerical analysis and digital computations are an important part of each year's instruction in

nuclear engineering, and by the senior year students are encouraged to use many of the sophisticated computer codes available in industry.

Cooperative Education

Nuclear engineering students may participate in the cooperative education program. Excellent opportunities exist throughout the Southwest for undergraduate students. For further information contact the Department Chairperson or the Director of Cooperative Education.

Nuclear Engineering

Nuclear engineering is a program of study which prepares a student for a career in fields ranging from commercial nuclear power systems and the use of radioisotopes in science, industry and medicine to research and development in advanced fission and fusion systems. Starting with a broad base of engineering science and mathematics, the four-year curriculum includes both theoretical and laboratory courses that not only provide an understanding of fundamental concepts, but also provide exposure to the type of careers available to graduates.

Curriculum in Nuclear Engineering

Hours required for graduation: 130

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen	3	(3-0)
NE 230 Prin Nuclear Engr	3	(3-0)
CE 202 Statics	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
	<hr/> 16	(16-0)

Second Semester

Math 316 App Ord Diff Eq	3	(3-0)
Physcs 262 Gen	3	(3-0)
ChE 252 Intro Trans Phen		
or		
ME 317 Fluid Mechanics	3	(3-0)
NE 231 Radiation Safety Engr	3	(3-0)
Communications Elective	3	(3-0)
	<hr/> 15	(15-0)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 312 Adv Engr Math I	3	(3-0)
‡ChE/ME 301 Thermodynamics	3	(3-0)
ChE 311 Unit Operation I		
or		
ME 320 Heat Transfer	3	(3-0)
NE 322L Intro Nucl Engr Meas	3	(2-3)
†Econ 200 Princ & Prob	3	(3-0)
‡H&SS Elective	3	(3-0)
	<hr/> 18	(17-3)

‡Electives and general courses are flexible and should be taken whenever convenient.

Second Semester

ChE 314L Chem Engr Lab I	2	(0-6)
ChE 370 Engr Mtls Science	3	(3-0)
NE 323L Nucl Detection Meas	3	(2-3)
†Tech elective	6	(6-0)
†H&SS elective	3	(3-0)
	17	(14-9)

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
†ChE 450 Chem Engr Econ	3	(3-0)
NE 410 Nuc Rctr Theory I	3	(3-0)
NE 464 Thermal-hydraulics	3	(3-0)
NE 485 Cont TN Rctr Tech	3	(3-0)
NE 493L Intro NE Design	2	(1-3)
†H&SS elective	3	(3-0)
	17	(16-3)

Second Semester

NE 413L Nucl Engr Lab I	4	(1-9)
NE 494L NE Design	4	(2-6)
CH-NE 451 Seminar	1	(1-0)
†Tech elective	3	(3-0)
†H&SS elective	3	(3-0)
	15	(10-15)

NOTES

- At least 12 hours of electives are to be taken in the humanities and social sciences (H&SS). Of these 12 hours, at least 6 hours should be in a single area and include at least one advanced level course. See the departmental adviser for the approved course list.
- Technical electives are chosen from approved upper division courses in engineering, mathematics, and science. The chairperson may allow up to 6 hours of technical electives for students taking required ROTC courses in aerospace or naval science.
- The communication elective is generally satisfied by taking either English 219 Technical Writing or Speech Communication 130L Public Speaking. In special cases other communication skills courses may be accepted with prior approval of the departmental adviser.
- Prior to the completion of 95 semester hours, the student must file an application for the B.S. degree.

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 Records office at the time they transfer into the College. The College Records office will assign an adviser appropriate for the option that the student plans to pursue. The students will work with this adviser rather than a specific department, in planning programs, and selecting electives.

Biomedical Engineering Option

Biomedical engineering is a relatively new and 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 nu-

merous 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

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Biol 121L Prin Biol	4	(3-3)
Chem 301 Org Chem	3	(3-0)
Chem 303L Org Chem Lab	1	(0-3)
Physcs 161 Gen	3	(3-0)
CE 202 Eng Statics	3	(2-3)
Math 264 Calculus III	4	(4-0)
	18	(15-9)

Second Semester

Biol 122L Prin Biol	4	(3-3)
Chem 302 Org Chem	3	(3-0)
Chem 304L Org Chem Lab	1	(0-3)
Math 316 Diff Eq	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
EECE 206L EE I Lab	2	(1-3)
	16	(13-9)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Physcs 262 Gen	3	(3-0)
Chem 315 Phys Chem	4	(4-0)
Sp Com 130 Pub Spkng	3	(3-0)
†Tech electives	7	(7-0)
	17	(17-3)

Second Semester

Chem 423 Biochem	3	(3-0)
EECE 405 Biomodeling	3	(3-0)
H&SS electives	6	(6-0)
†Tech elective	4	(4-0)
	16	(16-0)

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior years.

†Electives and general courses are flexible and should be taken whenever convenient.

†Tech electives: These electives will be developed in consultation with an option committee adviser to comprise a meaningful sequence for technical specialization (e.g., medical instrumentation and computers, biomechanics engineering, biomedical systems and analysis, biomechanics and prosthesis design, biomaterials development). These 23 hours will include 10 hours from engineering science courses.

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
Life science elective	4	(3-3)
†Tech electives	5	(5-0)
‡Electives	6	(6-0)
	15	(14-3)

Second Semester

EECE 406 Biomed Instru	3	(3-0)
H&SS elective	3	(3-0)
†Tech electives	7	(7-0)
‡Elective	3	(3-0)
	16	(16-0)

Energy and Power Systems Option

This option is designed to accommodate students wishing to study energy sources, energy conversion systems, and uses of energy or environmental effects of energy use, whose needs cannot be accommodated by the standard disciplinary engineering programs. The Energy and Power Systems Option draws on courses offered by all of the departments of the Engineering College to enable the student to formulate a program of studies especially designed to meet their educational objectives without regard for departmental lines. However, students whose needs can be satisfied by existing departmental programs are encouraged to follow such programs. Students with previous college experience may find the flexibility offered by this option appealing. Up to twelve hours of electives are completely unrestricted in nature; however, students are encouraged to select or use courses that are well-coordinated with their educational objectives and with the rest of the courses in their program of studies. Up to twenty-five hours of technical courses are elective in nature; but these electives must include at least: 1) three credit hours of ordinary differential equations, 2) two experimental engineering laboratory courses, one of which must deal with energy conversion systems, and 3) three credit hours of engineering analysis, design or project work that involves synthesis of the knowledge gained in preceding courses. Technical elective courses must be approved by a faculty adviser who is a member of the E & PS Option Committee, and they must satisfy a statement of educational objectives prepared by the student and approved by the Option chairperson. In practice, the courses selected to "top off" a program dictate other pre- and corequisite courses, so the number of freely selected courses is not as large as it might appear.

The energy-related research and development activity in the College of Engineering is at a high level; and since the faculty utilized for this option may be drawn from the entire Engineering College faculty, the opportunities for research and project work are great. Work currently under way includes projects involving solar energy utilization, (electrical energy distribution) in-situ energy production from coal, nuclear energy production and nuclear waste disposal, transportation energy use, and improved energy use in buildings.

Individual programs of study may be oriented towards energy production from conventional and/or unconventional sources, energy conversion devices and systems, environmental effects of energy production and use, or they may more closely parallel the traditional engineering disciplines. Electives may be selected with a view to graduate studies in engineering or one of the other professions. They may also be selected to coordinate with management courses, to form a "3-2" program in engineering and management.

Curriculum in Energy and Power Systems Option

Hours required for graduation: 130

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen	3	(3-0)
CE 202 Statics	3	(3-0)
Econ 200 Princ & Prob	3	(3-0)
*Tech elective	3	(3-0)
	16	(16-0)

Second Semester

Math 311 Vector Analysis	3	(3-0)
Physcs 262 Gen	3	(3-0)
*Tech elective	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
Communications elective	3	(3-0)
	15	(15-0)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
ME or ChE 301 Thermodynamics	3	(3-0)
ChE 252 or ME 317 Fluid Mech	3	(3-0)
*Tech elective	6	(6-0)
‡Elective	3	(3-0)
	15	(15-0)

Second Semester

ME or ChE 302 Thermodynamics	3	(3-0)
ChE 311 or ME 320 Heat Transfer	3	(3-0)
CE-ME 370 Mat Science	3	(3-0)
ME 382 Energy Util and Conv	3	(3-0)
*Tech elective	3	(3-0)
H&SS elective	3	(3-0)
	18	(18-0)

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
EECE 480 Power Sys Anal	3	(3-0)
*Tech elective	6	(6-0)
H&SS elective	6	(6-0)
‡Elective	3	(3-0)
	18	(18-0)

‡Unrestricted electives.

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior year.

†Tech electives: These electives will be developed in consultation with an option committee adviser to comprise a meaningful sequence for technical specialization (e.g., medical instrumentation and computers, biomechanics engineering, biomedical systems and analysis, biomechanics and prosthesis design, biomaterials development). These 23 hours will include 10 hours from engineering science courses.

*Technical elective: These electives must be developed in consultation with an option committee adviser to comprise a meaningful sequence for a stem specialization. At least 9 hours must be taken from engineering, mathematics, and natural or physical sciences, to include ordinary differential equations, engineering design or analysis, and two experimental engineering laboratories.

Second Semester

NE 430 Intro to NE	3	(3-0)
Engr 301 Seminar in Engr Prac.	1	(1-0)
CE/ME 350 or ChE 450 Engr Econ	3	(3-0)
*Tech elective	4	(4-0)
†Electives	6	(6-0)
	17	(17-0)

Microelectronics Processing Option

Microelectronics is one of the most exciting fields for the 1980s. It has been responsible for the "computer revolution", microprocessors, hand-held calculators, TV games, and many other familiar items. Many more useful and important applications are expected in the 1980s. As the microelectronics industry expands its capabilities to produce very large scale integrated circuits with millions of transistors in a single package, there is a growing need for a specialized type of engineer, the microelectronics processing engineer. These individuals are responsible for developing and sustaining the processes used in the fabrication of integrated circuits. The need for skilled engineers will continue to increase as the size of the patterns decreases.

In response to the needs of the microelectronics industry, the College of Engineering at the University of New Mexico has established a new curriculum under the Bachelor of Engineering degree. This new program, called the Microelectronics Processing Option, is the only one of its kind in the United States. It emphasizes electrical engineering and chemistry, as well as mathematics, physics, and communication skills.

A survey of the integrated circuits industry indicates that there are going to be 3000 job openings for entry level microelectronics processing engineers in the next 5 years. The program at the University of New Mexico will attempt to provide graduates to fill some of these positions.

Curriculum in Microelectronics Processing Option

Hours required for graduation: 130

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 316 App Ord Diff Eq	3	(3-0)
Physcs 161 General	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
EECE 238L Comp Logic Dsgn	4	(3-3)
Chem 253L Quant Analysis	4	(2-6)
	17	(14-9)

Second Semester

Math 264 Calculus III	4	(4-0)
Physcs 262 General	3	(3-0)
EECE 213 Circuit Analysis II	4	(4-0)
EECE 206L EE Lab I	2	(1-3)
Ch E 252 Intro Trans Phen	3	(3-0)
	16	(15-3)

THIRD YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
EECE 323 Intro Digital Elect	3	(3-0)
EECE 325L Elect Lab I	2	(1-3)
Chem 301 Organic Chem	3	(3-0)
Chem 303L Org Chem Lab	1	(0-3)
Math 345 Statist Meth	3	(3-0)
EECE 361 Fields & Waves I	3	(3-0)
	15	(13-6)

Second Semester

Ch E or ME 301 Thermodynamics	3	(3-0)
CE 202 Engr Statics	3	(3-0)
ME 350 Engr Economy	3	(3-0)
EECE 371 EE Mat & Dev	4	(4-0)
H&SS Elective	3	(3-0)
	16	(16-0)

FOURTH YEAR*

First Semester

	Cr.	Hrs. Lect.-Lab.
Chem 315 Intro Phys Chem	4	(4-0)
Math 441 Prob and Appl	3	(3-0)
EECE 344L Microprocessors	4	(3-3)
H&SS Elective	3	(3-0)
Unrestricted Elective	3	(3-0)
	17	(16-3)

Second Semester

EECE 472 Microelectronics	3	(3-0)
EECE 476L IC Fab Lab	2	(1-3)
EECE 491 Prob (lab Internship)	3	(0-9)
H&SS Elective	3	(3-0)
Unrestricted Elective	3	(3-0)
Engr 219 Tech Writing or Sp Com 130 Pub Spkg	3	(3-0)
	17	(13-12)

Electronics Technology

The Electronics Technology Program at the University of New Mexico is a two-year program leading to an Associate of Applied Science Degree. Students completing the Electronics Technology Program will be trained to work in the field as follows:

- The ET graduate solves complex problems of installation and maintenance of digital and analog systems by analyzing schematic drawings, technical specifications and manuals, and operating characteristics.
- Conducts pre-operational tests of digital and analog equipment systems to determine consistency with required specifications.
- Designs, repairs, calibrates, and modifies electronic equipment systems, both digital and analog, including

*Technical elective: These electives must be developed in consultation with an option committee adviser to comprise a meaningful sequence for a stem specialization. At least 9 hours must be taken from engineering, mathematics, and natural or physical science, to include ordinary differential equations, engineering design or analysis, and two experimental engineering laboratories.

†Unrestricted elective.

*Students are encouraged to take the Engineering Intern Examination (EIT) during their senior year.

printed-circuit (PC) board layout, fabrication, and soldering techniques.

- (d) Develops preventative maintenance programs for electronic equipment, and is knowledgeable in the problems of electrical safety and hazards.
- (e) Is available to assist engineers in construction, testing, modifying, and redesigning digital and analog electronic systems.
- (f) Is knowledgeable in the use of a Digital Computer for Computer-Aided Design (CAD) and computer solutions to circuit problems.

Admission

The Electronics Technology Program is open to men and women who:

- (a) Meet the admission requirements described under "Admission" in the University of New Mexico bulletin, and
- (b) Are personally interviewed by the Director of the Electronics Technology Program.

A limited number of students will be selected for admission to the Electronics 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 Electronics Technology Program is open to high school graduates and to persons with technical electronics education. Special examinations for advanced standing may be arranged so that skills already mastered by the student will not be duplicated in the Electronics Technology Program.

Associate Degree Requirements

To complete the requirements for the Associate of Applied Science Degree in Electronics 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 Electronics Technology Program,
- (c) Be recommended for the degree by the appropriate faculty at UNM.

A student in the Electronics Technology Program may consider academic work beyond the Associate Degree level and desire to work for a bachelor's degree in Electrical Engineering, Computer Engineering or some other area. In this event, the student should make these plans known to the Director of the Electronics Technology Program as soon as possible so suitable substitutes can be made to the curriculum below in order to assist the student in these bachelor degree goals. It is important to note that most technical courses in the ET Program do not transfer to an engineering degree. A student should carefully evaluate his or her long range career goals with respect to an engineering or technology career.

Curriculum in Electronics Technology

Hours required for graduation: 70

FIRST YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 150 Algebra & Trig	4	(4-0)
Engr 101 Wrtg w/Rdgs in Expos	3	(3-0)
ET 101 Electronics I	3	(3-0)
ET 103L Electronics I Lab	2	(1-3)
ET 145L Machine Shop Skills	2	(1-3)
Chem 111L Elements Gen Chem	4	(3-3)
	18	(15-9)

Second Semester

Math 180 Elements of Calculus	3	(3-0)
Phys 151 General Physics	3	(3-0)
Phys 153L General Physics Lab	1	(0-3)
ET 102 Electronics II	3	(3-0)
ET 104L Electronics II Lab	2	(1-3)
ET 137L Digital Electronics	3	(2-3)
Engr 102 Analytic Wrtg	3	(3-0)
	18	(15-9)

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Engr 120L Engr Computing	3	(2-2)
ET 203 Electronics III	3	(3-0)
ET 205L Electronics III Lab	2	(1-3)
Sp Com 130L Public Spkg	3	(1-2)
ET 207L Graphics for Elect	2	(1-3)
EECE 275L IC Fabricatn Lab	1	(0-3)
H&SS Elective	3	(3-0)
	17	(11-13)

Second Semester

Engr 219 Technical Wrtg	3	(3-0)
ET 244L Microprocessors	4	(3-3)
H&SS Elective	3	(3-0)
ET 204 Electronics IV	3	(3-0)
ET 206L Special Proj Lab	2	(1-3)
ET 276L PC Fabricatn Lab	2	(1-3)
	17	(14-9)

Associate of Applied Science in Electronics Technology and in Laser/Electro-Optic Technology

The College of Engineering offers, in cooperation with the Albuquerque Technical Vocational Institute (TV-I), two Associate of Applied Science (AAS) degree programs, one in Electronics Technology and one in Laser/Electro-Optic Technology. These two year associate degree programs prepare students for careers as electronic and laser technicians.

Technicians provide a support function for engineers and are generally responsible for the construction, repair, and maintenance of equipment designed by engineers. The industrial demand for associate-degree level electronic and laser technicians is excellent. The training of technicians involves more hands-on experience in the laboratory than the training of engineers and less mathematics and basic sciences.

Admissions

To be admitted to the AAS degree programs, one must:***

1. Complete the four trimesters for the respective technical programs at TV-I satisfactorily. **
2. Obtain a letter of recommendation for the AAS program from the appropriate department at TV-I.
3. Complete a UNM application and supply a TV-I transcript.

***Only graduates of the TV-I programs 1975 and after, are eligible.

**It is possible to complete the UNM part of the AAS program before the TV-I part. However, students admitted first to UNM with less than 26 hrs. of transfer credit from other academic institutions, will have to satisfy the regular admission procedures required of beginning freshman (see p. 22). An independent AAS program offered entirely by the University of New Mexico is currently offered. Consult the Electronics Technology office concerning this UNM program.

Degree Requirements

1. Completion of either the Electronics Technology or Laser/Electro-Optic Technology, as appropriate, program at TV-I. See Albuquerque Technical-Vocational Institute catalog for detailed curriculum and course descriptions. A block of 43 credit hours is given for the technical programs at TV-I.
2. A grade-point average of 2.0 or better on all work taken at the University of New Mexico which is counted towards one of the above degrees. At least 15 credit hours of resident credit at UNM is required.
3. Recommendation for the degree by the appropriate faculty at the University of New Mexico.

The student should contact the Technology adviser, Electronics Technology office, at the University of New Mexico for further information.

Curriculum for the AAS Degrees in Electronics and Laser/Electro-Optics

Technical-Vocational Institute Course Work

Four trimesters of technical course work for Electronics or Laser/Electro-Optic programs 43 credits

University of New Mexico Course Work

	Cr.	Hrs. Lect.-Lab.
Engr 101 Wrtg w/Rdgs in Expos	3	(3-0)
Speech 240 Comm in Org	3	(3-0)
Eng 102 Analytic Wrtg	3	(3-0)
+ H&SS Elective	3	(3-0)
+ + Phys 151 Gen Phys	3	(3-0)
+ + Phys 152 Gen Phys	3	(3-0)
+ + Math 180 Elements of Calculus	3	(3-0)
+ + Math 181 Elements of Calculus	3	(3-0)
Engr 120L Engr Computing	3	(2-2)
Engr 122L Intro Engr Meth/Lab	3	(2-4)
EECE 203 Circuit Analysis I	3	(3-0)
Total	33	(31-6)
		76 hours

Admission

The admission requirements for this program are the same as those for University College, p. 18.

Degree Requirements

1. Completion of all courses in the curriculum (or equivalent), a total of 62 hours.
2. A grade-point average of 2.0 or better on all work taken at the University of New Mexico which is counted toward this degree.
3. Recommendation for the degree by the appropriate faculty at the University of New Mexico.

Curriculum for the Associate of Science in Pre-Engineering

FIRST YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Engr 101 Wrtg w/Rdgs in Expos	3	(3-0)
Chem 121L Gen	4	(3-3)
Engr-G 115L Intro to Engr	1	(1-1)
Engr-G 122L Intro to Engr Mthds	3	(2-4)
or		
Engr-G 120L Engr Computing	3	(2-2)
Math 162 Calculus I	4	(4-0)
	15	(13-0)

Second Semester

Engr-G 120L Engr Computing	3	(2-2)
or		
Engr-G 122L Intro to Engr Mthds	3	(2-4)
Physcs 160 Gen	3	(3-0)
Math 163 Calculus II	4	(4-0)
Engr 102 Analytic Wrtg	3	(3-0)
Science elective	3	(3-0)
	16	(15-6)

SECOND YEAR

First Semester

	Cr.	Hrs. Lect.-Lab.
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen	3	(3-0)
CE 202 Engr Statics	3	(3-0)
H&SS elective	3	(3-0)
*Tech elective	3	(3-0)
	16	(16-0)

Second Semester

Math 316 App Ord Diff Eq	3	(3-0)
Physcs 262 Gen	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
H&SS elective	3	(3-0)
*Tech elective	3	(3-0)
	15	(15-0)

+ See approved list of social science/humanities electives.

+ + Very little credit for technical courses in the AAS degree program are allowed towards an engineering degree program. Students contemplating continuing their studies for an engineering degree should substitute physics 160 and 161 for 151 and 152, and math 162 and 163 for math 180 and 181.

*Selected from departmental required courses. Consult academic advisor for selection.

Associate of Science in Pre-Engineering

The Associate of Science in Pre-Engineering is a two year degree requiring the completion of basically the freshman and sophomore years of engineering. It includes 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 degree in engineering. 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. Students may also continue their 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.

Associate of Applied Science in Computer Programming

This curriculum leading to the degree of Associate of Applied Science in Computer Programming is designed to prepare students to become computer programmers or to continue studies in Computer Science.

Sixty-three semester hours are required for completion of the program. Students will follow the plan of study for general education and will select one of three options. Students must seek advisement when selecting an option and when choosing electives.

General Education

English requirements	6 hours
Engl 101 Wrtg w/Rdg in Expos (3)	
Engl 102 Analytic Wrtg (3)	
Social and Behavioral Science	6 hours
Electives from Anthropology, Geography, Economics, Political Science, Psychology, Linguistics, Sociology or Speech Communications	

Computer Science Option

Mathematics	8 hours
Math 162 Calculus I (4)	
Math 163 Calculus II (4)	
Computer Science	22 hours
CS 154 Found of Comp Sci (3)	
CS 155 Intro to Comp Prog (4)	
CS 253 Intermed Prog (4)	
EECE 238L Comp Logic Design (4)	
CS 255 Intro to Comp Systems (3)	
CS 263 Fund of Data Structures (4)	
Electives (depending on the student's specific areas of interest in Computer Programming)	21 hours

Scientific Programming Options

Mathematics	8 hours
Math 162 Calculus I (4)	
Math 163 Calculus II (4)	
Computer Science	21 hours
Engr-G 120L Engr Computing (3)	
CS 154 Found of Comp Sci (3)	
CS 155 Intro to Comp Prog (4)	
CS 253 Intermed Prog (4)	
EECE 238L Comp Logic Design (4)	
CS 255 Intro to Comp Systems (3)	
Electives (depending on the student's specific area of interest in Computer Programming)	21 hours

Business Programming Option

Mathematics	6 hours
Math 180 Elements of Calculus (3)	
Math 181 Elements of Calculus (3)	
Computer Science	20 hours
CP 101 Intro Comp Concepts (3)	
CS 150 Comp for Bus Students (3)	
CS 154 Found of Comp Sci (3)	
CS 155 Intro to Comp Prog (4)	
CS 237 Intro to Data Proc (3)	
CS 253 Intermed Prog (4)	
Electives (depending on the student's specific area of interest in Computer Programming)	25 hours

COURSES OF INSTRUCTION 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 (ENGR-N)

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 factors. {Fall}

**322. Special Topics. (1-3)

Selected topics in technologies of current interest. {Offered upon demand}

**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)

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 consideration. {Spring}

**340. Personal Computers. (3)

Applications of home computers to entertainment, education, safety, automobiles, appliance control, bookkeeping, etc. {Offered upon demand}

**350. Transportation and Society. (3)

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. {Offered upon demand}

**370. Materials in Today's Environment. (3)

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. {Fall}

**380. Applications to Nuclear Energy. (3)

Designed to acquaint the non-technical student with nuclear energy and its peaceful applications in many areas affecting

human affairs. Includes atomic and nuclear structure, fission, fusion, nuclear reactors, nuclear fuel cycle, nuclear explosives, accelerators, applications of radioisotopes, and socioeconomic considerations. {Spring}

****382. Energy and the Environment. (3)**

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. {Fall}

****384. Automotive Engines and Fuels. (3)**

A course for the non-technical student on the principles of the internal combustion engine and their fuels. The emphasis is on the present automotive engine and current and near-future fuel types. Topics considered also include fuel economy, alternate fuels, air pollution, the place of the automobile in the U.S. and world energy situation, and a survey of future engine types. {Fall}

****385. Solar Energy Use. (3)**

Description of solar energy systems. Analysis and use of solar energy. Decision making and design processes for solar systems. History of solar use. {Summer, Fall, Spring}

****390. Technology Assessment. (3)**

The systematic study of the social and environmental impacts of new technologies, including technological developments, alternatives, costs and benefits, social choices and policy options. {Offered upon demand}

II. GENERAL COURSES FOR ENGINEERING MAJORS (ENGR-G)

115L. Introduction to Engineering. (1)

Description of the engineering profession, orientation to engineering education, introduction to the engineering design process, development of communication skills. 1 hr. lecture, 3 hr. lab. {Fall, Spring}

120L. Engineering Computing. [Computer Programming for Engineers.] (3)

Timesharing computing using structured FORTRAN 77 with an introduction to computer graphics. Fundamentals of FORTRAN covered include one- and two-dimensional arrays, subprograms and file handling. Typical engineering applications will include solutions of simultaneous equations and iterative processes.

Prerequisite: eligibility for admission to Math 162. 2 hrs. lecture, 2 hrs. lab. {Summer, Fall, Spring}

122L. Introduction to Engineering Methods. (3)

Engineering graphics and computational skills; with computer applications.

Prerequisite: Engr-G 120; Pre- or Corequisite: Math 162. Two hours lecture, four hours lab. {Summer, 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}

III. COOPERATIVE EDUCATION PROGRAM (E COOP)

Students enrolled in the Cooperative Education Program (see p. 207) are required to register in Engr 105 while on work phase and encouraged to enroll in one of the appropriate evaluation courses during the semester immediately following each work phase.

105. Cooperative Education Work Phase. (0)

\$20.00 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)

CHEMICAL AND NUCLEAR ENGINEERING

Chairperson to be appointed.

Farris Engineering Center 209A, 277-5431

PROFESSORS:

Chen Yen Cheng, Ph.D., Kyoto University

Stanley Humphries, Jr., Ph.D., University of California (Berkeley)

J. Craig Robertson, Ph.D., Glasgow University

Glenn A. Whan, Ph.D., Carnegie Institute of Technology¹

ASSOCIATE PROFESSORS:

David Kauffman, Ph.D., University of Colorado¹

Richard W. Mead, Ph.D., University of Arizona¹

H. Eric Nuttall, Ph.D., University of Arizona

Norman F. Roderick, Ph.D., University of Michigan

Frank L. Williams, Ph.D., Stanford University

Ebtisam S. Wilkins, Ph.D., University of Virginia

David M. Woodall, Ph.D., Cornell University¹

ASSISTANT PROFESSORS:

Harold M. Anderson, Ph.D., Wayne State University

Gary W. Cooper, Ph.D., University of Illinois

Mohamed S. El-Genk, Ph.D., University of New Mexico

DEPARTMENTAL CURRICULA

See p. 209.

CHEMICAL ENGINEERING (CH E)

251L. Chemical Process Calculations. [Chemical Calculations.] (3)

Extensive problem work in material and energy balances for both steady state and transient processes. Students will utilize physical properties, chemistry, and computer skills to obtain solutions.

Prerequisites: Chem 122L or 132L, Engr 120. 3 lectures, and recitation. {Summer, Fall}

252. Introduction to Transport Phenomena. (3)

The mechanisms and the related mathematical analysis of momentum, heat, and mass transfer. Molecular and turbulent mechanisms; fluid flow.

Prerequisites: Physcs 161, Math 264. {Summer, Spring}

¹Registered Professional Engineer.

301. Thermodynamics. (3)

(Also offered as ME 301.) Principles of thermodynamics. First and second laws, properties, and equations of state. Prerequisites: Chem 121L, Physcs 161, Math 264. {Summer, Fall, Spring}

****302. Chemical Engineering Thermodynamics. (3)**

Continuation of 301 with application to chemical engineering processes; physical and chemical equilibria. Prerequisite: C or better in ChE/ME 301. {Spring}

311. 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: C or better in 252; corequisite: ChE 317 or NE 322L. {Fall}

312. Unit Operations II. (3)

A continuation of 311. Problems in mass transfer, simultaneous mass and heat transfer, and related topics.

Prerequisite: C or better in 251L and 311. {Spring}

314L. Chemical Engineering Laboratory I. (2)

Laboratory practice and experimental study of unit operations.

Prerequisites: 252, 311, and Engl 219. 6 hrs. lab. {Spring}

315L. Chemical Engineering Laboratory II. (2)

Experimental laboratory study of the unit operations covered by 311 and 312.

Prerequisites: 312 and 314L. 6 hrs. lab. {Fall}

****317. Chemical Engineering Analysis. (3)**

Application of analytical and numerical techniques to the solution of frequently encountered chemical engineering problems. Included are data analysis and interpretation; problem formulation; solution of ODE's and PDE's encountered in transport phenomena and kinetics; and elementary control theory.

Prerequisites: C or better in ChE 252, Math 316. {Fall}

****341. Air Pollution Control. (3)**

(Also offered as ME 341.) Technical analysis of problems of air pollution control presented. Relationships between sources and effects of air pollution studies. 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 121L, or equivalents, and junior standing. {Offered upon demand}

370. Engineering Materials Science. (3)

(Also offered as CE 370.) Structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials: metals, ceramics, and polymers.

Prerequisite: 301; CE 302 recommended. {Fall, 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}

***432. Geothermal Engineering. (3)**

Geothermal energy engineering for electrical power production and thermal applications. Resource exploration and characterization, reservoir development and production, utilization systems, design analysis, and environmental control. {Offered upon demand}

***433. Mineral Process Engineering. (3)**

The processing of industrial minerals from mined ore to products will be investigated from a unit operations point-of-view. The metallurgy of iron, aluminum, copper, and uranium will be covered. {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.

Prerequisite: Econ 200 or equivalent. {Fall}

***454L. Process Dynamics and Control. (3)**

Application of special mathematical techniques to the analysis of chemical processes and the elements of process control. Computer experience suggested.

Prerequisite: C or better in 317. {Spring}

***458. Advanced Chemical Engineering Principles. (3)**

The integration of the principles of transport phenomena, kinetics, process analysis, and related topics to obtain fundamental understanding of chemical process systems.

Corequisite: 454L. {Offered upon demand}

****461. Chemical Reactor Engineering. [Applied Chemical Kinetics.] (3)**

Elementary principles of chemical reactor design and operation utilizing the kinetics of homogeneous and heterogeneous-catalytic reactor. Two laboratory experiments will be performed.

Prerequisite: C or better in 312 and 317. {Fall}

***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. Prerequisite: 461 or equivalent; recommended: Chem 301. {Offered upon demand}

****493L. Introduction to Design. (1)**

Introduction to principles used in chemical engineering design, including: process flowsheets, feasibility studies, equipment specification, and related topics.

Prerequisite: C or better in 302 and 311. 2 hrs. lab. {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.

Prerequisite: C or better in 312 and 493L. 2 lectures, 2 hrs. lab. {Spring}

***521. Advanced Transport Phenomena I. (3)**

Prerequisite: 458 or equivalent. {Fall}

***522. Advanced Transport Phenomena II. (3)**

Prerequisite: 521 or equivalent. {Spring}

***523. Mass Transport Phenomena. (3)**

{Offered upon demand}

***530. Process Optimization. (3)**

{Offered upon demand}

***541. Catalysis. (3)**

{Offered upon demand}

***542. Advanced Chemical Engineering Thermodynamics. (3)**

{Fall}

***543. Irreversible and Statistical Thermodynamics. (3)**

{Offered upon demand}

***554. Advanced Process Dynamics and Control. (3)**

Prerequisite: 454L. {Offered upon demand}

***561. Kinetics of Chemical Processes. (3)**

{Spring}

***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. Selected Topics in Aerosol Science. (3)**

{Offered upon demand}

NUCLEAR ENGINEERING (NUCL E)

230. Principles of Nuclear Engineering. [Nuclear Engineering Calculations.] (3)

Introduction to nuclear engineering and nuclear processes; nuclear fission, chain reactions, reactor principles, radiation, fusion, and the nuclear fuel cycle. {Fall}

231. Radiation Safety Engineering. (3)

Interaction of radiation with matter; biological and physical effects of radiation; external and internal exposure; the radiation environment; radiation standards, monitoring, shielding, and safety.

Prerequisite: 230 or consent of instructor. {Spring}

****322L. Introduction to Nuclear Engineering and Measurements. (3)**

Nuclear properties, nuclear stability, radioactivity, decay modes, interaction of radiation with matter, macroscopic and microscopic cross sections, nuclear reactions, neutron interactions, reactor systems. Relevant experiments will be performed.

Prerequisites: 231 and Math 316 or consent of instructor. 2 lectures, 3 hrs. lab. {Fall}

****323L. Nuclear Detection and Measurement. (3)**

Radiation detection techniques for radiations less than 20MeV. Experiments will be performed using gas, scintillation, and semiconductor counters and visual methods. Standardization of radionuclide and neutron sources is considered.

Prerequisite: consent of instructor. 2 lectures, 3 hrs. lab. {Spring}

***410. Nuclear Reactor Theory I. (3)**

The theory of nuclear chain-reacting systems with emphasis on computer methods used in current applications. Included are nuclear reaction rates, one-speed diffusion theory, and reactor kinetics.

Pre- or corequisite: 323L, Math 312. {Fall}

***413L. Nuclear Engineering Laboratory. (3)**

Laboratory investigations of the theory and practice of nuclear chain-reacting systems.

Prerequisites: 323L, 410. 1 lecture, 6 hrs. lab. {Spring}

****430. Introduction to Nuclear Engineering. (4)**

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. {Spring}

***435. Introduction to Plasma Physics. (3)**

{Also offered as Physcs 435.} Plasma parameters, adiabatic invariants, orbit theory, plasma oscillations, hydromagnetic waves, plasma transport, stability, kinetic theory, non-linear effects, applications.

Prerequisite: consent of instructor. {Fall}

***464. Thermal-Hydraulics of Nuclear Systems. (3)**

Nuclear system heat transfer; fluid flow; conduction and convection in single and two phase flow regimes; mass and energy balances; pressure changes; evaluation and applica-

tion of convection coefficients; transient phenomena.

Prerequisites: ChE 301, 311, and Math 312 or their equivalents. {Fall}

***465. Nuclear Energy Technology. (3)**

Overview of commercial nuclear power including current and advanced reactor designs, reactor safety, power economics, enrichment, reprocessing, waste management, domestic and international safeguards and the regulatory process.

Pre- or corequisites: 323L, 410. {Spring}

***466. Nuclear Environmental Safety Analysis. (3)**

Radiation environment, transport, shielding, dose calculations, safety, monitoring, guidelines and regulations; radioactive waste handling and disposal; and the environmental impact statement.

Prerequisites: 322L or 430, Math 316. {Spring 1983 and alternate years}

***470. Nuclear Fuel Behavior and Reactor Safety. (3)**

Crystal structure, chemical equilibrium, point defects, dislocation, fuel and cladding behavior during irradiation, modeling of fuel elements, reactor safety analysis.

Prerequisites: 323L and ChE 370 or their equivalents. {Offered upon demand}

***476. Nuclear Chemical Engineering. [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. {Spring upon demand}

***485. Controlled Thermonuclear Reactor Technology. (3)**

Introduction to controlled thermonuclear reactor (CTR) technology. (1) Systems: characteristics of proposed CTR systems; (2) System design: material, scaling laws, plant cycle, economics, safety, shielding, blanket, magnets; (3) operation: startup, operating mode, burnup, tritium cycle, control.

Prerequisite: 323L or senior standing in engineering or physical sciences. {Fall}

493L. Introduction to Nuclear Engineering Design. (2)

Nuclear engineering design principles and institutional issues.

Pre- or Corequisites: 410 and 464. 1 lecture, 3 hrs. lab. {Fall}

494L. Nuclear Engineering Design. (4)

Practice in nuclear engineering design, creativity and decision making.

Prerequisite: 493L. 2 lectures, 6 hrs. lab. {Spring}

***511. Nuclear Reactor Theory II. (3)**

Prerequisite: 410, Math 312. {Spring}

#*513L. Nuclear Engineering Laboratory II. (1-4)

Pre- or corequisites: 323L, 511. 1 lecture, 6 hrs. lab. {Spring upon demand}

***520. Radiation Interactions and Transport. (3)**

Prerequisites: 323L and Math 312 or equivalent. {Spring upon demand}

***535. Stability of Fluid Plasmas. (3)**

{Also offered as Physcs 535.}

Prerequisite: 435 (Physcs 435). {Spring 1983 and alternate years}

***545. Principles of Charged Particle Accelerators. (3)**

Prerequisite: Open to graduate students and upper level undergraduates with preparation in Electricity and Magnetism and Classical Mechanics. {Fall}

***546. Topics in Charged Particle Accelerator Technology. (3, to a maximum of 9)†**

Prerequisite: 545. {Spring}

Registration for less than 3 credits only with approval of instructor.

***560. Reactor Kinetics and Control. (3)**

Prerequisites: 511; recommended: EECE 446. {Fall upon demand}

***566. Methods of Nuclear Safety and Safeguards. (3)**

Prerequisites: 410, 465. {Spring upon demand}

***580. Advanced Plasma Physics. (3)**

(Also offered as Phys 580.)

Prerequisite: 435 (Physcs 435). {Spring 1984 and alternate years}

***581L. [522L.] Advanced Nuclear and Plasma Measurements. (1-3)**

Prerequisite: 323L or consent of instructor. 1 lecture, 6 hrs. lab {Fall}

***582. Inertial Confinement Fusion. (3)**

Pre- or corequisite: 435 or consent of instructor. {Spring 1984 and alternate years}

***610. Advanced Reactor Theory. (3)**

Prerequisite: 511. {Fall upon demand}

INDIVIDUAL STUDIES, SEMINARS, AND JOINT COURSES

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 chemical and nuclear engineers. {Fall, Spring}

491-492. Undergraduate Problems. (1-3, 1-3 to a maximum of 6)†

Advanced studies in various areas of chemical and nuclear engineering. {Summer, Fall, Spring}

495-496. Chemical and Nuclear Engineering Honors Problems I & II. (1-6, 1-6, to a maximum of 6)†

Senior thesis for students seeking departmental honors. {Summer, Fall, Spring}

***499. Selected Topics (3)**

A course which permits various faculty members to present detailed examinations of developing sciences and technologies in a classroom setting. {Offered upon demand}

***501-502. Chemical and Nuclear Engineering Seminar. (1-3, 1-3)†**

{Fall, Spring}

***515. Special Topics. (1-3, to a maximum of 9)†**

{Offered upon demand}

***525. Methods of Analysis in Chemical and Nuclear Engineering. (3)**

Prerequisite: Math 316 or equivalent. {Fall}

***526. Advanced Analysis in Chemical and Nuclear Engineering. (3)**

{Spring}

551-552. Problems. (1-3, 1-3 each semester)†**599. Master's Thesis. (1-6 per semester)**

See Graduate Programs Bulletin for total credit requirements.

***699. Dissertation. (3-12 per semester)**

See Graduate Programs Bulletin for total credit requirements.

PROFESSORS:

John B. Carney, Jr., Ph.D., University of Arizona¹
 Richard H. Clough, Sc.D., Massachusetts Institute of Technology¹
 Marion M. Cottrell, M.S., University of New Mexico¹
 William R. Gafford, M.S., University of Texas¹
 Jerome W. Hall, Ph.D., University of Washington¹
 Cornie L. Hulsbos, Ph.D., Iowa State University¹
 Roy L. Johnson, Jr., Ph.D., University of Wisconsin¹
 Jose E. Martinez, M.S., Iowa State University¹
 Gerald W. May, Ph.D., University of Colorado,¹ (Dean)
 Glenn A. Sears, Engr., Stanford University¹
 George E. Triandafilidis, Ph.D., University of Illinois¹

ASSOCIATE PROFESSORS:

James D. Brogan, Ph.D., University of Tennessee¹
 Richard J. Heggen, Ph.D., Oregon State University¹
 James R. Matthews, Ph.D., University of Missouri (Rolla)¹
 Thomas L. Paez, Ph.D., Purdue University¹
 Bruce M. Thomson, Ph.D., Rice University¹
 Cyrus O. Varan, Ph.D., University of Delaware

CURRICULUM

See p. 210.

CIVIL ENGINEERING (C E)

202. 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.

Prerequisites: Physcs 160, Math 163. {Summer, Fall, Spring}

\$211. 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.

Prerequisites: 202, Math 264. {Summer, Fall, Spring}

303L. Mechanics of Material Laboratory. (1)

Laboratory practice in the application of strain measuring and

CIVIL ENGINEERING

Cornie L. Hulsbos, Chairperson
 Wagner Hall 112, 277-2722 and 4829.

†Registration for less than 3 credits only with approval of instructor.

¹Registered Professional Engineers.

\$No credit allowed in College of Engineering.

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, Spring}

**306. Structural Analysis II. (3)

Analysis of statically indeterminate structure; use of moment-area, conjugate structure, energy, slope-deflection, and moment distribution methods; sidesway; influence lines; non-prismatic and curved members.

Prerequisites: 302, 305, or permission of instructor. {Fall, Spring}

§312. Architectural Structure. (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.

Corequisite: 306. 2 lectures, 3 hrs. lab. {Fall, Spring}

331L. Fluid Mechanics. (4)

Fluid properties; fluids at rest; fluid flow principles, including continuity, energy, and momentum; compressible and incompressible fluid flow; open channel hydraulics; hydraulic machinery; laboratory study of basic principles of fluid mechanics and hydraulics.

Corequisite: ME 206L. 3 lectures, 3 hrs. lab. {Fall, Spring}

332. Introduction to Hydrology. (2)

Basic engineering hydrology including precipitation, infiltration, runoff, flood routing, reservoir yield, statistical measures; water resources planning and economics.

Prerequisite: 331L. {Fall, Spring}

336L. Introduction to Water And Wastewater Treatment. (3)

Basic design concepts of water and wastewater treatment. Flow rates, characterization of water, materials balances, sedimentation, coagulation, flocculation, biological treatment, disinfection, land application, and alternative treatments.

Prerequisites: 331L, Chem 122L. 2 lectures, 3 hrs. lab. {Fall, Spring}

340. Probabilistic Methods in Engineering I. (3)

Applications of the theory of probability and statistics to the solution of civil engineering problems in material characterization, traffic flow, hydrology, construction management, system reliability and other areas.

Prerequisite: Math 264. {Fall}

350. Engineering Economy. (3)

(Also offered as ME 350.) 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. {Summer, Fall, 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. {Fall, Spring}

§362. Soils and Foundations. (3)

Engineering properties of various soil deposits, soil classification, and testing methods, foundation design principles and field inspection.

Prerequisite: 312 or permission of instructor. {Spring}

370. Engineering Materials Science. (3)

(Also offered as ChE, ME 370.) The structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials: metals, ceramics, and polymers.

Corequisite: 302. {Summer, Fall, Spring}

382. Transportation Engineering. (3)

Multimodal examination of the planning, design and operation of transportation facilities; social aspects and economic analysis of transportation system improvements.

Prerequisite: 282L. {Fall, Spring}

*401. Advanced Mechanics of Materials. (3)

(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 noncircular 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 311. {Offered upon demand}

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, Spring}

*415. Intermediate Structural Analysis. (3)

Classical problems in structural analysis solved by use of matrix procedures; displacement and force methods with application to two-dimensional, statically indeterminate, framed structures.

Prerequisite: 306 or permission of instructor. {Fall}

*416. Design of Structural Systems. (3)

Structural systems for building of various materials, including prestressed concrete, steel, and wood; codes and specifications; wind and seismic load provisions; structural failures. A design project is included.

Prerequisite: permission of instructor. {Spring}

*420. Plastic Theory of Structures. (3)

Inelastic behavior of materials, ultimate capacities of structural elements; basic theorems of limit analysis; deflection estimates; application to structures. Special topics.

Prerequisite: 306 or permission of instructor. {Fall}

*421. Introduction to Structural Dynamics. (3)

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)

Principles of dimensional analysis, dynamic similarity, flow nets, irrotational flow, gravity flow, unsteady flow, boundary layer theory, separation, cavitation, drag; pumps and turbines.

Prerequisite: 331L. {Offered upon demand}

***431. Intermediate Hydrology. (3)**

Hydrometeorology, interception, depression storage, infiltration, hydrograph analysis, flood routing, urban hydrology, groundwater analysis and utilization.

Prerequisite: 332. {Fall}

***432. Water Resources and Hydraulic Engineering. (3)**

Applied hydrology, hydraulics, water law, engineering economy, and water resources planning.

Prerequisite: 332. {Spring}

***433. Groundwater Engineering. (3)**

Hydraulics of groundwater flow, well hydraulics, subsurface water quality and groundwater management.

Prerequisite: 332 or permission of instructor. {Spring}

***436. Biological Wastewater Treatment. (3)**

Principles and design of wastewater treatment systems which are dependent on biological organisms. Processes covered include suspended culture and fixed culture systems, nutrient removal, hybrid systems, land application and on-site treatment systems. Emphasis will be placed on fundamental interaction between the organisms, wastes, and receiving body of water.

Prerequisite: 336L. {Spring}

437L. Aqueous Environmental Chemistry and Analysis. (3)

Summary of important concepts applicable to ecology, water and wastewater treatment. Topics include acid-base equilibria, alkalinity, hardness, nutrient cycles and forms, metals, and organic compounds in water. Emphasis will be on analytical procedures commonly used.

Prerequisite: 336L or permission of instructor. 2 lectures, 3 hrs. lab. {Fall}

***450. Probabilistic Methods in Engineering II. (3)**

Advanced applications of the theory of probability, statistics and stochastic processes to the solution of engineering problems. System reliability.

Prerequisite: 340 or Math 345. {Offered upon demand}

***452L. Computer Applications in Civil Engineering. (3)**

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 120L or EECE 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 120L or EECE 336, Math 316 or equivalent. {Offered upon demand}

***461. Soil Engineering for Highways and Airfields. (3)**

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. Foundation Engineering I. (3)**

Application of principles of soil mechanics to analysis and design of footings, piles, caissons, cofferdams, and other substructures.

Prerequisite: 360L. {Spring}

***463. Intermediate Soil Mechanics. (3)**

Soil-water relationships, shear strength, consolidation, introduction to physico-chemical properties of soils.

Prerequisite: 360L. {Fall}

***464. Rock Mechanics. (3)**

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)**

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)**

Engineering and architectural details within the framework of a building; floor and roof systems; bearing curtain walls; use and relative cost 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)**

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}

***473. Construction Cost Analysis. (3)**

Techniques of making quantity surveys and pricing of construction projects. Determination of production rates and cost control methods.

Prerequisite: 472 or permission of instructor. {Spring}

***475L. Materials Technology. (3)**

Theories of concrete-mix proportioning, use of concrete additives; testing of concrete aggregates and cement; asphalts; design of bituminous paving mixtures.

Prerequisite: senior standing in engineering. 2 lectures, 3 hrs. lab. {Offered upon demand}

***476. Highway and Airport Pavements. (3)**

Principles of Highway and Airport Pavement Design.

Prerequisite: 360L. {Spring}

***482. Highway and Traffic Engineering. (3)**

Principles of the planning and geometric design of streets and highways, traffic design and control, environmental considerations and highway safety.

Prerequisite: 382. {Spring}

***483. Traffic Engineering Studies and Characteristics. (3)**

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. {Fall}

490. Aspects of Professional Practice. (2)

Business and legal aspects of the engineering profession; business ownership, contracts, property, agency, water rights, insurance, patents, litigation, arbitration, ethics, and professional registration.

Prerequisite: senior standing in engineering. {Fall}

***491-492. Special Topics in Civil Engineering. (1-3, 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)**

Prerequisite: 415 or permission of instructor. {Spring}

***502. Finite Element Methods in Solid Mechanics. (3)**
Prerequisite: 401 or permission of instructor. {Fall}

***506. Prestressed Concrete. (3)**
Prerequisite: 411. {Spring 1983 and alternate years}

***507. Design of Concrete Plates and Shells. (3)**
Prerequisite: 411. {Spring 1984 and alternate years}

***510. Advanced Structural Design in Metals. (3)**
Prerequisite: 324L. {Fall}

***516. Theory of Plates. (3)**
Prerequisite: 401 or permission of instructor. {Offered upon demand}

***517. Applied Discrete Mechanics. (3)**
Prerequisite: permission of instructor. {Offered upon demand}

***518. Elastic Stability. (3)**
Prerequisites: 401 or 402, Math 312, or permission of instructor. {Spring}

***519. Theory of Shells. (3)**
(Also offered as ME 542.)
Prerequisites: ME 516 and Math 312. {Offered upon demand}

***520. Vibration of Elastic Systems. (3)**
Prerequisites: 421 or ME 414 and Math 312. {Offered upon demand}

***521. Design of Structures for Dynamic Loads. (3)**
Prerequisites: 415, 421 or ME 414. {Offered upon demand}

***523. Random Vibrations. (3)**
(Also offered as ME 523.)
Prerequisite: 520 or permission of instructor. {Offered upon demand}

***531. Physical-Chemical Water and Wastewater Treatment. (3-4)**
Prerequisite: 336L. {Fall}

***532. Advanced Physical-Chemical Water and Wastewater. (3-4)**
Prerequisite: 531. {Spring}

***533. Water Resources Engineering. (3)**
Prerequisite: permission of instructor. {Offered upon demand}

***534. Environmental Engineering Chemistry. (3)**
Prerequisite: 437L or permission of instructor. {Spring}

***535. Open Channel Hydraulics. (3)**
Prerequisite: 332. {Offered upon demand}

***536. Hydraulic Structures. (3)**
Prerequisite: 535. {Offered upon demand}

***538. Design of Water and Wastewater Treatment Systems. (3)**
Prerequisites: 436, 531 or permission of instructor. {Fall}

***551-552. Problems. (1-3, 1-3 hrs. each semester)**

***560. Advanced Soil Mechanics. (3)**
Prerequisites: 401 or 402, 463. {Offered upon demand}

***561L. Advanced Soil Mechanics Laboratory. (2)**
Corequisite: 463. 1 lecture, 3 hrs. lab. {Offered upon demand}

***562. Foundation Engineering II. (3)**
Prerequisite: 463. {Fall}

***563. Earth Structures. (3)**
Prerequisite: 463. {Spring}

***572. Construction Project Management. (3)**
Prerequisite: permission of instructor. {Spring}

***581. Highway Traffic Operations. (3)**
Prerequisite: 382. {Fall}

***582. Highway Traffic Design. (3)**
Prerequisite: 483. {Spring}

***583. Urban Transportation Planning. (3)**
Prerequisite: 483. {Spring}

***599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs 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)**
Prerequisites: 401 or 402, 463. {Offered upon demand}

***691. Seminar. (1-3 hrs. each semester)**
{Offered upon demand}

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for Total credit requirements.

COMPUTER SCIENCE

Cleve B. Moler, Chairperson
Farris Engineering Center 307A, 277-3112.

PROFESSORS:

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COMPUTER SCIENCE (C S)

Whenever a course has other courses as prerequisites, it is the intent that a grade of C or better in the prerequisite course is required to qualify as satisfying the prerequisite. Students with equivalent knowledge may have the prerequisite waived by consent of instructor on an individual basis.

150. Computing for Business Students. (3)

An introduction to BASIC language programming on a time-shared computer system, which emphasizes computing techniques useful in business applications.

No Prerequisites. Course cannot apply to major or minor in CS.

154. Foundations of Computing Science. (3)

Introduction to the formal concepts of computing science for the beginning student. Topics include induction, elementary logic, formal systems, algorithmic processes, and graph theory.

Prerequisite: Math 150.

155. Introduction to Computer Programming. (4)

(Also offered as Math 155.) An introduction to the art of computing. The object of the course is an understanding of the relationship between computing and problem solving. Programs will be written in PASCAL.

Prerequisite: Math 150.

237. Introduction to Data Processing. (3)

Introduction to the COBOL programming language. Sample programming problems on inventory control, forecasting, production planning, accounting and data base management; advances principles of top down, modular design of programs by applying these principles to the solution of the sample programming problems.

Prerequisites: 150, 155 or Engr 120L.

253. Intermediate Programming. (4)

A continuation of 155. Topics will include recursion, data abstraction, algorithmic program design, program testing, modification, documentation, correctness, and an introduction to data structures. Programs will be written in PASCAL.

Prerequisites: 155 and (154 or corequisite Math 163).

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 and computer architecture. Programming will involve the use of the department microcomputer laboratory.

Prerequisite: 253 and EECE 238L.

263. Fundamentals of Data Structures. (4)

A continuation of 253. Abstract data types, implementation of data structures in FORTRAN; application of data structures to recursion removal and graph search problems; presentation and informal analysis of competing data structures for retrieval problems under varying rules for insertion and deletion, including hashing.

Prerequisites: 253 or 300.

****300. Block-Structured Programming. (5)**

Programming and problem solving in a block structured language. Topics include simple data structures, recursive procedures, large program organization, program verification and validation. Programs will be written in PASCAL. Credit not allowed for both 300 and 155/253.

Prerequisites: one year of significant programming experience.

****303. Fundamentals of Algorithms. (3)**

Introduction to the techniques useful in the analysis of the efficiency of algorithms.

Prerequisites: 263 and Math 317.

337. Survey of Computer Systems Organization and Software. (3)

An overview of hardware/software configurations as integrated systems. Introduction to hardware modules, execution, operation, data, and system software, multi-programming and multi-processing, functions of file and communications systems, and data management systems.

Prerequisite: 237. Course cannot apply to major or minor in CS.

****355. The Syntax and Semantics of Programming Languages. (3)**

An investigation of some of the more important concepts underlying programming languages and their implementation. Topics covered will include interpretation versus com-

pilation, formal grammars, binding, activation records, data abstraction, and imperative versus functional languages.

Prerequisite: 263.

****357. Operating Systems Principles. (3)**

Basic principles of modern operating systems design: emphasis on concurrency including problems (non-determinism), goals (synchronization, exclusion) and methods (semaphores, monitors); resource management including memory management and processor scheduling; file systems; interrupt processing.

Prerequisites: 255 and 263.

***375. Introduction to Numerical Computing. (3)**

(Also offered as Math 375.) An introductory course covering such topics as interpolation, integration, solution of linear and nonlinear 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. Acceptable for credit toward graduate degree in CS.

Prerequisites: Math 163 and some ability in FORTRAN programming.

****390. Introductory Topics in Programming. (1-3)†**

This course is intended to provide students in other disciplines with an opportunity to learn to use contemporary computer languages and systems. Topics will vary from offering to offering. Most recent topic was UNIX and C.

Prerequisites: Junior standing, one year programming experience and permission of instructor. Course cannot apply to major or minor in CS. {Offered upon demand}

***401. Modern Computer Architecture. (3)**

(Also offered as EECE 401.) A study of the design concepts of major importance in modern computers. Topics will include microprogramming, language-directed computers, parallel processors, and pipeline computers. Emphasis will be placed on the relationship of architecture to programming issues.

Prerequisites: 357 or EECE 437.

***403. Algorithm Heuristics. (3)**

Efficient problem solving techniques. Connection, search and tour problems. Branch and bound and backtracking. Dynamic programming. Developing heuristics.

Prerequisite: 263.

***405. Linear and Integer Programming. (3)**

(Also offered as Math 405.) Linear programming: conversion of problems to linear programs, geometrical interpretation, simplex method and duality, degeneracy and cycling. Integer programming by use of cutting planes. Advanced topics: sparse matrix implementation, problems with special methods of solution.

Prerequisites: Math 314 and C S 155.

***406. Introduction to Stochastic Methods in Computer Science. (3)**

(Also offered as Math 454.) Introduction to stochastic processes and Markov chains. Applications to queueing, networking, performance analysis, availability and reliability analysis, and system testing.

Prerequisites: Math 340. Recommended: 357.

***420. Immigration I. (5)**

A fast paced course for well qualified graduate students whose previous degrees were not in Computer Science. Material covered is equivalent to 155, 253, and 263. Students contemplating taking this course should contact the department for advising one semester prior to the semester in which they plan to enroll.

Prerequisite: enrollment restricted—departmental approval required. {Fall}

***421. Immigration II. (5)**

A fast paced course for well qualified graduate students whose

previous degrees were not in Computer Science. Materials covered is equivalent to 154, Math 317 and 303. Students contemplating taking this course should contact the department for advising one semester prior to the semester in which they plan to enroll.
Prerequisite: enrollment restricted—departmental approval required. {Fall}

***422. Immigration III. (5)**

See 420 and 421. This course is intended for the same students as 420 and 421, and follows them. Equivalent to 255, 355 and 357.
Prerequisites: 420, 421, and graduate status. {Spring}

***431. Cryptology in Computing. (3)**

Techniques of encryption and decryption in current use for the protection of privacy of files. Emphasis on public key encryption. Includes extensive use of modular and multiple precision arithmetic.
Prerequisite: 253 and familiarity with modular arithmetic.

***433. Computer Graphics. [Digital Computer Graphics and Communications.] (3)**

(Also offered as EECE 433.) Introduction to the use of computer graphics to solve engineering problems. Relevant software and hardware concepts. Use of modern vector and raster devices. Description and manipulation of two and three dimensional objects. Hidden surface removal. Term project required.
Prerequisite: Two programming courses and some knowledge of linear algebra.

***438. Information Processing Models of Cognition. (3)**

(Also offered as Psychology 467.) Concepts of cognition from psychology and from computer science. Human factors, problem solving, game playing, teaching programming. Includes a project in cognitive modelling.
Prerequisites: 263 or Psych 367 or permission of instructor.

***451. Mathematical Theory of Formal Languages. (3)**

The Chomsky hierarchy of languages and its relationship to automata utilized as acceptors. Results on the equivalence between deterministic and non-deterministic models. Undecidability and intractability results.
Prerequisites: A 300 level math course involving proofs.

***452. Simulation. (3)**

(Also offered as Mgt 532.) Study of a variety of simulation methods as an aid to managerial decisions involving both micro- and macro-systems. Problems and projects require active computer programming of simulations.
Prerequisites: Computer science students: 253 and Math 345. Management students: Pre- or corequisite: Mgt 520.

***453. Topics in Program Correctness. (3)**

Advanced studies in techniques of reliable program development. Correctness proofs, verification and validation, designing and testing for reliability.
Prerequisites: 303.

***454. Compiler Construction. (3)**

Syntax analysis and semantic processing for a block-structured language. Lexical analysis, symbol tables, run-time management. Students will write a compiler.
Prerequisites: 255 and 355.

***457. Principles of Artificially Intelligent Machines. (3)**

Survey of artificial intelligence exclusive of pattern recognition. Heuristic search techniques, game playing, mechanical theorem proving, additional topics selected by the instructor.
Prerequisite: 263.

***460. Advanced Software Methodology. (3)**

Topics in software engineering and medium to large systems development, techniques of system analysis, specification, design and implementation; team organizations, testing, project management.
Prerequisite: 355 and 357.

***463. Storage and Retrieval of Information. (3)**

Introduction to advanced data structures for efficient storage and retrieval of information. Both internal and external methods will be covered. Emphasis on rigorous analysis of time/space trade-offs. Introduction to database management concepts.
Prerequisite: 303.

***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 and some knowledge of FORTRAN programming.

***476. Numerical Analysis II. (3)**

(Also offered as Math 476.) Approximation of functions, integration and numerical solution of ordinary differential equations.
Prerequisites: Math 316 or 361 and some knowledge of FORTRAN programming.

***487. Studies in Operating Systems. (3)**

Design and implementation techniques in operating systems. Issues in contemporary operating systems: kernels, process management and communication, memory and address space management, I/O and file system, resource allocation and scheduling, networking, protection, reliability.
Prerequisite: 357.

****490. Computing for Graduate Students. (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/her major field of study.
Prerequisite: permission of instructor. Course cannot apply to major, minor or master's degree in CS.

491. Special Topics—Undergraduates. (1-6)†

Undergraduate seminars in special topics in Computer Science. May be repeated for a total of 12 hours.
Prerequisite: permission of instructor.

***499. Individual Study—Undergraduate. [Individual Study.] (1-3 hrs. per semester)‡**

Guided study, under the supervision of faculty member, of selected topics not covered in regular courses. May be repeated for a total of 6 hours. At most 3 hours may be applied toward CS hour requirement.
Prerequisite: permission of instructor.

***502. Analysis of Algorithms. (3)**

Prerequisite: 303. Recommended 403.

***503. Computability and Complexity. (3)**

Prerequisite: A 300 level mathematics course involving proof. Recommended: 451.

***506. Stochastic Optimization in Computer Science. (3)**

(Also offered as Math 554.)
Prerequisites: 406. Recommended: 403.

***550. Programming Languages and Systems. (3)**

Prerequisite: 355.

***551. Individual Study—Graduate. [Individual Problem Solving.] (1-3 per semester, to a maximum of 6)‡**

Prerequisite: permission of instructor.

***552. Advanced Topics in Compiler Construction. (3)**

Prerequisite: 454. Recommended: 451.

***553. Computer Evaluation of Mathematical Functions. (3)**

Prerequisites: 475-476. {Offered upon demand}

***557. Selected Topics in Numerical Analysis. [Computational Mathematics.] (3)†**

(Also offered as Math 557.) {Offered upon demand}

***559. Master's Computing Project. (3 or 6)†**

Prerequisites: 12 semester hrs. credit toward master's degree and consent of instructor.

***563. Design and Use of Data Base Systems. (3)**

Prerequisite: 463.

***566. Pattern Recognition. (3)**

(Also offered as Math 566.)

***587. Advanced Operating Systems. (3)**

Prerequisite: 357 or EECE 437.

***591. Special Topics-Graduate. [Special Topics.] (1-6)†**

Graduate seminar courses in special topics in computing science. May be repeated for a total of 12 hours. Prerequisite: permission of instructor required.

***592. Colloquium. (1)†**

May be repeated up to a total of 4 hrs. Credit not applicable toward degree requirements.

***650. Reading and Research. (3)†**

Prerequisite: consent of instructor before registration.

691. Seminar in Computer Science. (1-6 hrs. per semester, may be repeated for total of 12 credit hours)†**699. Dissertation. (3-12 hrs. per semester)**

See Graduate Programs Bulletin for total credit requirements.

ELECTRICAL AND COMPUTER ENGINEERING

Peter Dorato, Chairperson

Tapy Hall 209A, 277-2436 or 4924

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Harold B. Knowles, Ph.D., University of California (Berkeley)

PROFESSOR EMERITUS:

Lewellyn Boatwright, Ph.D., University of Illinois

CURRICULUM

See p. 213.

ELECTRICAL AND COMPUTER ENGINEERING (EECE)

203. Circuit Analysis I. (3)

Basic electrical elements and sources. Energy and power. Ohm's law and Kirchoff's laws. Resistive networks, node and loop analysis. Superposition and Thevenin's theorem. Solution of first order circuits. Sinusoidal sources and complex representations: impedance, phasors, complex power. Three phase circuits. Computer solutions.

Prerequisites: Engr 120L, Math 163; corequisite: Physcs 161. {Summer, Fall, Spring}

204. Introduction to Electrical Engineering. (3)

Electronic devices and models. Logic circuits. Electronic instrumentation and measurements. Basic open-loop and closed-loop systems. Electromechanical energy conversion.

Prerequisites: 203 and Physcs 161. (Normally not taken by EE majors. {Fall})

206L. Electrical Engineering Laboratory I. (2)

Laboratory experiments in basic electrical measurements, D.C., A.C., circuits, and simple transients.

Prerequisite: 203. 1 lecture, 3 hrs. lab. {Fall, Spring}

213. Circuit Analysis II. (4)

General transient analysis of electrical circuits. Laplace transform with application to transient and steady-state analysis. Fourier series analysis. Matrices and introduction to state variables.

Prerequisites: C or better in 203, Math 316. {Summer, Fall, Spring}

231. Digital Computation in Electrical Engineering. (2)

Application of computer methods to electrical engineering problems; solutions of simultaneous linear equation; roots of equations; numerical differentiation and integration; elementary statistics.

Prerequisites: Engr 120L, Math 163; corequisite: 203 or permission of instructor. {Offered upon demand}

234L. Digital Systems Laboratory. (2)

Corequisite: 238. 1 lecture, 3 hrs. lab. {Offered upon demand}

238L. Computer Logic Design. (4)

Binary number systems. Boolean algebra. Combinational, sequential, and register transfer logic. Arithmetic/logic unit. Memories, computer organization. Input-output. Microprocessors.

Prerequisite: Engr 120L or CS 155 or equivalent. {Summer, Fall, Spring}

275L. IC Fabrication Lab. (1)

The fabrication of monolithic integrated circuits and hybrid microcircuits. Demonstration of computer-aided design. For non-EE majors. No credit allowed for EE majors. 3 hrs. lab. {Fall, 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 ad-

¹Registered Professional Engineers.

vanced students interested in experimental techniques. Not for engineering majors. See also Med Sci 650.
Prerequisite: permission of instructor. {Offered upon demand}

****302. Clinical Instrumentation. (3)**

(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.
Prerequisite: Biol 237L. 2 lectures, 2 hrs. lab. {Offered upon demand}

314. Signals and Communications. (3)

Linear systems analysis. Signal spectra: Fourier series and integral. Applications to filtering, modulation, and sampling. Introduction to digital filtering and communication systems.
Prerequisite: C or better in 213. {Fall, Spring}

****323. Introductory Digital Electronics. (3)**

Introduction to diodes, bipolar junction & metal oxide semiconductor transistors, analysis of the electronics of BJT and MOS logic circuits.
Prerequisite: C or better in 213. {Fall, Spring}

****324. Introductory Analog Electronics. (3)**

Bipolar junction & field effect transistor small signal models, biasing, and frequency effects; multistage circuits, differential amplifier and feedback analysis.
Prerequisite: C or better in 323. {Fall, Spring}

****325L. Electronics Laboratory I. (2)**

Prerequisite: C or better in 206L. Pre- or corequisite: 323. 1 lecture, 3 hrs. lab. {Fall, Spring}

****326L. Electronics Laboratory II. (2)**

Continuation of 325L.
Prerequisite: 325L. pre- or corequisite: 324. {Fall, Spring}

****335. Introduction to Digital Computers. (3)**

Computer organization; Boolean algebra; binary, octal, and decimal number systems; machine language instructions and programming techniques. Intended for non-EECE majors.
Prerequisite: Some programming experience. {Offered upon demand}

****336. Introduction to Digital Computer Programming. (2)**

Fundamentals of the FORTRAN 77 computer language applied to engineering problems. Credit not allowed for both EECE 336 and Engr 120L. Intended for non-EECE majors. {Fall, Spring}

****337. Introduction to Minicomputers and Operating Systems. [Introduction to Architecture and Operating Systems.] (3)**

Introduction to architectural and programming concepts that form the operational basis of modern minicomputer systems. Topics include the study of the PDP-11 architecture, assembly language, I/O considerations, and an introduction to the UNIX (Registered trade mark of Bell Laboratories) operating systems and the C programming language.
Prerequisite: 344L. Pre- or corequisite Math 327. {Summer, Fall, Spring}

340. Probabilistic 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.
Prerequisites: C or better in 213, Math 264. {Fall, Spring}

****344L. Microprocessors. (4)**

Computers and Microprocessors: Architecture, programming, input/output, and applications.
Prerequisite: C or better in 238L. {Fall, Spring}

361. Fields and Waves I. (3)

Vector analysis, Maxwell's equations, potentials, wave equations. Application to electrostatics, magnetostatics, and plane waves. Boundary value problems will be stressed in applications.

Prerequisites: C or better in 213, Physcs 161, Math 264. {Fall, Spring}

362. Fields and Waves II. (3)

Wave equations, applications to transmission lines, wave guides, antennas, antenna arrays and radiating systems.

Prerequisite: C or better in 361. {Fall, Spring}

371. Electrical Engineering Materials and Devices. (4)

Introduction to quantum principles; insulators, conductors, and semiconductors; semiconductor devices; dielectric and magnetic properties of materials.

Prerequisite: Physcs 262. Pre- or corequisite: 361. {Fall, Spring}

384. Electromechanical Energy Conversion. (2)

Fundamentals of electro-mechanical energy conversion. Synchronous, induction, and D-C machines. Transformers.

Prerequisite: 361. {Fall, Spring}

***400. Methods in Continuous and Discrete Systems Analysis. (3)**

Matrices and linear systems; computer matrix calculation, rank, Gauss elimination, inversion, factorization. Transform methods in linear systems.

Prerequisites: senior standing, programming knowledge. {Summer, Fall}

***401. Modern Computer Architecture. (3)**

(Also offered as CS 401.) A study of the design concepts of major importance in modern computers. Topics will include microprogramming, language-directed computers, parallel processors, and pipeline computers. Emphasis will be placed on the relationship of architecture to programming issues.
Prerequisites: 437 or CS 357. {Spring}

****402. [502.] Electrical Engineering Principles for Advanced Students. (3)**

Accelerated development of circuit analysis, systems, and signal processing for non-majors wishing to enter EECE graduate program. Cannot be used for credit for a graduate degree in electrical or computer engineering.

Pre- or corequisites: Math 316 and Physics 161. Prerequisite: Engr 120L. {Fall}

****403L. Computer Engineering Principles for Advanced Students. (6)**

Accelerated development of logic design, microprocessors and minicomputers.

Prerequisite: programming experience in some high level language. 5 hrs. lecture, 3 hrs. lab. {Fall}

***405. Modeling in Biomedical Engineering. (3)**

The application of engineering techniques to modeling of physiological systems.

Prerequisites: Math 316 and permission of instructor. {Spring}

***406. Biomedical Instrumentation. (3)**

Theory of physiologic measurements, transducer properties and electronics, bioelectrodes, electrical safety.

Prerequisites: 203, 405, or permission of instructor. {Spring}

***415. Mini and Micro Computer Application. (3)**

Memory systems and I/O; interfacing; busses, interrupts, direct memory access; real-time systems; applications to process control and signal processing.

Prerequisite: 344L. {Spring}

***418L. Senior Laboratory. (2)**

Experiments in microwaves, opto-electronics and solid-state.
Prerequisites: 326L, 362, 314. {Fall, Spring}

***421. Electronics III. (3)**

Computer and waveforming circuits. Linear waveshaping, diode gates, large-scale transistor models, breakpoint and driving-point impedance techniques, transient response of diode and transistor circuits, limiters (clippers), clippers, arbitrary current-voltage and transfer characteristics, logic circuits, stretchers, multivibrators, and sweep circuits. Pre- or corequisite: 324 or permission of instructor {Fall}

***422. Electronics IV. (3)**

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 or permission of instructor. {Spring}

***424. Digital Electronic Systems. (3)**

Electronic circuits and systems applied to the processing of digital signals. The analysis and design of the functional circuits of a computational system. Prerequisite: 324. {Spring}

***425L. Electronics Laboratory III. (2)**

Prerequisite: 326L; corequisite: 421 or 423. 1 lecture, 3 hrs. lab. {Fall}

***430. Computer Simulations of Continuous and Discrete Systems. (3)**

Simulation of systems described by differential equations, CSMP and SCEPTRE simulation languages. Methods of numerical integration. Simulation of discrete event systems, SIMSCRIPT simulation language. Monte Carlo methods. Structure of general simulation programs and languages. Simulation project. Prerequisites: Math 316 and 340 or EECE 340. {Spring}

***432. Programming in PL/1. (3)**

List processing and string manipulations using the PL/1 language. Table searching and sorting techniques. System error routine definitions.

Prerequisite: Engr 120L or equivalent programming knowledge. {Offered upon demand}

***433. Computer Graphics. [Digital Computer Graphics and Communications.] (3)**

(Also offered as CS 433.) Introduction to the use of computer graphics to solve engineering problems. Relevant software and hardware concepts. Use of modern vector and raster devices. Description and manipulation of two and three dimensional objects. Hidden surface removal. Term project required.

Prerequisites: Two programming courses and some knowledge of linear algebra. {Fall}

***434L. Microprocessor Design Laboratory. [Logic Design Laboratory.] (2)**

Pre- or corequisite: 438. {Spring}

***435. Computer Engineering Design Project. (3)**

Management of a large computer design project involving software and/or hardware; students will carry out a project including specification, design, implementation, testing, documenting and marketing a computer project.

Prerequisite: 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. {Offered upon demand}

***437. Digital Computer Operating Systems. (3)**

Analysis of modern operating systems principles and mechanisms with emphasis on resource management. Real-Time interaction with standalone computer systems.

Prerequisite: 337. {Fall}

***438. Design of Computers. (3)**

Topics in logic design. Computer organization. Design of arithmetic unit and control unit. Memory, I/O interfacing, and Register transfer languages and logic.

Prerequisite: 238L. {Fall}

***439. Introduction to Digital Filtering. (3)**

Review of spectral analysis and sampling theorem. A/D and D/A conversion. Discrete and fast Fourier transform. Recursive and nonrecursive digital filtering. Simulation of continuous systems and introduction to digital filtering design.

Prerequisite: 314. {Spring}

***440. Digital Communications and Computer Networks. (3)**

Information theory, data compression coding, error correction coding, coding for secrecy, channel capacity, common computer interfaces for communication, modems, protocols, networks, for both EE and Comp. Engr. majors.

Prerequisites: 314 and 340. {Spring}

***441. Introduction to Communication Systems. (3)**

Principal types of communication systems, including amplitude, phase, frequency and pulse modulation; double, single and vestigial sideband transmission; synchronous and asynchronous demodulation; phase-lock loops; noise; capacity of communication channels.

Prerequisite: 314. {Spring}

***443L. Communications Laboratory I. (2)**

Corequisites: 441 and permission of instructor. 1 lecture, 3 hrs. lab. {Offered upon demand}

***445L. Introduction to Control Systems. (3)**

Introduction to modeling of systems for control. Transducers and actuators. Design specification for control systems. Nyquist stability criterion. PID compensation design. Introduction to sampled-data control systems. Z-transform. Experiments with transducers and actuators, DC and AC motor control, microprocessor control, and computer-aided design. 2 hrs. lecture, 3 hrs. lab.

Prerequisites: 314, 384, 344L. {Fall, Spring}

***446. Design of Feedback Control Systems. (3)**

Modeling of continuous and sampled-data control systems. State-space representation. Sensitivity, stability, and optimization of control systems. Design of compensators in the frequency and time domains. Phase-plane and describing function design for non-linear systems.

Prerequisite: 445L. {Spring}

***448L. System Components Laboratory. (3)**

Properties of electrical, mechanical, and hydraulic components in control and dynamic systems. Measurement of steady-state, transient and frequency response characteristics. Synthesis of transfer functions using operational amplifiers and digital signal processors. Dynamic behavior of open- and closed-loop control systems. 2 lectures, 3 hrs. lab./week.

Prerequisite: 445L. {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 Engineering. (3)**

Theoretical and practical considerations associated with microwave devices, including topics such as transmission lines, circuit theory of waveguiding systems, parametric amplifiers, masers and lasers.

Prerequisite: 362. {Spring}

***465L. Microwave and Optoelectronics Laboratory. (2)**

Measurements illustrating operational characteristics of microwave active and passive devices. Experiments with coherent light at I.R. and visible wavelengths. Holography.
Prerequisite: 362. 1 lecture, 3 hrs. lab. {Spring}

***472. Microelectronics. (3)**

The technology and design of monolithic bipolar, monolithic MOS, thick-film hybrid and thin-film hybrid microcircuits. Computer-aided design, large-scale integration, and semiconductor memories.

Prerequisites: 323 and 371. {Spring}

***474. Introduction to Electro-Optics. [Optoelectronic Devices and Applications.] (3)**

Applied physical optics, the interaction of light and matter, Nonlinear optics, Modulators Blackbody, LED and other sources, introduction to the theory and application of lasers.
Prerequisites: 371 and 362. {Fall}

***475L. Hybrid Microelectronics Laboratory. (2)**

The design and fabrication of thick-film hybrid microcircuits.
Prerequisite: 371. {Offered upon demand}

***476L. Integrated Circuits Laboratory. (2)**

The design and fabrication of monolithic bipolar and MOS integrated circuits. Prerequisite: 371; corequisite: 472. {Spring}

***477. Direct Energy Conversion. (3)**

Thermoelectric materials and devices, Seebeck-Peltier-Thompson effects, thermionic converters, optical and infrared flux concentrators, solar cells and Photovoltaic phenomena, Piezoelectric materials and devices.

Prerequisite: 371. {Offered upon demand}

***480. Electric Power Systems Analysis. (3)**

Generation and distribution of electric power; computer modeling of power distribution systems.

Prerequisites: 203 and knowledge of FORTRAN. {Fall}

***481. Electrical Transients in Power Systems. (3)**

Switching transients; 3-phase symmetrical components; recovery voltages; overload protection; parameters for transient calculations.

Prerequisite: 480 or equivalent. {Spring}

490. Seminar in Laboratory Teaching Techniques. (1)

Prerequisites: senior standing and permission of instructor. {Fall, Spring}

491. Undergraduate Problems. (1-6 hrs. per semester)††

Registration for more than 3 hours requires permission of department chairperson. {Fall, Spring}

493. Honors Seminar. (1-3)

A special seminar open only to honors students. Registration requires permission of department chairperson. {Fall, Spring}

494. Honors Individual Study. (1-6)

Open only to honors students. Registration requires permission of the department chairperson and of the supervising professor. {Fall, Spring}

***495-496-497. Special Topics. (1-3, 1-3, 1-3 hrs. per semester)‡**

Prerequisites: senior standing and permission of instructor.

***498. Seminar. (1-3)**

Prerequisites: senior standing and permission of instructor. {Offered upon demand}

499. Seminar. (1-3)

Prerequisites: senior standing and permission of instructor. {Offered upon demand}

All courses following are understood to have the prerequisite of graduate standing in electrical engineering or permission of instructor.

***500. Theory of Linear Systems. (3)**

Prerequisite: 400 or Math 314. {Fall, Spring}

***501. Methods of Analysis in Electrophysics. (3)**

Prerequisite: 400 or equivalent. {Fall}

***506. Optimization Techniques. [Methods of Operation Research I.] (3)**

Prerequisite: 400. {Fall 1983 and alternate years}

***507. Stochastic Optimization Techniques. [Methods of Operation Research II.] (3)**

Prerequisite: 506 or equivalent or permission of instructor. {Spring 1984 and alternate years}

***508. Bioelectric Phenomena. (3)**

Prerequisite: 314. {Offered upon demand}

***512. Modern Network Theory. (3)**

Prerequisite: permission of instructor. {Spring}

***513. Modern Filter Theory and Design. (3)**

Prerequisite: 512 or permission of instructor. {Fall 1984 and alternate years}

***514. Nonlinear Systems Analysis. (3)**

Prerequisite: 500 {Fall}

***515. Graph Theory and Applications. (3)**

Prerequisites: 400 or permission of instructor, programming knowledge. {Offered upon demand}

***516. Video Pattern Recognition. (3)**

Prerequisites: 340 and 536 or Math 327. {Spring 1984 and alternate years}

***520. VLSI Design. (3)**

Prerequisite: 323. {Spring}

***523. Analog Electronics. (3)**

Prerequisite: 324. {Fall}

***526L. Electronics Design Laboratory. (3)**

Prerequisite: 324. {Spring}

***530. Fault Detection and Tolerance. (3)**

Prerequisite: 238L. {Fall 1983 and alternate years}

***531. Error-Correcting Codes. (3)**

Prerequisites: 238L and 536. {Fall 1983 and alternate years}

***532. Theory of Automata. (3)**

Prerequisites: 238L and 536 or Math 327. {Fall}

***533. Image Processing by Digital Computer. (3)**

Prerequisite: knowledge of Fourier analysis, linear system theory, and digital computers. {Spring 1983 and alternate years}

***534. Symbol Manipulation and Heuristic Programming. (3)**

Prerequisite: 340. {Offered upon demand}

***535. Principles of Threshold Logic. (3)**

Prerequisite: 238L. {Offered upon demand}

***536. Algebraic Foundations of Computer Engineering. (3)**

Prerequisite: 238L and Math 327. {Fall}

***537. Introduction to Language Theory and Compiler Design. (3)**

Prerequisite: 536. {Spring 1983 and alternate years}

***538. Design of Digital Systems. (3)**

Prerequisite: 438. {Spring}

***539. Digital Signal Processing I. (3)**

Prerequisites: 314 and 400 or Math 313. {Fall}

***541. Random Signal Processing. (3)**

Prerequisites: 340, 400 or equivalent. {Fall}

***542. Statistical Communication Theory. (3)**

Prerequisite: 541 or equivalent. {Offered upon demand.}

- *543. Digital Communication and Data Transmission. (3)**
Prerequisite: 541 or equivalent. {Offered upon demand}
- *544. Digital Control Systems. (3)**
Prerequisites: 446 and 500. {Spring 1983 and alternate years}
- *545. Large-Scale Systems. (3)**
Prerequisite: 500 {Spring}
- *546. Automatic Control Theory. (3)**
Prerequisites: 446 and 500. {Spring}
- *547. Neural Networks. (3)**
Prerequisites: 314 and graduate standing in mathematics, physics, physiology, or engineering. {Offered upon demand}
- *548. System Modeling. (3)**
Prerequisite: 340, 500 or permission of instructor. {Spring 1984 and alternate years}
- *549. Special Topics in Software Engineering. (3)**
Consult department graduate office for current offering and prerequisites. May be repeated. {Spring}
- *551-552. Problems. (1-3, 1-3 hrs. per semester)††**
{Offered upon demand}
- *561. Electromagnetic Fields I. [Applied Field Theory.] (3)**
Prerequisite: 362. {Fall 1984 and alternate years}
- *562. Electromagnetic Fields II. [Electromagnetic Propagation and Scattering.] (3)**
Prerequisites: 561. {Spring 1985 and alternate years}
- *563. Optical Detectors and Radiometry. (3)**
Prerequisites: Physics 471 and EECE 572 or Physics 430. {Fall 1984 and alternate years}
- *564. Infrared Optics and Systems Engineering. (3)**
Prerequisites: Physics 554 and EECE 572 or Physics 430. {Fall 1984 and alternate years}
- *565. Optical Design I. (3)**
Prerequisite: Physics 554. {Fall}
- *566. Optical Design II. (3)**
Prerequisite: 565. {Spring 1983 and alternate years}
- *568. Fourier Optics and Holography. (3)**
Pre- or corequisite: Physics 554 or permission of instructor. {Spring}
- *569. Optical Testing. (3)**
Prerequisite: Physics 554. {Spring 1983 and alternate years}
- *570. Quantum Theory of Solids I. (3)**
Prerequisite: 371. {Offered upon demand}
- *571. Quantum Theory of Solids II. (3)**
Prerequisite: 570. {Offered upon demand}
- *572. Semiconductor Properties. (3)**
Prerequisite: 371, recommended pre- or corequisite: 471. {Fall}
- *573. Materials and Fields. [Magnetic and Dielectric Properties of Solids.] (3)**
Prerequisite: 362 and 371, or equivalent. {Fall}
- *574L. Processing Techniques in Solid State Technology. (3)**
Pre- or corequisite: 371. {Offered upon demand}
- *575. Junction Devices. [Theory of Solid State Devices.] (3)**
Prerequisite: 371 or equivalent. {Fall}
- *576. Field Effect Devices. (3)**
Prerequisite: 371 or equivalent. {Spring}
- *577. Fiber Optics. (3)**
Prerequisites: 562 or Physics 512 and Physics 554. {Fall 1984 and alternate years}
- *590. Graduate Colloquium. (1)**
Prerequisite: permission of EECE adviser. {Fall, Spring}
- *595-596-597. Special Topics. (1-3, 1-3, 1-3 hrs. per semester)‡**
Prerequisite: permission of instructor. {Summer, Fall, Spring}
- *599. Master's Thesis. (1-6 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements.
- *613. Special Topics in Networks and Systems. (3)**
Prerequisite: 500. {Offered upon demand.}
- *614. Modern Filters. (3)**
Prerequisite: 513. {Offered upon demand}
- *630. Fault Tolerant Computers. (3)**
Prerequisite: 530. {Spring 1984 and alternate years}
- *636. Decomposition Theory. (3)**
Prerequisite: 536 or permission of instructor. {Spring 1984 and alternate years}
- *639. Digital Signal Processing II. (3)**
Prerequisite: 539. {Spring 1983 and alternate years}
- *641. Information Theory and Coding. (3)**
Prerequisite: 541. {Offered upon demand}
- *643. Special Topics in Communication Theory. (3)**
{Offered upon demand}
- *646. Optimal Processes. (3)**
Prerequisite: 546. {Offered upon demand}
- *647. Introduction to Artificial Intelligence. (3)**
Prerequisites: 526L or consent of instructor. {Offered upon demand}
- *649. Special Topics in Control Theory. (3)**
Prerequisite: 546. {Offered upon demand}
- *651-652. Problems. (1-3, 1-3 hrs. per semester)††**
{Offered upon demand}
- *661. Antennas. (3)**
Prerequisite: 562. {Offered upon demand}
- *662. Microwave Techniques. (3)**
Prerequisite: 562. {Offered upon demand}
- *663. Magnetohydrodynamics. (3)**
Prerequisite: 562. {Offered upon demand}
- *664. Advanced Electromagnetic Propagation. (3)**
Prerequisite: 562. {Offered upon demand}
- *665. Special Topics in Electromagnetic Fields. (3)‡**
Advanced topics in electromagnetic fields and waves. Consult departmental graduate office for current offerings. {Offered upon demand}
- *669. Seminar in Electromagnetic Waves. (3)**
{Offered upon demand}
- *671. Charge Transport in Solids. (3)**
Prerequisite: 571. {Offered upon demand}
- *672. Quantum Electronics. (3)**
Prerequisite: 371. {Offered upon demand}
- *673. Radiation Effects in Solid State Devices. (3)**
Prerequisite: 572 or permission of instructor. {Offered upon demand}
- *675. Special Topics in Solid State. (3)‡**
Advanced topics in solid state. Consult departmental graduate office for current offerings. {Spring}
- *679. Seminar in Solid State Theory. (3)**
{Offered upon demand}
- *695-696-697-698. Seminar. (3, 3, 3, 3)**
{Offered upon demand}

***699. Dissertation. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

ELECTRONICS TECHNOLOGY (E T)

Chairperson to be appointed
Engineering Annex 106, 277-5641

101. Electronics I. (3)

Basic electrical and electronic passive circuit theory, measurements, analysis, and design using commonly available components and equipment.

Prerequisite: adequate score on math placement exam or C or better in Math 120. Pre- or corequisite: Math 150. {Fall}

102. Electronics II. (3)

AC circuit theory. Semiconductors. Diode circuits. Transistor theory. Transistor biasing. Single- and multi-stage amplifiers. Prerequisite: C or better in 101. Pre- or corequisite: Math 180. {Spring}

103L. Electronics I Laboratory. (2)

Prerequisite: adequate score on math placement exam or C or better in Math 120. Pre- or corequisite: 101, Math 150. 1 lecture, 3 hrs. lab. {Fall}

104L. Electronics II Laboratory. (2)

Prerequisite: 103L. Pre- or corequisite: 102. 1 lecture, 3 hrs. lab. {Spring}

137L. Digital Electronics. (3)

Number systems. Boolean algebra. Logic gates. Flipflops and registers. Counters and clocks. Decoders, encoders, multiplexers, code converters. Digital applications and design. Prerequisite: 101. 2 hr. lecture, 3 hrs lab. {Spring}

145L. Machine Shop Skills. (2)

General background in theoretical and practical knowledge of shop skills and manufacturing processes to include such areas as: bench tools, measuring and gauging, cutting devices, lathe operations, milling and drilling, sawing, and welding. 1 hr. lecture, 3 hrs. lab. {Fall}

203. Electronics III. (3)

Multi-stage linear amplifiers, frequency and transient response, operational amplifiers, linear integrated circuits, feedback amplifiers, oscillators, and tuned circuits. Prerequisite: C or better in 102. {Fall}

204. Electronics IV. (3)

Special topics in electronics: special devices, modulation, detection, turned circuits, analog and digital systems, special circuits. Prerequisite: C or better in 203. {Spring}

205L. [204L.] Electronics III Lab. (2)

Prerequisite: C or better in 104L. Pre- or corequisite: 203. 1 lecture, 3 hrs. lab. {Fall}

206L. Special Projects Lab. (2)

Design, construction, and testing of special digital and analog circuits and systems.

Corequisites: 204, and 276L. 1 lecture, 3 hrs. lab. {Spring}

207L. Graphics for Electronics. (2)

Fundamentals of drawing and drafting room practices; electrical circuit drawing, terms, symbols, standards, and introduction to computer graphics.

Prerequisite: 102 or permission of instructor. 1 hr. lecture, 3 hrs. lab. {Fall}

244L. Microprocessors. (4)

Computers and microprocessors for Electronics Technology:

Architecture, programming, input/output, and applications. Prerequisites: C or better in 137L and 203. 3 lecture, 3 hrs. lab. {Spring}

276L. PC Fabrication Lab. (2)

Printed circuit board layout and taping, photo preparation of PC boards, photo exposure of PC boards, PC board etching, cleaning, drilling. Two-sided PC boards and component mounting, soldering, and testing.

Corequisites: 204, 206L. 1 lecture, 3 hrs. lab. {Spring}

MECHANICAL ENGINEERING

Alan O. Lebeck, Chairperson
Mechanical Engineering 202A, 277-2761

PROFESSORS:

Bohumil Albrecht, Ph.D., Columbia University
William E. Baker, Ph.D., University of Texas
David C. Chou, Ph.D., Yale University
William A. Gross, Ph.D., University of California (Berkeley)
Arthur V. Houghton, Ph.D., Purdue University¹
Frederick D. Ju, Ph.D., University of Illinois
Alan O. Lebeck, Ph.D., University of Illinois¹
Charles G. Richards, Ph.D., University of Michigan
Howard L. Schreyer, Ph.D., University of Michigan
Maurice W. Wildin, Ph.D., Purdue University

ASSOCIATE PROFESSORS:

Barney E. Klamecki, Ph.D., University of Illinois
Gregory P. Starr, Ph.D., Stanford University

ASSISTANT PROFESSORS:

James R. Leith, Ph.D., University of Texas
Jaroslav Remar, Ph.D., University of California (Santa Barbara)
C. Randall Truman, Ph.D., Arizona State University

LECTURER III:

Robert E. Grassberger

PROFESSOR EMERITUS:

Victor J. Skoglund, D. Eng., Yale University

CURRICULUM

See p. 215.

MECHANICAL ENGINEERING (M E)

201L. Introduction to Mechanical Engineering. (1)

Lectures, demonstrations and simple experiments on mechanical systems to introduce the student to concepts of mechanical engineering.

Prerequisite: Math 162. Corequisites: Engr 120, 122, and CE 202. 3 hrs. lab. {Fall, Spring}

206L. Dynamics. (3)

Principles of dynamics. Kinematics and kinetics of particles, systems of particles, and rigid bodies.

Prerequisite: CE 202; corequisite: Math 311. 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. 3 hrs. lab. {Offered upon demand}

300. Mechanical Engineering Analysis. (3)

Principles and applications of analysis of engineering systems.

Prerequisites: Math 316, and junior standing in engineering. {Offered upon demand}

301. Thermodynamics. (3)

(Also offered as ChE 301.) Principles of thermodynamics. First and second laws, properties and equations of state.

Prerequisites: Chem 121L, Physics 161, and Math 264 {Summer, Fall, Spring}

**302. Thermodynamics II. (3)

Thermodynamic relationships of reactions, mixtures and solutions. Requirements for equilibrium. Thermodynamics of flow through turbomachinery.

Prerequisite: 301 or permission of instructor. {Fall, 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, Spring upon demand}

**317. Fluid Mechanics. (3)

Basic concepts and principles of 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, Math 311; corequisite: 301. {Fall, Spring}

318L. Mechanical Engineering Laboratory I. (2)

Introduction to experimental methods in engineering with experiments to relate basic physical concepts to mass, length, time, and temperature, and to utilize commonly used measuring methods in mechanical engineering.

Prerequisites: 301, 317, CE 302, EECE 203; corequisite: 357. 6 hrs. lab. {Fall, Spring}

**320 Heat Transfer. (3)

Principles and engineering applications of heat transfer by conduction, radiation, and free and forced convection.

Prerequisites: 301, 317, Math 316. {Fall, Spring}

**341. Air Pollution Control. (3)

(Also offered as ChE 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 the public. Information presented applied to study of local problems. Practical projects in pollution control conducted.

Prerequisites: 301, Math 264, Physics 161, Chem 121L, or equivalents, and junior standing. {Fall or upon demand}

350. Engineering Economy. (3)

(Also offered as CE 350.) 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. {Summer, Fall, Spring}

351L. Mechanical Engineering Laboratory II. (2)

Experimental and analytical study of simple systems illustrating basic physical principles. Comparison of results of measurements with results of explicit or numerical solutions. Evaluation of results presented in laboratory reports.

Prerequisites: 302, 318L, 320, and 370. 6 hrs. lab. {Fall, Spring}

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. {Offered upon demand}

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. {Fall}

357. Introduction to Mechanical Vibrations. (3)

Free and forced vibrations of one and two degrees of freedom systems for both steady state and transient forcing. Also vibrations of selected continuous systems and balancing.

Prerequisites: 314, Math 316, or permission of instructor. {Fall, 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, Spring}

359L. Mechanical Engineering Design. (3)

The design process is studied and applied. The student is required to design a component or simple system. Projects may involve the thermo-fluids or solids area or both. The student is required to consider all relevant aspects of the problem, including the technical solution, function, cost, producibility, applicable standards, materials, and safety. Corequisites: 358, 363L. Prerequisites: 357, 314. 1 lecture, 6 hrs. lab. {Fall, Spring}

363L. Analysis of Engineering Systems. [Analysis of Fluid Systems.] (3)

Engineering analysis of systems based on the principles of fluid mechanics, heat transfer, thermodynamics, and mechanics.

Prerequisites: 302, 317, 320, 357, CE 302 or permission of instructor. 2 lectures, 3 hrs. lab. {Fall, Spring}

**365. Heating, Ventilating, and Air Conditioning Systems. (3)

The methods of analysis used in the design of systems for the conditioning and control of ambient environments for people, processes, equipment, or foods.

Prerequisite: 320. {Spring}

367. Analysis for Building Energy Systems. (3)

Lectures on analysis for building energy systems such as thermodynamics, heat transfer, solar, and conventional energy use.

Prerequisites: one semester of calculus, physics. {Offered upon demand}

370. Engineering Materials Science. (3)

(Also offered as CE 370.) The structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials; metals, ceramics, and polymers.

Corequisite: CE 302. {Summer, Fall, Spring}

373L. 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. 2 lectures, 3 hrs. lab. {Spring or upon demand}

****382. Energy Utilization and Conversion. (3)**

Energy utilization and conversion for heating, cooling, and power generation; energy supply and demand, economics, and conversion efficiency for fossil, nuclear, hydro, solar, and wind energies; comparison of heat engines, electrochemical, fuel cells and batteries, solar cells, thermoelectric, thermionic, and magneto hydrodynamic conversion systems. Prerequisite: 320. {Spring}

***401. Advanced Mechanics of Materials. (3)**

(Also offered as CE 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 noncircular cross-sections; energy principles. Prerequisites: CE 302 and senior standing. {Spring}

***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 311. {Offered upon demand}

***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, gyro dynamics, and linear vibratory systems including multi-degree of freedom systems and excitation-response analysis. Prerequisites: 206L, Math 311 or equivalent, and senior standing or permission of instructor. {Fall}

***425. Solar Thermal Energy System Components. [Application of Solar Energy to Engineering Systems.] (3)**

Introduction to solar thermal energy system analysis and design, with particular emphasis on components. This course builds on fundamentals taught in junior-level courses in thermodynamics, heat transfer and fluid mechanics, and extends their application to systems that deliberately employ solar energy as a source. Components of interest include, but are not limited to collector storage, heat exchangers and control. Prerequisites: 320 or permission of instructor. {Fall}

***426. Solar Thermal Energy System Design. (3)**

Design of active and passive solar systems. Design techniques may be employed, ranging from use of the results of detailed system simulations and associated economic analyses to simplified techniques derived from such simulations and analyses. Prerequisite: 425. {Spring}

***430. Intermediate Fluid Mechanics. (3)**

Derivation of the Navier-Stokes equations. Introduction to two and three dimensional potential flow theory, viscous flow theory, including the development of Prandtl's boundary-layer equations and the momentum integral approach, and compressible flow theory, including thermodynamics of shock waves, friction and heat addition. Prerequisites: 301, 317, and Math 316. {Spring}

451-452. Undergraduate Problems. (1-3, 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 chairperson.

Prerequisites: senior standing in ME and permission of instructor. {Fall, Spring}

***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 in ME. {Offered upon demand}

****461-462. Special Topics. (1-3, 1-3 hrs. per semester)**

Formal course work on special topics of current interest.

Prerequisites: senior standing in ME and permission of instructor. {Offered upon demand}

***465. Tribology. (3)**

Surface statistics, theories of friction and wear, sliding and rolling element bearings, hydrodynamic and hydrostatic bearing.

Prerequisite: senior standing in ME. {Fall, or upon demand}

***480. Analysis and Design of Mechanical Control Systems. (3)**

System dynamics and modeling; transfer functions; concept of feedback and system stability; transient and steady-state response; control system analysis and design using root locus and frequency response methods.

Prerequisite: senior standing or permission of instructor. {Fall}

***481. Digital Control of Mechanical Systems. (3)**

Introduction to microprocessor organization, application and machine language programming. Emphasis is on practice. Basic digital control principles will be studied and control algorithms implemented using a microcomputer.

Prerequisite: 480. {Spring}

***483. Power Generating Systems. (3)**

Analysis and design of conventional systems for converting energy into useful work, including experimental performance, control and economics. Systems covered include various vapor power cycles, power plant equipment, and internal and external gas combustion cycles such as Brayton, Diesel, and others.

Prerequisites: 302, and 320. {Fall}

***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 in ME. {Offered upon demand}

***491-492. Seminar. (1, 1)**

A series of lectures by professors, students, and/or professional engineers on topics of continuing and current interest. Prerequisite: senior standing in ME. {Fall, Spring}

***500. Numerical Techniques in Mechanical Engineering. (3)**

Prerequisite: at least one semester of 400- or 500-level course work in solid or fluid mechanics. {Fall}

***502. Finite Element Methods in Mechanical Engineering. [Mechanical Engineering Analysis.] (3)**

Prerequisites: Math 316, CE 302. {Spring}

***507. Similitude in Engineering. (3)**

Prerequisites: 522 or 530 or 540. {Offered upon demand}

***512. Tensor Analysis in Mechanics. (3)**

Prerequisite: 530 or 540 or equivalent. {Offered upon demand}

***514. Variational Mechanics. (3)**

Prerequisite: at least one semester of graduate study or permission of instructor. {Spring}

***518L. Principles of Measurement in Mechanical Engineering. (3)**

Prerequisites: 301, 317, 318, 357. 2 lectures, 3 hrs. lab. {Fall}

***520. Advanced Thermodynamics I. (3)**

Prerequisites: 301, Math 316. {Fall}

***522. Heat Conduction. (3)**

Prerequisites: 320, Math 312, or permission of instructor. {Spring}

***523. Random Vibrations. (3)**

(Also offered as CE 523.)

Prerequisites: 357, CE 520 or permission of instructor. {Offered upon demand}

***524. Radiant Heat Transfer. (3)**

Prerequisite: 320. {Offered upon demand}

***525. Topics in Solar Energy System Design and Analysis. [Solar Energy System Design and Analysis.] (3)**

Prerequisites: 425, 500, 520, and 522. {Fall or upon demand}

***530. Theoretical Fluid Mechanics I. (3)**

Prerequisites: 430, 522. {Fall}

***532. Advanced Gas Dynamics. (3)**

Prerequisites: 522, 530. {Offered upon demand}

***534. Boundary Layers. (3)**

Prerequisite: 530. {Offered upon demand}

***540. Elasticity I. (3)**

Prerequisite: Math 316. {Fall}

***541. Elasticity II. (3)**

Prerequisite: 540; corequisite: Math 313. {Offered upon demand}

***542. Theory of Shells. (3)**

(Also offered as CE 519.)

Prerequisite: permission of instructor. {Offered upon demand}

***543. Analysis of Thermal Stresses. (3)**

Prerequisite: 540. {Spring or upon demand}

***544. [642.] Mechanics of Inelastic Continuum. (3)**

Prerequisite: 430 or 540 or equivalent. {Offered upon demand}

***548L. Experimental Stress Analysis. (3)**

Prerequisite: 518L. {Spring}

***551-552. Problems. (1-3, 1-3 hrs. per semester)**

Prerequisite: 6 hrs of 500-level ME courses. {Fall, Spring}

***559. Design Project. (3)++**

Prerequisite: permission of instructor. {Offered upon demand}

***561-562. Special Topics. (1-3, 1-3 hrs. per semester)**

{Offered upon demand}

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

***620. Physical Gas Dynamics I. (3)**

Prerequisites: 520 and 532. {Offered upon demand}

***622. Convection. (3)**

Prerequisites: 530, 532. {Offered upon demand}

***630. Physical Gas Dynamics II. (3)**

Prerequisites: 522, 530. {Offered upon demand}

***632. Hypersonic Flow of Ideal Gases. (3)**

Prerequisites: 530, 532 or permission of instructor. {Offered upon demand}

***640. Nonlinear Theory of Elasticity. (3)**

Prerequisite: 541. {Offered upon demand}

***699. Dissertation. (3-12 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements.

COLLEGE OF FINE ARTS

Donald C. McRae, Dean

College of Fine Arts

Fine Arts Center 112, 277-2111

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 chairperson or to an adviser in the College of Fine Arts Advisement Center, Room 1103.

You should also read carefully the section on general academic regulations of the University and the listing of courses offered by the College. These are under eight headings:

Art Studio	Fine Arts
Art History	Music
Dance	Music Education
Film	Theatre Arts

In reading the course descriptions, note carefully the prerequisites that are specified because 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 sometimes 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 evaluations 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 in the University College section.

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 two semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous two 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 25 or higher on the English section of the ACT examination, or
 - (b) Completion of English 101 with a grade of C or better, or
 - (c) A score of 55 or better on the College Composition Test of the CLEP.
4. 9 to 12 completed credit hours in course work in the major area.

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. To apply for transfer from University College, go to the College of Fine Arts Advisement Center 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; a portfolio or audition may be required.

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 chairperson 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 Advisement Center.

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. A minimum of one semester of resident enrollment is required after admission to the College of Fine Arts; in any case, you must be enrolled in the College of Fine Arts for your final semester at UNM.
4. A minimum of 12 semester hours must be earned while enrolled in the College of Fine Arts.

5. No more than 4 hours of physical education activity courses may be counted toward a degree.

At the beginning of the first semester of your senior year, you must complete an application for degree. This application is made in the Advisement Center, College of Fine Arts. If you fail to file an application, the receipt of your degree may be delayed.

Major and Minor Studies. A student may choose a minor or a second major from among those majors and minors approved by the College of Arts and Sciences as stated in that section of the Bulletin. A minor may be selected from any program in the College of Fine Arts. Fulfilling the requirements for two majors may extend the hours required for a degree beyond 128, but will not necessarily constitute a second degree. If the minor or second major is outside the College of Fine Arts, a check for requirements must be made at the time the student applies for a degree.

Two Undergraduate Degrees. Students wishing a second undergraduate degree in the College of Fine Arts must complete a minimum of 30 hours in addition to those required for the first degree, and fulfill all requirements for the second degree. For a student in the College of Fine Arts the possibilities of a second degree are limited due to the great amount of time required for the practice of the fine arts. If a second degree is desired, students must consult with a department adviser in the College Advisement Center and with the Assistant Dean for final approval. The awarding of a degree will be consistent with the regulations as stated in the General Academic Regulations section.

Scholastic Standards

The curricula that lead to the degrees of Bachelor of Fine Arts and Bachelor of Music are **preprofessional** 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 her/his major to transfer to another program.**

No student may undertake a program in excess of 20 hours during the regular semester and 10 hours in summer session without prior written permission of the Dean of the College. Enrollment in more than the maximum hours without such prior permission will lead to disenrollment.

If your grades are low or if you have had academic difficulties in the past, we urge you to consult closely with an adviser in the College of Fine Arts Advisement Center.

Departmental Honors

Students interested in graduating with departmental honors should read carefully the guidelines on honors in the General Academic Regulations section of the catalog. However, interested students in the College of Fine Arts should apply first through the College of Fine Arts Advisement Center no later than the end of their junior year.

Minimum requirements for graduation with departmental honors in the College of Fine Arts are as follows: (a) an overall grade point average of 3.5 on work completed on a minimum of 60 hours in residence at the University; (b) no fewer than 6 credit hours in senior thesis or special courses, as approved by the respective departments, which involve independent study beyond normal requirements.

Special Facilities in the College of Fine Arts

Instruction in the fine arts is enriched by the University Art Museum; several outstanding performance series in Popejoy Hall, Keller Hall and Rodey Theatre; a Fine Arts Library containing more than 50,000 volumes and a listening center with an extensive collection of tapes and records; and a Fine Arts Slide Library containing 250,000 slides.

Curricula

ART

The majors in art studio and art history and the curricula in teacher 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 at the beginning of the section on art course descriptions.

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.

Preprofessional Curriculum. The preprofessional curriculum leading to the Bachelor of Fine Arts 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 Scholastic Standards for the College of Fine Arts which permits the faculty to exclude from the program any student whose grade average in his/her major field of study falls substantially below 3.0. **Studio courses and art history courses are both part of the major field of study.**

If you wish to take studio courses without the concentration and commitment that is implicit in this curriculum, you are advised to follow a program of study leading to the degree of Bachelor of Arts in Fine Arts with a studio emphasis (see below). Also, you may take a number of studio courses as part of the art education curriculum leading to teacher certification. The Art Department adviser will help you select the program that best suits your needs.

Minimum requirements for the program leading to the B.F.A. degree are as follows. Please note that one of the requirements is that at least 9 hours of instruction is at the 400 level. Students whose performance does not qualify them for the B.F.A. program may complete their work in the B.A. program or transfer to another degree program entirely.

1. Courses outside the major:
 - a. 30 hours selected from courses offered by departments of the College of Arts and Sciences, of which at least 9 hours must be in English, including 102; 6 hours of History 101, 102;* and 30 hours
 - b. 6 hours selected from other departments of the College of Fine Arts (dance, film, fine arts, music, and theatre arts) or from the School of Architecture and Planning; and 6 hours
 - c. 12 additional hours selected from courses outside the major offered by any college, including Fine Arts. 12 hours
48 hours
2. Major in art:
 - a. 18 hours in art history (including 150 and 250, to be taken in the freshman and sophomore years); and 18 hours
 - b. 52 hours in studio courses, including art studio 106, 121, 122 and 423 and a minimum of 9 hours at the 400 level. Many areas of special study require specific sequences of courses and corequisites which

you must observe. The department adviser can inform you of these.

52 hours

3. Additional courses in any field, including art. 10 hours

Total 128 hours

Tutorial Program. At the end of six semesters (the end of the junior year) all students in the B.F.A. and B.A. in F.A. programs with an overall 3.2 GPA whose portfolio is acceptable to the departmental tutorial committee, may wish to apply to enter the tutorial program.

The student will work with his or her tutor in a regular program of individual instruction which does not confine itself to a particular studio discipline but emphasizes thought rather than techniques, and theoretical and humanistic breadth rather than narrow specialization. The student will take 6 to 12 hours of tutorial instruction preferably with more than a single tutor. Before becoming eligible for the tutorial program the student must have taken a minimum of 90 hours of preparation, including Art History 150 and 250, a minimum of 18 hours (usually more, including corequisites) of work in a specific studio area, 24 hours in courses offered by departments in the College of Arts and Sciences (including 9 hours of English), and Art Studio 423.

General (Liberal Arts) Curriculum

A major in **art history** is offered under the general curriculum. It is also possible within this curriculum to pursue a major in **art studio** that is less specialized than the preprofessional (B.F.A.) curriculum. These two programs, both of which lead to the Bachelor of Arts in Fine Arts, are as follows:

ART HISTORY EMPHASIS

1. Courses outside the major:
 - a. 39 hours selected from courses offered by departments of the College of Arts and Sciences, of which at least 9 hours must be in English, including 102; as many semesters of one foreign language as are necessary for completion of the fourth semester course in that language; 6 hours of History 101, 102;* and 39 hours
 - b. 6 hours selected from other departments of the College of Fine Arts (dance, film, fine arts, music, and theatre arts) or from the School of Architecture and Planning; and 6 hours
 - c. 15 additional hours selected from courses outside the major offered by any college, including Fine Arts. 15 hours
60 hours
 2. Major in art history:
 - a. 33 hours in art history courses including 150 and 250, and a minimum of 15 hours in courses numbered 300 or above; and 33 hours
 - b. 15 hours in studio courses, including Art Studio 106, 121 and 122 15 hours
 3. Additional courses in any field, including art. 20 hours
- Total 128 hours

STUDIO EMPHASIS

1. Courses outside the major:
 - a. 39 hours selected from courses offered by departments of the College of Arts and

*Courses in the General Honors Program may be used to satisfy Arts and Sciences requirements except for the specific courses stated above.

Sciences, of which at least 9 hours must be in English, including 102; 6 hours of History 101, 102;* and	39 hours
b. 6 hours selected from other departments of the College of Fine Arts (dance, film, fine arts, music, and theatre arts) or from the School of Architecture and Planning; and	6 hours
c. 15 additional hours selected from courses outside the major offered by any college, including Fine Arts.	15 hours
	<hr/> 60 hours
2. Major in art:	
a. 15 hours in art history courses, including 150 and 250; and	15 hours
b. 33 hours in studio courses, including Art Studio 106, 121, and 122.	33 hours
3. Additional courses in any field, including art.	20 hours
Total	<hr/> 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. The College of Fine Arts offers a preprofessional 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 Department courses, as well as all courses necessary for certification. For this reason it is essential that you consult with the Art Department 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 note also 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 as are minors. In addition to stated course requirements, one must satisfy general College and University requirements for graduation.

Preprofessional Curriculum

Programs in music performance; music pedagogy; and music theory and composition are available leading to the Bachelor of Music and comprising a total of 128 hours. If you enroll in any one of these programs, read carefully the paragraph on p. 241 (Scholastic Standards) which permits the faculty to exclude from the program any student whose grade average in his/her 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 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 transfer students will be given a theory, ear-training, and sight-singing proficiency examination for the purpose of determining competency in these areas. If test results reveal deficiencies, transfer students will be required to remove such by enrolling and successfully completing one or more semesters of the theory curriculum.

All students in any program leading to the B.M. degree must complete the following curriculum:

1. Courses outside the major:	
a. 30 hours selected from courses offered by departments of the College of Arts and Sciences, of which at least 9 hours must be in English, including 102; 6 hours of History 101, 102;* and	30 hours
(Note: Majors in vocal performance and vocal pedagogy must complete 18 hours in some combination of French, German, and Italian.)	
b. 6 hours selected from other departments of the College of Fine Arts (art, art history, dance, film, fine arts, and theatre arts) or from the School of Architecture and Planning; and	6 hours
c. 12 additional hours selected from courses outside the major offered by any college, including Fine Arts.	12 hours
	<hr/> 48 hours
2. Major in music, including:	
a. six semesters of 101 Concert Music with a grade of CR.	
b. 24 hours in applied music:	
c. 24 hours in music theory, including 105, 106, 107, 108, 205, 206, 207, 208, 309, 310, 453, and either 405, or 406;	
d. 8 hours in music history, including 261, 262, and 449;	
e. 2 hours in conducting;	
f. 8 hours in ensemble (see departmental handbook); and	
g. 14 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).	80 hours
Total	<hr/> 128 hours

Keyboard performance:

- 4 hours in applied music
- 2 hours in music theory (counterpoint)
- 8 hours in music electives

Instrumental performance:

- 8 hours in applied music
- 2 hours in ensemble
- 4 hours in music electives

Vocal performance:

- 4 hours in applied music (voice)
- 4 hours in applied music (piano)
- 2 hours in diction for singers
- 4 hours in Opera Studio

Keyboard pedagogy:

- 4 hours in applied music
- 4 hours in music pedagogy
- 6 hours in music electives

Instrumental pedagogy:

- 8 hours in applied music
- 2 hours in music pedagogy
- 4 hours in music electives

Vocal pedagogy:

- 4 hours in applied music (voice)
- 4 hours in applied music (piano)
- 2 hours in diction for singers
- 4 hours in music pedagogy

For majors in theory and composition, the number of hours in applied music (par. 2a above) is reduced from 24 to 14. Additional hours (par. 2f above) are raised from 14 to 24 and distributed as follows:

- 10 hours in music theory
- 2 hours in conducting
- 4 hours in music history
- 8 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. 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.

All transfer students will be given a theory, ear-training, and sight-singing proficiency examination for the purpose of determining competency in these areas. If test results reveal deficiencies, transfer students will be required to remove such by enrolling and successfully completing one or more semesters of the theory curriculum.

1. Courses outside the major:

- a. 39 hours selected from courses offered by departments of the College of Arts and Sciences, of which at least 9 hours must be in English, including 102; as many semesters of one language as are necessary for completion of the fourth semester course in that language; 6 hours of Hist 101, 102;* and 39 hours
- b. 6 hours selected from other departments of the College of Fine Arts (art, art history, dance, film, fine arts, and theatre arts) or from the School of Architecture and Planning; and 6 hours
- c. 15 additional hours selected from courses outside the major offered by any college, including Fine Arts. 15 hours

60 hours

2. Major in music, including

- a. six semesters of 101 Concert Music with a grade of CR;
- b. 24 hours in music theory (see curriculum p. 256);
- c. 8 hours in music history (see curriculum p. 255); plus 10 hours of other courses in music history;
- d. 8 hours in applied music, including 4 hours in piano and 4 elective hours;
- e. 8 hours in ensemble; and
- f. 10 hours in music electives 68 hours

Total

128 hours

Music Minor

For a minor in music: 20 hours, including a total of 4 hours in theory and 4 hours in ear-training; 6 hours selected from 139-140 or 371-373; 4 hours in applied music; and 2 hours of electives in music.

Curriculum in Music Education

Students completing the requirements and curriculum stated below will receive the Bachelor of Music Education degree and will be certified to teach music in grades 1 through 12 in the state of New Mexico. Official acceptance to the degree program is granted only after successful completion of the following:

1. Music Education Screening (consult Department of Music Handbook).
2. Admission to a Teacher Education Program (see College of Education, "Admission to a Teacher Education Program").
3. Admission to the College of Fine Arts, (see College of Fine Arts "Admission").

Before completing 64 hours, students must attempt both the Voice Proficiency Examination and Piano Proficiency Examination (consult Department of Music Handbook). Should a student fail any portion of either examination, he/she must enroll in the appropriate voice or piano course the subsequent semester.

Student teaching can only be accomplished during the fall semester of any year. To be eligible for the student teaching program, the following must be accomplished:

1. Completion of all prerequisite courses (see Department of Music Handbook).
2. A GPA in music courses of 2.5 and an overall GPA of 2.0.

The required recital will normally be given during the last semester in residence.

Students majoring in music education must consult their assigned adviser prior to registering each semester. Failure to do so may result in disqualification from further pursuit of the BME degree.

All transfer students will be given a theory, ear-training, and sight-singing proficiency examination for the purpose of determining competency in these areas. If test results reveal deficiencies, transfer students will be required to remove such by enrolling and successfully completing one or more semesters of the theory curriculum.

Bachelor of Music Education Degree**VOCAL TRACK****FRESHMAN YEAR****First Semester**

	Hrs.
Engl 101 Wrtgs/Rdgs in Exposition	3
Hist 101 Western Civilization	3
Mus 101 Concert Music	0
Mus 105 Music Theory II	2
Mus 107 Ear-Training II	2
Mus 243 Concert Choir	1
Mus 209 Diction for Singers	2
Mus Ed 194 Introduction to Music Education	1
*Piano or Voice	1
CONCENTRATION	1

16

Second Semester

Engl 102 Analytic Wrtg	3
Hist 102 Western Civilization	3
Sp Com 270 Communication for Teachers	3
Mus 101 Concert Music	0
Mus 106 Music Theory III	2
Mus 108 Ear-Training III	2
Mus 243 Concert Choir	1
*Piano or Voice. (Guitar Concentrates take piano and Voice, and no 155 course.)	1
Mus 155 Clarinet/Saxophone or Guitar	1
CONCENTRATION	1
	17

SOPHOMORE YEAR

First Semester

Psyc 101 Gen. Psyc. I	3
FINE ARTS ELECTIVE	3
Mus 101 Concert Music	0
Mus 205 Music Theory IV	2
Mus 207 Ear-Training IV	2
Mus 261 History of Music I	3
Mus 243 Concert Choir	1
*Piano or Voice. (Guitar Concentrates take Piano and Voice, and no 155 course.)	1
Mus 155 Brass I or Strings I	1
CONCENTRATION	1
	17

Second Semester

FINE ARTS ELECTIVE	3
Ed Fdn 290 Fdns of Educ	3
Mus 101 Concert Music	0
Mus 206 Music Theory V	2
Mus 208 Ear-Training V	2
Mus 262 History of Music II	3
Mus 243 Concert Choir	1
*Piano or Voice. (Guitar concentrates take Piano and Voice, and no 155 course.)	1
Mus 155 Clarinet/Saxophone or Guitar	1
CONCENTRATION	1
	17

JUNIOR YEAR

First Semester

Science Elective, with Lab	4
Mus 101 Concert Music	0
Mus 309 Form and Analysis	2
Mus 363 Conducting	2
Mus 453 Orchestration	2
Mus Ed 346 Tchg. Mus. Elem. Sch.	3
Mus 243 Concert Choir	1
Mus 155 Brass I or Strings I	1
CONCENTRATION	1
	16

Second Semester

Science Elective, with Lab	4
Ed Fdn 303 Hum. Growth and Dev.	3
Mus 101 Concert Music	0
Mus 310 Form and Analysis	2
Mus 364 Choral Conducting	2
Mus Ed 446 Sec. Sch. Mus.	3
Mus 243 Concert Choir	1
Mus 155 Clarinet/Saxophone or Guitar (Guitar Concentrates take Clarinet/Saxophone).	1
CONCENTRATION	1
	17

SENIOR YEAR

First Semester

Music Education Block:

/Mus Ed 313 Tchg. Choral Mus. in Secondary School	2
/Mus Ed 315 Tchg. Inst. Mus in Secondary School	2
/Mus Ed 451 Fdns. Mus. Behavior	3
/Mus 243 Concert Choir	1
/Mus CONCENTRATION	1

Internship:

//Mus Ed 400 Stdnt Tchg-Elem	3
//Mus Ed 461 Stdnt Tchg-Sec	3
	15

Second Semester

Eng Lit Elective	3
Mus Ed 493 Reading in the Content Area—Music	3
Mus 243 Concert Choir	1
Mus. or Mus Ed Electives	4
CONCENTRATION (recital)	2
	13

BACHELOR OF MUSIC EDUCATION DEGREE

INSTRUMENTAL TRACK

FRESHMAN YEAR

First Semester

	Hrs.
Eng 101 Wrtgs/Rdgs in Expos	3
Hist 101 Western Civilization	3
Mus 101 Concert Music	0
Mus 105 Music Theory II	2
Mus 107 Ear-Training II	2
#Mus 233 Orch or Mus 241 Band	1
Mus. Ed. 194 Intro to Mus. Ed.	1
*Piano (Piano Concentrates take Strings I, Brass I, Oboe, Bassoon, or Flute.)	1
*Voice	1
CONCENTRATION	1
	15

Second Semester

Eng 102 Analytic Wrtg	3
Hist 102 Western Civilization	3
Sp Com 270 Communication for Tchrs	3
Mus 101 Concert Music	0
Mus 106 Music Theory III	2
Mus 108 Ear-Training III	2
Mus 233 Orch or Mus 241 Band	1
*Piano (Piano Concentrates take Strings II, Brass II, Clarinet/Saxophone, or Percussion.)	1
Mus 155 Clarinet/Saxophone, Brass II, Strings II or Percussion	1
CONCENTRATION	1
	17

*And/or successful completion of the proficiency exam.

#Wind and Percussion concentrates must enroll in Mus 241 Band each

Fall semester for four years.

/To be taken first half of semester.

//To be taken second half of semester.

SOPHOMORE YEAR

First Semester

Psych 101 Gen. Psych. I	3
FINE ARTS ELECTIVE	3
Mus 101 Concert Music	0
Mus 205 Music Theory IV	2
Mus 207 Ear-Training IV	2
Mus 261 History of Music I	3
#Mus 233 Orch or Mus 241 Band	1
*Piano (Piano concentrates take Strings I, Brass I, Oboe, Bassoon, or Flute.)	1
Mus 155 (take two: Strings I, Brass I, Oboe, Bassoon, or Flute)	1
CONCENTRATION	1
	17

Second Semester

Ed Fdn 290 Fdns. of Educ.	3
Mus 101 Concert Music	0
Mus 206 Music Theory V	2
Mus 208 Ear-Training V	2
Mus 262 History of Music II	3
Mus 233 Orch or Mus 241 Band	1
*Piano (Piano concentrates take Strings II, Brass II, Clarinet/Saxophone, or Percussion.)	1
Mus 155 (take two: Strings II, Brass II, Clarinet/Saxophone, Percussion or electives for Piano Concentrates)	1 + 1
CONCENTRATION	1
	15

JUNIOR YEAR

First Semester

SCIENCE ELECTIVE, with Lab	4
Mus 101 Concert Music	0
Mus 309 Form and Analysis	2
Mus 363 Conducting	2
Mus 453 Orchestration	2
#Mus 233 Orch or Mus 241 Band	1
Mus Ed 346 Tchg. Mus. in the Elem. Sch.	3
Mus. 155 (take two: String I, Brass I, Oboe, Bassoon, or Flute.)	1 + 1
CONCENTRATION	1
	17

Second Semester

Science Elective, with Lab	4
Ed Fdn 303 Hum. Growth and Dev.	3
Mus 101 Concert Music	0
Mus 310 Form and Analysis	2
Mus 365 Inst. Conducting	2
Mus 233 Orch or Mus 241 Band	1
Mus Ed 446 Secondary School Mus.	3
Mus 155 Strings II, Brass II, Clarinet/Saxophone, or Percussion.	1
CONCENTRATION	1
	17

SENIOR YEAR

First Semester

Music Education Block:

/Mus Ed 313 Tchg. Choral Music in Secondary Schools	2
/Mus Ed 315 Tchg. Inst. Music in Secondary Schools	2
/Mus Ed 451 Fdns. of Music Behavior	3

/Mus 155 Instrumental Lab	1
/Mus 233 Orch or Mus 241 Band	1
/CONCENTRATION	1

Internship:

//Mus Ed 400 Stdnt Tchg-Elem	3
//Mus Ed 461 Stdnt Tchg-Sec	3
	16

Second Semester

Fine Arts Elective	3
English Literature Elective	3
Mus. Ed. 493 Reading in the Content Area—Music	3
Mus. 233 Orch or Mus. 241 Band	1
Mus. or Mus. Ed. Electives	2
CONCENTRATION (Recital)	2
	14

THE MUSIC EDUCATION MINOR

This program is only available to students majoring in Elementary Education. Students electing this program must pass the piano proficiency examination and the voice proficiency examination (consult the Department of Music Handbook for details).

For a minor in music education: 24 hours, including 4 hours in theory (105 & 106); 4 hours in ear-training (107 & 108); 4 hours in piano; 2 hours in voice; 1 hour in a major choral ensemble; 2-3 hours of music education electives to be selected from 293, 297, or 291; 3 hours of electives in music history or music appreciation to be selected from 139, 140, 371 or 373; and 3-4 hours of free electives in music or music education.

Ensemble Requirements

Ensemble performance is a vital part of every music student's experience. The course numbers for ensemble music are found in the course listing under "Music" in the catalog. One (1) credit hour represents from two (2) to six (6) hours of rehearsal per week.

All music majors (except keyboard performance, keyboard pedagogy, guitar performance, guitar pedagogy) in the Department of Music will participate in a major ensemble each semester of their residence, beginning with their first semester of matriculation, until the minimum requirements outlined below are fulfilled. No student may enroll for more than three ensembles per semester while in residence. Transfer students will be credited with a maximum of one semester of ensemble participation at UNM for each semester they participated in a major ensemble at their former institution(s). No more than four such semesters may be counted.

Organ Performance and Pedagogy major

Six (6) semesters in a major ensemble
Two (2) semester of accompanying

Piano Performance and Pedagogy majors

Two (2) to Four (4) semesters in an appropriate major ensemble
Four (4) to Six (6) semesters in accompanying and/or chamber music

Instrumental Performance (other than keyboard)

Eight (8) semesters in band or orchestra
Two (2) semesters in chamber music

* And/or successful completion of the proficiency exam.

#Wind and Percussion concentrates must enroll in Mus 241 Band each Fall semester for four years.

/ to be taken first half of semester.

// to be taken second half of semester.

Guitar Performance and Pedagogy majors
Six (6) semesters in an appropriate ensemble
Four (4) semesters in a major choral ensemble

Vocal Performance
Eight (8) semesters in a major choral ensemble

(Voice majors are allowed to participate in only one major choral ensemble each semester of residence. Participation in other choral ensembles must be cleared with your applied teacher.)

Instrumental Pedagogy (other than keyboard and guitar)
Eight (8) semesters in band or orchestra

Vocal Pedagogy
Same as Vocal performance

Music Education
Major ensemble appropriate to applied concentration each semester or residence for eight (8) semesters. Wind players must audition for Symphonic Band or Orchestra and participate in the ensemble to which they are assigned. String players must be in orchestra. Vocal concentrates must audition for Concert Choir and participate in the choral ensemble to which they are assigned. Keyboard concentrates and guitar concentrates following the vocal curriculum must participate in chorus; keyboard concentrates and guitar concentrates following the instrumental curriculum must participate in the ensemble appropriate for wind and percussion players.

Note: For Music education majors enrolled in the Student Teaching Block Semester, all ensemble involvement, except marching band, will terminate with the end of the eighth week. Students in marching band will be required to fulfill their complete obligation to this ensemble.

Theory and Composition
Eight (8) semesters in an appropriate major ensemble.
Two (2) semesters must be in a major choral ensemble

Music History & Literature
Four (4) semesters in a major ensemble
Four (4) semesters in Early Music Ensemble

Theatre Arts

The majors in theatre and dance offered by the College of Fine Arts are described below. The Department also offers the student the opportunity for structured studies in film and television. Students interested in teacher certification are directed to the major in theatre described under the heading "Curriculum in Theatre Education."

The programs of studies in theatre and dance often include production work as an integral part of classroom instruction and students are expected to participate in all phases of such work that may occur in the required courses.

In the department, the progression of course levels from beginning to advanced is carefully structured. The faculty places each student at a level of instruction based on both the student's ability and achievement.

In addition to the course requirements listed for the majors, you must satisfy general college and university requirements for graduation. Furthermore, the faculty reserves the right to disqualify from further enrollment or participation in departmental programs:

1. Students whose grade point average fall below 3.0 in their major;
2. Students who fail to demonstrate reasonable progress

and development in their course work in Theatre Arts, particularly by the end of their sophomore year of studies;

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.

Preprofessional Curriculum

The majors in Theatre Arts offered under this curriculum are designed for students who anticipate further study at the graduate level. Programs leading to a Bachelor of Fine Arts are as follows:

THEATRE

1. Courses outside the major:
 - a. 30 hours selected from courses offered by departments of the College of Arts and Sciences, which must include English 102, 352, and 353; and History 101, 102;* 30 hours
 - b. Art History 150, plus 3 hours selected from other departments of the College of Fine Arts (art, fine arts, music) or from the School of Architecture and Planning; (majors in acting emphasis must take Music 109). 6 hours
 - c. 12 additional hours selected from courses outside the major offered by any College including Fine Arts. 12 hours
2. Courses in the major: Acting emphasis
 - a. T.A. 120-121, 122-123, 192, 194, 196, 198, 220-221, 224-225, 235, 320-321, 420-421, 435-436, 437, 3 hours of Film and 3 hours of Dance.
 - b. Additional T.A. hours selected with advisement. 80 hours

Total—Acting emphasis 128 hours
3. Courses in the major: Technical design emphasis
 - a. Lower Division: T.A. 120-121, 122-123, 192, 194, 292-293, 294, 295, 296, plus Film 210.
 - b. Upper Division: T.A. 403, 435-436, plus 31 hours of additional theatre courses selected with advisement. 80 hours

Total—Technical/Design emphasis 128 hours

DANCE

1. Courses outside the major:
 - a. 30 hours selected from courses offered by the departments of the College of Arts and Sciences, which must include English 102, 352, and 353; History 101, 102; 3 hours in anthropology;* and 30 hours
 - b. 12 hours selected from other departments of the College of Fine Arts (art, fine arts, and music including Music 139-140 or 371-373 by advisement) or from the School of Architecture and Planning; and 12 hours
 - c. 6 additional hours selected from courses outside the major offered by any college, including Fine Arts. 6 hours
- 48 hours

*Courses in the General Honors Program may be used to satisfy Arts and Sciences requirements except for the specific courses stated above.

2. Courses in the major:	
a. T.A. 120, 122, 192, 196; Dance 108, 149, 212, 222, 250, 362, 363, 311, 431, 6 hours ethnic dance and one three hour course in film.	51 hours
b. 25 hours in dance technique (ballet and modern) selected with advisement and taken on a schedule averaging at least seven class sessions per week beginning in the sophomore year	25 hours
	76 hours
3. Additional courses in any field.	4 hours
	128 hours

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 preprofessional curriculum. In the Department of Theatre Arts, it is possible to emphasize the following fields of study: film, television, general theatre, directing, playwriting, arts management.

THEATRE

1. Courses outside the major:	
a. 39 hours selected from courses offered by the departments of the College of Arts and Sciences which must include American Studies 285; English 102, 352, and 353; History 101, 102,* and	39 hours
b. Art History 250, plus 3 hours selected from other departments of the College of Fine Arts (art, fine arts, music) or from the School of Architecture and Planning; and	6 hours
c. 15 additional hours selected from courses outside the major offered by any college, including Fine Arts.	15 hours
	60 hours
2. Courses in the major:	
a. Lower Division: T.A. 120, 122, 123, 235, Film 210; 6 hours technical theatre selected from T.A. 192, 194, 196, 198 Upper Division: T.A. 435, 436, plus Film 328 and Dance 431	33 hours
b. 15 hours of additional theatre courses. Of these at least 6 hours numbered 300 or above	15 hours
	48 hours
3. Additional courses in any field	20 hours
Total	128 hours

DANCE

1. Courses outside the major:	
a. 39 hours selected from courses offered by departments of the College of Arts and Sciences, which must include English 102, 352, and 353; History 101, 102; 3 hours in Anthropology;* and	39 hours
b. 6 hours selected from other departments of the College of Fine Arts (art, fine arts, music) or from the School of Architecture and Planning; and	6 hours
c. 15 additional hours selected from courses outside the major offered by any college, including Fine Arts.	15 hours
	60 hours

2. Courses in the major:	
a. T.A. 122, 194, 196; Dance 108, 149, 212 or 311, 222, 250, 362, 363, 368, 431, 466 and 8 hours in dance technique (ballet, modern and ethnic) selected with advisement; and	51 hours
b. 4 hours of additional T.A. courses numbered above 300.	51 hours
3. Additional courses in any field.	17 hours
Total	128 hours

Curriculum in Teacher Education

This program leads to the degree of Bachelor of Arts in Fine Arts with certification to teach in the public schools. In addition to the specific curriculum stated below, you must (a) satisfy the requirements stated by the College of Education for admission to a teacher education program, as well as those stated for admission to student teaching and (b) meet the general (liberal) education requirements set forth by the College of Education. Only with careful planning is it possible to complete a Bachelor of Arts in Fine Arts with certification in educational theatre within a four-year period. For this reason it is essential that you consult the department chairperson as early as possible in the planning of your program.

1. Courses outside the major:	
a. At least 39 hours selected from courses offered by the departments of the College of Arts and Sciences which must include the following: English 102, 352 and 353; History 101 and 102; Psychology 102 and 220; note: 24 hours are needed to complete the requirements of a certifiable teaching minor in a field of Arts and Sciences; and	39 hours
b. 6 hours selected from other departments of the College of Fine Arts (art, fine arts, and music); and	6 hours
c. 12 hours consisting of Ed. Fdns. 290, 303 and SATE 361 and 438 taught as a block, and Ed. Fdns. 310; and 3 hours in a special methods course in the field of the teaching minor.	24 hours
d. 6 hours SATE 461 (student teaching).	69 hours
2. Courses in the major: T.A. 120-121, 122-123, 192, 194, 196, 198, 220-221, 403 or 404, 415, 418, 435-436;	47 hours
3. Additional courses in any field	12 hours
Total	128 hours

COURSES OF INSTRUCTION ART

Garó Z. Antreasian, Chairperson
Art 204, 277-5861

PROFESSORS:

Clinton Adams, M.A., University of California (Los Angeles)
Garó Z. Antreasian, B.F.A., John Herron School of Art

*Courses in the General Honors Program may be used to satisfy Arts and Sciences requirements except for the specific courses stated above.

Thomas F. Barrow, M.S., Institute of Design, Illinois Institute of Technology.
 Jacob Jerome Brody, Ph.D., University of New Mexico
 Nicolai Cikovsky, Jr., Ph.D., Harvard University
 Ralph Lewis, M.A., University of New Mexico
 Harry Nadler, M.A., University of California (Los Angeles)
 Carl E. Paak, M.A., Ohio State University
 Mary Elizabeth Smith, Ph.D., Yale University
 Samuel David Smith, Studied in Africa, Orient, Near East and the United States

ASSOCIATE PROFESSORS:

Nick Abdalla, M.A., University of New Mexico
 Jane E. Abrams, M.F.A., Indiana University
 Betty Hahn, M.F.A., Indiana University
 Wayne R. Lazork, M.F.A., University of Minnesota
 Howard D. Rodee, Ph.D., Columbia University
 O. Joseph Rothrock, M.F.A., Princeton University
 Peter Walch, Ph.D., Princeton University

ASSISTANT PROFESSORS:

Timothy App, M.F.A., Tyler School of Art, Temple University
 Flora Clancy, Ph.D., Yale University
 Alfred Hoyt Corbett, Jr., M.F.A., University of Wisconsin (Madison)
 Elen Feinberg, M.F.A., Indiana University
 Douglas R. George, M.A., University of Minnesota
 Mary Grizzard, Ph.D., University of Michigan
 Aaron Karp, M.F.A., Indiana University
 Jason Knapp, M.F.A., University of California (Berkeley)
 John H. Wenger, M.F.A. University of Arizona
 Gwen Widmer, M.F.A., Chicago Art Institute

LECTURERS:

James L. Jacob, M.A., University of New Mexico
 Christopher Mead, M.A., University of Pennsylvania
 John S. Sommers, B.A., Albion College

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 preprofessional curriculum leads to the degree of B.F.A.
2. For the student enrolled in the College of Fine Arts who wishes to pursue an art history or an art studio emphasis, a 48-hour major offered under the general (liberal arts) curriculum leads to the degree of B.A. in Fine Arts.
3. For the student enrolled in the College of Arts and Sciences, a 33-hour major may be taken with an emphasis either in studio or art history. Of these 33 hours, at least 12 must be in courses numbered above 300.

The major with an emphasis in studio is as follows:

9 hours of art history including Art Hi 150 and 250.
 24 hours in art studio including Art St 106, 121, and 122.

The major with an emphasis in art history is as follows:

24 hours in art history courses, including Art Hi 150 and 250. 9 hours in art studio fundamentals including Art St 121, 122, and 106.

MINOR STUDY

The minor in art in either art studio or art history consists of 24 semester hours with at least 6 hours at the 300 level or above, distributed as follows:

Art studio emphasis: Art St 106, 121, 122 and 15 hours of art studio and art history electives; or

Art history emphasis: Art Hi 150, 250 and 18 hours of art history and/or art studio electives.

Consult the Undergraduate Art Adviser in Fine Arts Center 1103 for a suggested course of study.

MATERIALS AND STUDENT WORK

Students enrolling in art courses furnish their own materials except for 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 more pieces of original work with the Department.

Students are reminded that charges for classroom supplies and services in certain art studio courses must be paid to the UNM Cashier during the first three weeks of each semester. Refunds will be given according to the refund schedule in the Student Expenses section of this catalog.

ART HISTORY (ART HI)

The following courses, 101, 150, 151, and 250, are strongly recommended to all students in the study of art history and related studio areas.

101. Art Appreciation. (3) Staff

A beginning course in the fundamental concepts of the visual arts; the language of form and the mediums of artistic expression. Readings and slide lectures supplemented by discussion and museum exhibition attendance. {Fall, Spring}

150. History of Art. (3) Staff

Art of the West, from prehistory to the present. {Fall, Spring}

151. Artistic Traditions of the Southwest. (3) George

(Also offered as Fine Arts, Music 151.) Interrelationships of Native American, Hispanic and Anglo cultures from prehistoric times to the present, emphasizing the major forms of expression—pottery, textiles, jewelry, architecture, painting and photography. Slide lectures supplemented by museum exhibits. {Fall}

153. Tribal Art. (3) Staff

Traditional arts of Africa, Oceania, and the Americas. {Spring}

210. Introduction to Film. (3) Jaffe

(Also offered as Film 210.) Survey and critical analysis of the development of the motion picture as an art form. Screening of major films. {Fall}

211. Film Comedy. (3) Jaffe

(Also offered as Film 211.) Forms, modes, and techniques of comedy in film. {Spring}

215. Ancient Art. (3) Clancy

Architecture, painting, and sculpture from 1800 B.C. to sixth century A.D. {Fall}

220. Medieval Art. (3) Grizzard

Architecture, painting, and sculpture from Early Christian through Gothic. {Spring}

230. Renaissance Art. (3) Grizzard

Painting, sculpture, and architecture of the Renaissance, with primary emphasis to Italy. {Fall}

240. Baroque Art. (3) Rothrock

Painting, sculpture and architecture of the 17th-century European masters, such as Bernini, Rubens, Velasquez, Poussin and Rembrandt, are examined against their background of religious and political conflict, theoretical dispute and the rise of modern science. {Spring}

250. Modern Art. (3) George

Major stylistic developments of European and American painting and sculpture from Impressionism to approximately World War II. {Fall, Spring}

260. History of Photography from 1827 to 1945. (3) Staff

History of photography with emphasis on early processes and artistic movements.

Pre- or corequisite: 150. {Fall, Spring}

261. Ancient and Medieval Architecture. (3) Mead

(Also offered as Arch 261.) Survey of the history of Western architecture from the Egyptian pyramid to the Gothic cathedral. {Fall}

262. Renaissance Through Modern Architecture. [Renaissance and Baroque Architecture.] (3) Mead
(Also offered as Arch 262.) Survey of the history of Western architecture from the Renaissance palace to the Post-Modernist house.

Prerequisite: 261 or permission of instructor. {Spring}

270. American Art. (3) Cikovsky, George
Painting and sculpture from the Colonial period to World War II. {Fall}

280. Native American Art. (3) Staff
Prehistoric and historic art forms of North America.

301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)
(See Am St 301-302.) {Offered upon demand}

303. Asian Art. [Chinese and Japanese Art.] (3) Staff
{Offered upon demand}

304. Beginning Museology. (3) Brody
(See Anth 304.)

***326. History of the Film I.** (3) Jaffe
(Also offered as Film 326.) History of the motion picture from its beginnings to the era of sound. Screening and analysis of major films. {Fall}

***328. History of the Film II.** (3) Jaffe
(Also offered as Film 328.) History of the motion picture from the advent of sound to the present day. Screening and analysis of major films. {Spring}

330. Studies in Film. (3, up to 6 hours)‡
(Also offered as Film 330.) Lecture and discussion on a specific topic or cultural tradition of international cinema. May be repeated once, as content varies. {Summer, Fall, Spring}

343. Pre-Columbian Architecture. (3) Staff
(Also offered as Arch 343.) North, South, and Mesoamerican pre-Columbian architecture, with emphasis on the cultural background of ancient civilization. {Offered upon demand}

***400. Museum Practices.** (3)‡‡ Kass
Practical and theoretical work in museum practices such as registration, conservation, exhibition, and cataloging works of art. {Offered upon demand}

***401. African and Oceanic Art.** (3) Staff
Traditional media of painting, sculpture, and architecture, as well as such nontraditional media as mud sculpture, costuming and body decoration studied in their cultural contexts. {Fall, Spring alternate years}

***402. Native American Art I.** (3) Staff
(Also offered as Anth 402.) Prehistoric and historic art forms of the Arctic Northwest coast and the eastern woodlands of North America. {Fall}

***403. Native American Art II.** (3) Staff
(Also offered as Anth 403.) Prehistoric and historic art forms of the Plains, Southwest, and western regions of North America. {Spring}

***411. Pre-Columbian Art I.** (3) M. E. Smith
The art of Mexico and Central America prior to the sixteenth century. {Fall}

***412. Pre-Columbian Art II.** (3) Clancy
Arts of the Andean region prior to the sixteenth century. {Spring}

***420. History of Graphic Arts I.** (3) Rothrock
Printmaking, printing and book illustration from Gutenberg to Goya, presenting the graphic arts as an expression of intellectual history and the precursor of photography. Provides an introduction to the curatorship of prints and books. {Fall}

***421. History of the Graphic Arts II.** (3) Rothrock
Printmaking, printing and artists' books from Goya to present. Including the graphic arts and photography, the rise of the ideas of the original print, 20th century mixed media and the relationship between words and images. {Spring}

***425. 19th-Century Photography.** (3) Newhall
Historical development and aesthetic character of photography in the nineteenth century. {Fall}

***426. 20th-Century Photography.** (3) Newhall
Historical development and aesthetic character of photography in the twentieth century. {Spring}

***427. Photography Since 1950.** (3) Barrow
Recent photographic styles, mediums and aesthetic concepts in America and Europe. {Fall, Spring}

***428. Topics in Film History.** (3)‡ Jaffe
(Also offered as Film 428.) Issues and theories of the development of cinematic art. {Fall}

429. Topics in Art History. (1-3)‡ Staff
Course work determined by specific student's request or by the professor's current research. {Offered upon demand}

***449. Art of Spain.** (3) Grizzard
Survey of Spanish art and civilization. {Fall}

***450. Spanish Colonial Art.** (3) Grizzard
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}

***452. Renaissance Art in Northern Europe.** (3) Rodee
Northern European art from the late fourteenth century through the sixteenth century. {Fall}

***460. Seminar in Museology and Museography.** (3) Brody
(Also offered as Anth 460.) Practical and theoretical work in specific museum problems.
Prerequisite: Anth 304 or Art Hi 400, or permission of instructor.

***461 [361.] Architecture in Europe from 1750 to 1914.** [Architecture in Europe Since 1750.] (3) Mead
(Also offered as Arch 361.) European architecture from Neoclassicism to Protomodernism.
Prerequisites: 261, 262 or permission of instructor. {Offered upon demand}

***462. Architectural Theory and Criticism.** (3) Mead
(Also offered as Arch 362.) Seminar on the theoretical and critical significance of a selected architect or architectural movement.
Prerequisites: 261, 262 or permission of instructor. {Offered upon demand}

***463. 20th Century Architecture.** (3) Mead
(Also offered as Arch 463.) Modern architecture in Europe and America.
Prerequisite: 261, 262 or permission of instructor. {Offered upon demand}

***464. 18th-Century Art in Europe.** (3) Staff
{Offered upon demand}

***472. American Art: 1675-1875.** (3) Cikovsky, George
Painting and sculpture from 1675-1875. {Fall}

***477. American Architecture.** (3) Mead
Architecture in America from the colonial period to 1914.
Prerequisites: 261, 262 or permission of instructor. {Offered upon demand}

***479. American Art: 1876-1940.** (3) Cikovsky, George
Painting and sculpture from the Centennial Exhibition to World War II. {Spring}

***481. 19th-Century Art. (3)** Rodee

Painting and sculpture from Romanticism through Post-impressionism. {Fall}

***482. Early 20th-Century Art. (3)** Walch

Painting and sculpture from 1900 to 1940. {Fall}

***483. Latin American Art of the 19th and 20th Centuries. (3)** Grizzard

Emphasis on the modern art of Mexico. {Offered upon demand}

490. Interdepartmental Proseminar. (3) Staff

(See F.A. 490.) {Offered upon demand}

***491. Late 20th-Century Art. (3)** Cikovsky, Walch

Painting and sculpture, 1940 to the present. {Spring}

***492. Art Criticism. (3)** Staff

Principles of criticism in the visual arts with emphasis on critical approaches to contemporary art.

Prerequisite: 6 hours upper-division art history, literature, and/or philosophy. {Offered upon demand}

496. Undergraduate Tutorial. (3)† Staff

Individual investigation or reading under faculty direction.

Prerequisite: 6 hours upper-division art history. {Fall, Spring}

499. Senior Thesis. (3-6) Honors Staff

Directed independent study in a field of special interest culminating in a written thesis. Open only by invitation to departmental honors candidates. {Fall, Spring}

***500. Seminar in Historiography and Methodology of Art History. [Historiography and Connoisseurship.] (3)** George

{Fall}

***501. Interdepartmental Seminar in the Culture of the United States. (1-3)**

(See Am St 501.) {Offered upon demand}

529. Topics in Art History. (1-3)†**551-552. Problems. (2-3 hrs. each semester)**

Maximum 6 hours. {Fall, Spring}

***559. Seminar in Native American Art. (3)†** Brody

Prerequisites: 402 and/or 403. {Offered upon demand}

***560. Seminar in Pre-Columbian Art or African Art or Oceanic Art. (3)†** Clancy, M.E. Smith

Prerequisites: 401, 411, 412 or their equivalents, depending upon content, and reading knowledge of Spanish. {Fall}

***561. Seminar in Ancient and Medieval Art. (3)†**

Prerequisites: 215 or equivalent depending upon content. {Offered upon demand}

***571. Seminar in Renaissance and Baroque Art. (3)†**

Prerequisites: 230, 240, 452, 464 or equivalent, depending upon content. {Offered upon demand}

***572. Seminar in the Art of the United States. (3)†** Cikovsky, George

Prerequisite: 472, 477 or 479, depending upon content. {Spring}

***580. Seminar in Spanish Colonial Art. (3)†** Grizzard

(Also offered as Arch 580.)

Prerequisite: 450. {Fall}

***581. Seminar in 19th-Century Art. (3)†** Newhall, Rodee

Prerequisite: 481. {Fall, Spring}

***582. Seminar in 20th-Century Art. (3)†** Adams, Cikovsky, Newhall, Walch

Prerequisite: 482 or 491. {Offered upon demand}

***592. Seminar in Art Since 1950. (3)†** Adams, Barrow, Cikovsky, Walch

Prerequisite: 491 or equivalent. {Fall, Spring}

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements. {Fall, Spring}

***699. Dissertation. (3-12 hrs. per semester)**

See the graduate Programs Bulletin for total credit requirements. {Fall, Spring}

ART STUDIO (ART ST)

NON-MAJOR COURSES

The following courses are specifically designed as introductions to studio art for those students who do not intend to major or minor in art. No previous preparation is expected. **Please note that students majoring in art may not use these courses toward their major.**

102. Painting for Non-majors. (3)† Staff

Basic principles of still life, figure, and landscape painting. {Fall, Spring}

105. Watercolor Painting for Non-majors. (3)† Staff

Principles of watercolor painting, with an emphasis on landscape. {Offered upon demand}

110. Sculpture for Non-majors. (3)† Staff

Principles of sculptural form, techniques, and materials. {Fall, Spring}

115. Ceramics for Non-majors I. [Ceramics for Non-majors.] (3)† Staff

Methods of making clay forms, use of slip glazes and clay bodies, includes stoneware and Raku firing. Technical and slide lectures. Emphasizes learning through the experience of working with clay. {Fall, Spring}

116. Ceramics for Non-majors II. (3)† Staff

A continuation and expansion of 115. Greater emphasis is placed on the mastering of ceramic processes and the development of the student's work.

Prerequisite: 115. {Fall, Spring}

120. Jewelry and Metalwork for Non-majors. (3)† Staff

Introduction to the design, materials, and techniques of jewelry and metalwork. {Fall, Spring}

142. Drawing for Non-majors. (3)† Staff

The adaptation of fundamental drawing skills, especially those applicable to student's specific drawing goals. Descriptive drawing will be given priority in exercises based on still life, landscape and the human figure. {Fall, Spring}

185. Photography for Non-majors I. (3) Staff

Introduction to cameras, materials, processes, and photographic vision. {Fall, Spring}

186. Photography for Non-majors II. (3)† Staff

Continuation of 185, with greater emphasis on the aesthetics of photography.

Prerequisite: 185. {Fall, Spring}

MAJOR COURSES

Art 106, 121, 122, 187 are the fundamental courses in studio art. Some or all of them are prerequisite to all 200-level or above studio courses and are designed for students planning to major or minor in art. See course listings for specific prerequisites:

106. Drawing Fundamentals. (3) Staff

Basic drawing concepts, including the expressive use of contour, value, perspective and composition while exploring both dry and wet media. Assigned problems may include still life, landscape, portraiture or the figure.

Suggested corequisite: Art Hi 101. {Fall, Spring}

121. Two-dimensional Design. (3) Staff

Emphasis on elements of line, form, value, color theory, painting principles and visual vocabulary. Particular attention will be placed on a disciplined approach toward design and development of perceptual skills.

Suggested corequisite: Art Hi 101. {Fall, Spring}

122. Three-dimensional Design. (3) Staff

Emphasis on materials, processes and vocabulary. Particular attention will be placed on traditional and contemporary approaches to sculpture, ceramics and jewelry through the consideration of spatial concepts and making of three-dimensional objects.

Suggested corequisite: Art Hi 101. {Fall, Spring}

187. Photography Fundamentals. (3) Staff

Introduction to photographic vision and photographic techniques.

Suggested corequisite: 121. {Fall, Spring}

205. Drawing I. (3) Staff

Further concentration on basic drawing concepts with a greater emphasis on descriptive and perceptual drawing skills using both dry and wet media. Assigned problems explore aspects of still life, landscape, portraiture and/or the figure.

Prerequisites: 106 and 121. {Fall, Spring}

207. Painting I. (3) Staff

Painting materials and techniques, integrating basic drawing concepts with color theory and composition. Emphasis on descriptive and perceptual skills through assigned problems which explore aspects of still life, landscape, portraiture and/or the figure.

Prerequisites: 106, 121; pre- or corequisite: 205. {Fall, Spring}

213. Sculpture I. (3) Staff

Introduction to sculptural tools, materials, and ideas.

Prerequisites: 122; corequisites: 106. {Fall, Spring}

257. Jewelry and Metalwork I. (3) Staff

Instruction in sawing, soldering, forming, coloring and finishing of precious and non-precious metals progressing from flat to extended relief. Relationship of color, design and movement will be emphasized.

Prerequisites: 122; corequisite: 106. {Fall, Spring}

268. Ceramics I. (3) Staff

Introduction to handbuilt and wheel-thrown techniques emphasizing clay as an art medium. Explores clay bodies, slips, glazes, stoneware, Raku and pit firing through lectures, slides and practical application.

Prerequisite: 122; corequisite: 106 or 213. {Fall, Spring}

274. Introduction to Printmaking. (3) Staff

Fundamental techniques, methods and expressive potentials of the major printmaking processes, including monotype, etching, lithography, woodcut and xerography. Instruction includes lecture, demonstrations, practice and critique.

Prerequisites: 106, 121; corequisite: 205 or 207. {Fall, Spring}

277. Graphic Design I. [Graphic Design.] (3) Kraft

(Also offered as Journ 277.) An exploration of the history, techniques and imagery of visual communication.

Prerequisites: 106, 121, and 187. {Fall}

287. Photography I. (3) Staff

Continuation of 187, with concentration on photographic techniques and the formal aspects of photographic vision.

Prerequisites: 187; pre- or corequisites: 121, Art Hi 260. {Fall, Spring}

293. Beginning Watercolor Painting. (3) S. D. Smith

Painting on site with emphasis on landscape using basic techniques of various water soluble media. Includes lecture, demonstration, practice and critique.

Prerequisites: 106, 121, and 207. {Fall, Spring}

305. Drawing II. (3) Staff

Continued exploration of drawing concepts and techniques presented in 205. Emphasis on expressive drawing, working from imagination as well as from observation.

Prerequisite: 205. {Fall, Spring}

306. Drawing III. (3) Staff

Extension of the concepts presented in 305 emphasizing experimentation with materials including color media. Individual in-depth projects are assigned to encourage independent thinking with regard to contemporary drawing issues.

Prerequisite: 305. {Fall, Spring}

307. Painting II. (3) Staff

Continued exploration of the painting concepts and techniques, presented in 207. Working from imagination as well as observation, emphasizing the expressive potential of the medium.

Prerequisite: 207; corequisite: 305. {Fall, Spring}

308. Painting III. (3) Staff

Extension of the concepts presented in 307, emphasizing experimentation with materials and techniques. Individual in-depth projects are assigned to encourage independent thinking with regard to contemporary painting issues.

Prerequisite: 307; corequisite: 306. {Fall, Spring}

309. Intermediate Watercolor Painting. (3) S. D. Smith

Extension and refinement of techniques presented in 293. Continued emphasis on the landscape including its structural and expressive potential.

Prerequisite: 293. {Offered upon demand}

313. Sculpture II. (3) Staff

Continuation of 213, with greater consideration of sculptural ideas and imagery.

Prerequisite: 213. {Fall, Spring}

314. Sculpture III. (3) Staff

Further development of personal and technical resources of sculpture.

Prerequisite: 313. {Fall, Spring}

335. Intaglio Printmaking I. [Intaglio Printmaking.] (3) Abrams

Exploration of intaglio processes. Includes lecture, demonstration, studio practice and critique. Emphasis on technical considerations and the development of a personal aesthetic.

Prerequisite: 274 or 287. {Fall, Spring}

336. Intaglio Printmaking II. (3) Abrams

A continuation of 335 with the exploration of multiple plate and color printing processes. Greater emphasis is given to technical considerations and the development of a personal aesthetic.

Prerequisite: 335. {Spring}

345. Serigraphy. (3) Kraft

Introduction to techniques, history, aesthetics and creative aspects of screen printing.

Prerequisite: 274 or 287. {Fall, Spring}

357. Jewelry and Metalwork II. (3) Lewis

Methods of construction, including lost wax, vacuum assist and centrifugal casting. The focus will be on small scale three-dimensional metal images.

Prerequisite: 257. {Fall, Spring}

358. Jewelry and Metalwork III. (3) Lewis

Advanced methods of casting and construction, emphasizing experimentation with etching, electroforming and heat and chemical surface treatments.

Prerequisite: 357. {Fall, Spring}

368. Ceramics II. (3) Corbett, Paak

Continuation and expansion of 268. Greater emphasis is placed on the mastery of ceramic processes and the development of a personal aesthetic. Lectures, slides and group critiques.

Prerequisite: 268. {Fall, Spring}

369. Ceramics III. (3)†† Corbett, Paak

Advanced and non-traditional methods of forming and firing. Individual in-depth projects are assigned to encourage independent thinking with regard to contemporary issues in clay.

Prerequisite: 368. {Fall, Spring}

374. Lithography I. (3)†† Antreasian, Sommers

Fundamental techniques of drawing on and printing from lithographic stones in black and white with an introduction to color. Includes lectures, demonstration, critiques and practical experience.

Prerequisite: 274. {Fall, Spring}

375. Lithography II. (3)†† Sommers

Continuation of 374 with emphasis on metal plate lithography, photographic reproduction processes and color printing. The student is encouraged to pursue individualized aesthetic and technical concepts.

Prerequisite: 374 or 287. {Fall, Spring}

377. Graphic Design II. (3)†† Kraft

Expanded applications of visual communication theory used in solving specific graphic problems which emphasize words and images into print.

Prerequisite: 277. Suggested corequisites: 287, 205. {Spring}

386. Photography II. (3)†† Barrow, Hahn, Lazorik, Widmer

Continuation of 287, with concentration on the development of personal vision.

Prerequisite: 287; pre- or corequisite: Art Hi 260 or 425.

{Fall, Spring}

387. Photography III. (3)†† Barrow, Hahn, Lazorik, Widmer

Concepts of photography as applied to the development of personal vision. Students are encouraged to repeat this course with a different instructor.

Prerequisites: 386, Art Hi 260 or 425; corequisite: Art Hi 426. {Fall, Spring}

***389. Topics in Studio Art. (3)† Staff**

Concentrated practical and historical study of specified concerns in studio art.

Prerequisite: 15 hours of studio art, 6 hours of art history. {Offered upon demand}

390. Elements of Filmmaking. (3)

(Also offered as Film 390.) Basic conceptual and technical aspects of independent filmmaking. (Course fee required) {Spring}

405. Advanced Drawing. (3)† Staff

Emphasis on contemporary drawing issues. Students are encouraged to initiate their own projects and to develop a personal direction. Individual and group critiques.

Prerequisite: 306. {Fall, Spring}

407. Advanced Painting. (3)† Staff

Emphasizes contemporary painting issues. Students are encouraged to initiate their own projects and to develop a personal direction. Individual and group critiques.

Prerequisite: 308. {Fall, Spring}

408. Advanced Landscape Painting. (3)†† S. D. Smith

Outdoor painting with emphasis on the landscape. The student is encouraged to develop individualized concepts in various media including oils, watercolor, egg tempera and/or synthetic materials.

Prerequisites: 305, 307, and 309. {Offered upon demand}

413. Advanced Sculpture. (3)† Staff

Intensive study of sculptural materials, methods and concepts.

Prerequisite: 314. {Fall, Spring}

423. Theory and Aesthetics. (3) Staff

Seminar in the aesthetic theories underlying 20th century art

movements, with special emphasis on issues relating to studio majors.

Prerequisites: Art St 106, 121, 122, Art Hi 150, 250; a minimum of 12 hours in one area of studio art; and an overall 3.0 G.P.A. {Fall, Spring}

***429. Undergraduate Topics in Studio Art. (1-6)† Staff**

Course work determined by specific student need or by the professor's current research. {Fall, Spring}

457. Advanced Jewelry and Metalwork. (3)† Lewis

Emphasizes contemporary metalworking issues. Students are encouraged to initiate their own projects and to develop a personal direction. Individual and group critiques.

Prerequisite: 358. {Fall, Spring}

468. Advanced Ceramics (3)† Corbett, Paak

Emphasizes contemporary ceramic issues. Students are encouraged to initiate their own projects and to develop a personal direction. Individual and group critiques.

Prerequisite: 369. {Fall, Spring}

474. Advanced Printmaking. (3)† Abrams, Antreasian, Sommers

Concentrated exploration of various concepts and methods of printmaking including multiple processes. Course content varies, but emphasizes the development of personalized direction and the establishment of high professional standards. Individual and group critiques.

Prerequisites: 336 or 374 (depending upon content). {Fall, Spring}

***475. The Lithography Workshop I. (2) Adams**

History and development of the professional lithography workshop; technical and administrative procedures in workshop operation. {Fall}

***476. The Lithography Workshop II. (2) Adams**

Continuation of 475. {Spring}

487. Advanced Photography. (3)† Staff

Advanced concepts of photography and the development of personal expression.

Prerequisites: 387 and Art Hi 425, 426. {Fall, Spring}

***493. Seminar in Studio Art. (3)†**

{Fall, Spring}

***495. Undergraduate Tutorial. (1-9)†**

Advanced, individually directed study.

Prerequisites: 423, 3.2 overall G.P.A., portfolio.

499. Senior Thesis. (3-6) Jacob

Directed independent study in a field of special interest, culminating in an exhibition and written thesis. Open only by invitation to departmental honors candidates. {Fall, Spring}

***505. Graduate Drawing (3)†**

Prerequisite: 405. {Fall, Spring}

***507. Graduate Painting. (3)†**

Prerequisite: 407. {Fall, Spring}

***513. Graduate Sculpture (3)†**

Prerequisite: 413. {Fall, Spring}

***529. Graduate Topics in Studio Art. (1-6)†**

Course work determined by specific student need or by the professor's current research. {Fall, Spring}

***557. Graduate Jewelry and Metalwork. (3)†**

Prerequisite: 457. {Fall, Spring}

***568. Graduate Ceramics. (3)†**

Prerequisite: 468. {Fall, Spring}

††May be taken twice for credit.

*Open only to undergraduates enrolled in the Preprofessional curricula of the College of Fine Arts. Students in art education curricula and majors in art enrolled in the College of Arts and Sciences may enroll with permission of the department chairperson.

***574. Graduate Printmaking. (3)†**
Prerequisite: 474. {Fall, Spring}

***587. Graduate Photography. (3)†**
Prerequisite: 487. {Fall, Spring}

***593. Seminar in Studio Art. (3)†**
{Fall, Spring}

***595. Graduate Tutorial. (1-9)†**
Advanced, individually directed study. Open to graduate students only. {Fall, Spring}

***599. Master's Thesis. (1-6)**
See the Graduate Programs Bulletin for total credit requirements. {Fall, Spring}

***699. Dissertation. (3-12 hrs. per semester)**
See the Graduate Programs Bulletin for total credit requirements. {Fall, Spring}

FINE ARTS (FA)

(See also Art, Music, Theatre Arts.)

151. Artistic Traditions of the Southwest. (3) George-
(Also offered as Art Hi, Music 151.) Interrelationships of Native American, Hispanic and Anglo cultures from prehistoric times to the present emphasizing the major forms of expression—pottery, textiles, jewelry, architecture, painting and photography. Slide lectures supplemented by museum exhibits. {Fall}

229. Topics. (1-3)†
{Offered upon demand.}

490. Interdepartmental Proseminar. (3)†
Open to juniors and seniors with a 3.0 grade-point average. {Fall}

MUSIC

Peter L. Ciurczak, Chairperson
Fine Arts Center 1105, 277-2126

PROFESSORS:

Francis H. Bowen, B.M., University of Illinois
Peter L. Ciurczak, Ph.D., North Texas State University
Joanna DeKeyser, B.M., University of Southern California
Artemus L. Edwards, Dipl., Curtis Institute
Leonard Felberg, M.M., Yale University
Donald C. McRae, M.A., University of New Mexico (Dean, College of Fine Arts.)
George Robert, student of Edward Steuermann and Anton Webern
Morton G. Schoenfeld, M.M., University of Wisconsin

ASSOCIATE PROFESSORS:

John M. Clark, M.A., Ball State University
Hector A. Garcia, B.A., Peyrellade Conservatory
Karl Hinterbichler, D.M.A., North Texas State University
William M. Seymour, Ed.D., Washington University
Harold W. Van Winkle, M.M.E., Eastern New Mexico University
Arthur S. Wilkinson, M.M., University of Arizona
Floyd T. Williams, M.M., University of Cincinnati
William F. Wood, D.M.A., Eastman School of Music

ASSISTANT PROFESSORS:

Rita M. Angel, M.M., University of Southern California

Thomas A. Dodson, D.M.A., University of Southern California
Susan B. Patrick, Ph.D., University of North Carolina
Jeffrey Piper, M.M., University of Michigan
Darrel R. Randall, B.F.A., University of California (Los Angeles)
Wesley T. Selby, M.M., University of Colorado

LECTURERS:

Samuel B. Brown, D.M.A., University of Colorado
Christopher L. Shultis, M.M., University of Illinois
Kristin P. Thelander, M.A., University of Minnesota

New appointments will be made in Director of Orchestra, Elementary Education, Applied Voice, and Opera.

MAJOR STUDY

For curricula leading to the Bachelor of Music, Bachelor of Arts in Fine Arts, and Bachelor of Music Education, consult Catalog Index, "Music, Department of, curriculum."

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 371-373; 4 hours in applied music; and 2 hours of electives in music.
2. For a minor in music education, see Catalog Index, "Music Education, curriculum."

FEES

Students are reminded that charges for classroom supplies and services in certain music courses must be paid to the UNM Cashier during the first three weeks of each semester. Refunds will be given according to the refund schedule in the Student Expenses section of this catalog, p. 39.

Applied music fee of \$32 per credit hour, in addition to regular tuition, will be charged to: 1) music students enrolling for applied music courses beyond their curriculum requirements, and 2) non-music major students taking applied music as an elective (a limit of one credit hour per semester). Applied music fees of \$48 per credit hour will be charged to all non-degree students taking nine or more hours (a limit of two credits per semester).

MUSIC (MUS)

COURSES FOR NON-MAJORS

139. Music Appreciation. (3) Edwards

A nontechnical course designed to expand the student's ability to listen actively. Repertoire includes compositions from chamber music and symphonic literature. Listening lab required. {Summer 1983, 1985, Fall}

140. Music Appreciation. (3) Edwards

A nontechnical course designed to expand the student's ability to listen actively. Repertoire includes compositions from symphonic, chamber music, and vocal literature and is entirely different from that presented in course 139. Listening lab required. {Summer 1984, 1986, Spring}

151. Artistic Traditions of the Southwest. (3)

(Also offered as Art Hist, Fine Arts 151.) Pre-Columbian, American Indian, Spanish colonial, territorial, and modern traditions in architecture, art, dance, music, and theatre. {Fall}

172. Jazz History. (3) Ciurczak

A study of the evolution of jazz in the United States from its beginnings to the present. {Summer, Fall, Spring}

291. Music in Recreation. (3)

Social foundations and practices of music in recreation. Emphasis on equipping the recreational leader with effective skills and materials to deal musically with children and adults in recreational situations. {Fall}

371. General History of Music. (3) Patrick

A survey of Western music history and musical styles in art music from about 800 A.D. to the present. Music reading ability not required. {Summer, Fall}

373. Folk Music of North America. (3) Patrick

A survey of important types of folk music in North America (Canada, Mexico, and the United States). Music reading ability not required. {Summer, Spring}

CONDUCTING**\$363. Conducting. (2)**

Basic theory and techniques of conducting.

Prerequisites: 206, 208, junior standing in the major field. {Fall}

\$364. Choral Conducting. (2) Clark

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) Clark**

Prerequisites: 363 and 453 or the equivalent. {Fall 1983, 1985}

***565. Advanced Instrumental Conducting. (2)**

Prerequisites: 363 and 453 or the equivalent. {Fall 1984, 1986}

ENSEMBLE**#143. University Chorus. (1)† Clark**

Mixed Chorus. Open to all University students. {Fall, Spring}

200. Accompaniment for Dance. (2)

(Also offered as Dance 200.) The role of the musician in dance accompaniment, especially the pianist. Study of various dance forms (ballet, ethnic, contemporary) and types of rhythmic, textural, and dynamic support suitable to each. Appropriate repertoire and improvisatory techniques included. {Fall}

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. Includes various combinations of strings, brasses, woodwinds, percussion, guitars, and the Contemporary Chamber Ensemble. {Fall, Spring}

232. Early Music Ensemble. (1)† Patrick, Williams

An ensemble, vocal and instrumental, specializing in the performance of music of the Middle Ages, Renaissance, and early Baroque. {Fall, Spring}

#233. Symphony Orchestra. (1)†

Study and public performance of symphonic literature. Auditions required. {Fall, Spring}

234. Jazz Band. (1)† Piper

Modern jazz ensemble of twenty or more that performs music representing various styles of big band jazz, rock, and pop. {Fall, Spring}

235. Collegiate Singers. (1)† Clark

Vocal ensemble that performs choreographed selections from musical theatre, jazz, and popular repertoire. Auditions required. {Fall Spring}

236. Jazz Improvisation. (1)† Wood

Courses in techniques of spontaneous performance of jazz in contemporary idioms. {Fall, Spring}

#241. University Band. (1)† Van Winkle

Study and performance of concert band literature. Marching band required of wind and percussion concentrates in music education. {Fall, Spring}

#243. Concert Choir. (1)† Clark

Auditions required. Open to all University students. {Fall, Spring}

244. Chorale. (1)

A large vocal ensemble that performs significant choral music of the Baroque, Classic, Romantic and Contemporary periods.

Prerequisite: Auditions required; open to all University students. {Fall, Spring}

\$*395. Accompanying. (1)† Angel

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.

Prerequisite: 230. {Fall, Spring}

HISTORY AND LITERATURE**101. Concert Music. (0)† Ciurczak**

Students working toward the B.M., B.A. in F.A., or B.M.E. must attend 15 recitals in each of 6 semesters in order to gain these degrees. Transfer students with at least 60 hours of credit must attend 15 recitals in each of 2 semesters. Grading will be CR/NC. {Fall, Spring}

261. History of Music I. (3) Hinterbichler

Forms, styles, schools, principal composers, and representative masterworks from antiquity through Baroque. Music majors only. {Fall}

262. History of Music II. (3) Hinterbichler

Continuation of Music 261, from Baroque to the present. Music majors only.

Prerequisite: 261. {Spring}

***413. Studies in Medieval and Renaissance Music. (3)**

Patrick

Music of Western Europe from the Christian Era to the close of the Sixteenth Century.

Prerequisites: 261, 262; music majors only or permission of instructor. {Summer 1983, 1987; Fall 1984, 1986}

***414. Studies in Baroque Music. (3) Patrick**

Music of Western Europe, 1600-1750 with emphasis on forms, styles, principal composers and performance practices.

Prerequisites: 261, 262; music major or permission of instructor. {Summer 1986; Spring 1983, 1985}

***415. Studies in Classic and Romantic Music. (3) Patrick**

Music of Western Europe from 1750-1900.

Prerequisites: 261, 262; music major or permission of instructor. {Summer 1984; Spring 1984, 1986}

***416. Studies in Twentieth Century Music. (3) Wood**

A survey of the chief musical developments in Western Europe and the Americas from 1900 with the emphasis on music composed since 1940.

Prerequisites: 261, 262; music major or permission of instructor. {Summer 1985; Spring 1985, 1987}

\$Open only to graduate students and to undergraduates enrolled in preprofessional curricula of the College of Fine Arts. Exception may be made with permission of the Chairperson of the Department. Graduate credit allowed only when asterisk appears.

#Maximum of 8 hours credit allowed toward degrees in the B.U.S., in the College of Fine Arts, or the College of Education, 4 hours in other colleges.

* Qualified sophomores may enroll with Piano faculty approval.

***437. [537.] Selected Topics in Music Literature. (3)**
{Spring 1984, 1986}

§*449. 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}

§*479. Choral Masterworks. (2)

A survey of choral masterworks from the pre-Renaissance to the present.

Prerequisites: 261, 262. {Offered upon demand}

***528. Music Styles Before 1750. (3)** Patrick
{Summer 1984, 1987; Fall 1983, 1985}

***530. Man and Music. (3)** Dodson
{Summer 1983, 1986; Fall 1984, 1986}

***531. Bibliography and Research. (3)** Patrick
{Summer, Fall}

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. Music Theory I. (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, Spring}

104. Ear-Training I. (2)

Aural apprehension of materials learned in Music 103 through singing intervals, scales, and triads. Dictation of simple rhythmic and melodic patterns. Credit not allowed toward a major in music or music education. 103 and 104 must be taken concurrently. {Summer, Fall, Spring}

105. Music Theory II. (2)

Part writing and harmonic analysis: triads, inversions, dominants seventh chords, cadences. Introduction to non-harmonic tones.

Prerequisite: adequate score on music theory placement test or completion of Music 103 with a grade of A. {Fall, Spring}

106. Music Theory III. (2)

Inversions of dominant seventh chords, modulation, non-harmonic tones, supertonic seventh, and secondary dominants.

Prerequisite: 105 with grade of C or better. {Summer, Spring}

107. Ear-Training II. (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 III. (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 IV. (2) Selby, Wilkinson

Chromatic alterations and analysis: chorale harmonization, remote modulation.

Prerequisite: 106 with grade of C or better. {Fall}

206. Music Theory V. (2) Selby, Wilkinson

Continuation of chromatic harmony and analysis. Introduction to twentieth-century techniques.

Prerequisite: 205 with grade of C or better. {Spring}

207. Ear-Training IV. (2) Selby, Wilkinson

More advanced singing and dictation, correlated with the materials of 205.

Prerequisite: 108 with grade of C or better. {Fall}

208. Ear-Training V. (2) Selby, Wilkinson

Continuation of advanced singing and dictation.

Prerequisite: 207 with grade of C or better. {Spring}

305. Composition I. (2) Wilkinson

Beginning compositional techniques introducing 20th century harmony.

Prerequisite: 206 and 208 with a grade of C or better. {Fall}

306. Composition II. (2) Wilkinson

Beginning compositional techniques introducing 20th century harmony. Continuation of 305.

Prerequisite: 305. {Spring}

§309. Form and Analysis. (2) Schoenfeld

Structural materials of the common practice period up to sonata-allegro.

Prerequisites: 206, 208 with a grade of C or better, 261, 262. {Fall}

310. Form and Analysis. (2) Schoenfeld

Sonata-allegro; rondo-sonata; fugue. Continuation of 309.

Prerequisite: 309. {Spring}

§*405. Counterpoint. (2) Wood

Analysis and writing in the style of the sixteenth century.

Prerequisites: 206, 208, with a grade of C or better. {Fall}

§*406. Counterpoint. (2) Wood

Analysis and writing in the style of the eighteenth century.

Prerequisites: 206, 208 with grade of C or better. {Spring}

§*409. Composition. (2) Wood

Techniques and procedures in the composition of music.

Prerequisites: 306 and 310. {Fall}

§410. Composition. (2) Wood

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.

Prerequisites: 206, 208 with a grade of C or better. {Fall}

***505. Advanced Composition. (2)†** Wood

May be repeated to the limit of 4 hrs. credit. {Fall, Spring}

***560. Ensemble Performance. (1)**

PEDAGOGY

§*388. Music Pedagogy. (2)

For the music student who plans to teach privately — preparation for beginners at various age levels. Specific area is announced in class schedule when course is offered.

Prerequisite: junior standing. {Fall}

§*389. Music Pedagogy. (2)

Continuation of 388, treating problems in teaching intermediate and moderately advanced students. Specific area is announced in class schedule when course is offered.

Prerequisites: 388 and junior standing. {Spring}

***527. Theory Pedagogy. (3)**

{Summer 1983, 1987; Spring 1987}

§Open only to graduate students and to undergraduates enrolled in the preprofessional curricula of the College of Fine Arts. Exception may be made with permission of chairperson of department. Graduate credit allowed only when asterisk appears.

PROBLEMS

351-352. 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}

431. Music Theatre Workshop. (1-4)

The content and form of this course will vary each time offered, normally culminating in public performance involving both departments of Music and Theatre Arts.

Prerequisite: permission of instructor.

§490. Interdepartmental Proseminar. (3) Staff

{See FA 490.} {Fall}

THESIS COURSES

§499. Senior Thesis. (3-6)

Open to seniors approved by the departmental honors committee. {Summer, Fall, Spring}

***591. Graduate Recital. (2-4 hrs. per semester)**

{Summer, Fall, Spring}

***599. Master's Thesis. (1-6 hrs. per semester)**

See the Graduate Programs Bulletin for total credit requirements. {Summer, Fall, Spring}

APPLIED MUSIC (AP MUS)

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

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.
3. Transfer students must enroll in 119 for their first semester at UNM. Upon audition for the applied instructor, usually during the first weeks of the initial semester, this level may be changed.

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. Music education students in the instrumental track must continue to enroll in this course until a grade of C or better is obtained. {Fall, Spring}

110. Group Voice II. (1)†

Music education students in the vocal track must continue to enroll in this course until a grade of C or better is obtained. Prerequisite: 109. {Fall, Spring}

111. Group Piano I. (1)†

Not open to keyboard majors. Primarily for music majors and minors, but open to all students.

Prerequisites: 103 and 104 or permission of instructor. {Summer, Fall, Spring}

112. Group Piano II. (1)†

Not open to keyboard majors. Primarily for music majors and minors, but open to all students.

Prerequisite: 111 or permission of instructor. {Summer, Fall, Spring}

113. Mexican Guitar. (1)

Group instruction. {Fall}

114. Mexican Guitar. (1)

Continuation of 113. {Spring}

119-120. Applied Music. (1 or 2 hrs each semester)

Freshman major, secondary or elective course. {Summer, Fall, Spring}

155. Orchestral Instruments. (1)†

Group instruction in orchestral instruments and guitar. Music education majors only. {Fall, Spring}

201-202. Applied Music. (2 or 4 hours each semester)

Major sophomore course. {Summer, Fall, Spring}

211. Group Piano III. (1)†

Not open to keyboard majors. Primarily for music majors and minors, but open to all students.

Prerequisites: 112 or permission of instructor. {Summer, Fall, Spring}

212. Group Piano IV. (1)† Seymour

Not open to keyboard majors. Primarily for music majors and minors, but open to all students. Music education majors must continue to enroll in this course until the piano proficiency examination is passed.

Prerequisites: 211 or permission of instructor. {Fall, Spring}

219-220. Applied Music. (1 or 2 hrs. each semester)

Sophomore secondary or elective course. {Summer, Fall, Spring}

§301-302. Applied Music. (2 or 4 hrs. each semester)

Major junior course. {Summer, Fall, Spring}

§*319-320. Applied Music. (1 or 2 hrs. each semester)

Junior secondary or elective course.

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. (2 or 4 hrs. each semester)

Major senior course. {Summer, Fall, Spring}

§*419-420. Applied Music. (1 or 2 hrs. each semester)

Senior secondary or elective course.

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. (2 or 4 hrs. each semester)**

Major graduate course. {Summer, Fall, Spring}

***519-520. Applied Music. (1 or 2 hrs. each semester)**

Graduate secondary or elective course. {Summer, Fall, Spring}

***569-570. Applied Music. (1 or 2 hrs. each semester)**

Graduate secondary or elective course. {Summer, Fall, Spring}

MUSIC EDUCATION (MUS ED)

For the degree plans Bachelor of Music Education, Instrumental Track; Bachelor of Music Education, Vocal Track; and the Minor in Music Education, see Catalog Index, "Music Education, curriculum."

§Open only to graduate students and to undergraduates enrolled in the preprofessional curricula of the College of Fine Arts. Exception may be made with permission of chairperson of department. Graduate credit allowed only when asterisk appears.

194. Introduction to Music Education. (1) Dodson

Will assist the student in discovering personal strengths and weaknesses relative to a career as a professional music educator. {Fall}

293. Cultural Awareness Through Music Skills. (3)

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. {Fall, Spring}

297. Music for Special Education. (3)

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. {Spring}

298. Music for the Elementary Teacher. (3)

(Also offered as El Ed 298.) Will prepare elementary classroom teachers to teach music education in a self-contained classroom in traditional and open situations. {Summer, Fall, Spring}

313. Teaching Choral Music in the Secondary Schools. (2)

Clark
Administration, organization, methods, and literature appropriate for junior and senior high school choral ensembles. Prerequisites: 346 and 446. {Fall}

315. Teaching Instrumental Music in the Secondary Schools. (2) Van Winkle

Administration, organization, methods, and literature appropriate for junior and senior high school band and orchestra ensembles. Prerequisites: 346 and 446. {Fall}

346. [294.] Teaching Music in the Elementary Schools. (3)

(Also offered as Spec Ed 294.) Designed for music education majors dealing with teaching music in grades K-6. Encompasses role of consultant, curriculum development, and materials of instruction.

400. Student Teaching in the Elementary School. (3-6-9, to a maximum total of 15)

See the Department of Music Handbook for prerequisites. {Fall}

421. Laboratory Experiences in Teaching Instrumental Music. (1) Dodson

Methods of instruction for heterogeneous groupings of wind and percussion instruments. For instrumental music education majors only. Prerequisite: completion of appropriate 155 courses. {Fall}

***429. Workshop. (1-4)**

Carries graduate credit when specifically approved by the Graduate Committee. For degree restrictions consult the Department of Music Graduate Student Handbook. {Summer}

***438. Selected Topics in Music Education. (3)**

This course allows permanent or visiting faculty to focus a course structured around their expertise or research activities. {Fall 1983, 1985}

***441. Teaching Marching Band. (2) Van Winkle**

Methods of teaching, organizing and administering the marching band. Charting, arranging, movement, drill, and dealing with percussion and support units (e.g., flags, twirlers are included.) {Spring 1984, 1986}

***443. Music for the Pre-school Child. (3)**

The teacher in private pre-school institutions, church schools, kindergartens; the role of the music consultant. Prerequisite: junior standing. {Offered upon demand}

***445. Junior High-Middle School Music Education. (3)**

A curriculum in music for the adolescent. Prerequisite: junior standing. {Offered upon demand}

***446. Secondary School Music. (3)**

Will familiarize student with role of music in secondary school. Materials for student and teacher, methods of teaching, classroom management, curricula, testing, scheduling, and how these areas can be brought together for a successful teaching experience.

Prerequisite: 346. {Spring}

***451. Foundations of Musical Behavior. (3) Seymour**

Acoustics, perception, learning, and affective response in musical behavior.

Prerequisites: junior standing. {Fall}

***459. Concepts of Teaching Music in the Elementary School. (3)**

Melodic and harmonic interpretation, creative writing, directed listening and movement.

Prerequisite: junior standing. {Offered upon demand}

461. Student Teaching in the Secondary Schools. (3-6-9, to a maximum total of 15) Dodson

See the Department of Music Handbook for prerequisites. {Fall}

462. Student Teaching in the Secondary Schools. (3-6-9, maximum total allowed 15)

See Department of Music Handbook for prerequisites. {Fall, Spring}

***493. Reading in the Content Area-Music. (3) Dodson, Van Dongen**

(Also offered as El Ed 490.) Discovering the ways music education can be employed as a positive influence in teaching verbal reading. The similarities which exist in note and verbal reading are covered. The necessity of a workable means of integrating the teaching of reading with other content areas (e.g., music) will be given attention. {Spring}

***532. Introduction to Research in Music Education. (3)**

Dodson
{Summer 1983, 1986; Spring 1984, 1986}

***534. Seminar in Music Education. (3) Dodson**

{Summer 1984, 1987, Fall 1984, 1986}

***550. Philosophy of Music Education. (3)**

{Summer 1985, 1988; Spring 1985, 1987}

***551-552. Problems. (1-3, 1-3 hrs. each semester)**

{Summer, Fall, Spring}

***598. Music Education Project. (1-4)**

{Summer, Fall, Spring}

THEATRE ARTS

Brain Hansen, Chairperson
Fine Arts Center 1412, 277-4332

PROFESSORS:

Brian Hansen, Ph.D., University of Minnesota
Robert Hartung, M.F.A., Yale University
Clayton Karkosh, M.F.A., Yale University
William Martin, M.F.A., Yale University

ASSOCIATE PROFESSORS:

Louis Criss, M.F.A. Columbia University
Ira Jaffe, (Film), Ph.D., University of Southern California
James Linnell, Ph.D., University of California (Berkeley)
John Malolepsy, M.F.A., University of Wisconsin
Jennifer Predock, (Dance Coordinator), B.F.A., University of New Mexico
George Schreiber, M.F.A., Yale University

ASSISTANT PROFESSORS:

Judith Chazin-Bennahum, Ph.D., University of New Mexico
 Lee Connor, M.F.A., New York University
 Roy Hoglund, M.F.A., University of Washington
 Eric Nesbitt, Extensive Professional experience
 Susan Pearson-Davis, M.F.A., Southern Methodist University
 Denise Schulz, M.F.A., University of Texas
 David Velasquez, M.F.A., Carnegie-Mellon
 Faculty position in Television to be filled 1983.

LECTURERS:

Eva Encinas, Extensive professional experience
 Joetta Jercinovic, Extensive professional experience

MAJOR STUDY

See section under College of Fine Arts.

MINOR STUDIES IN THEATRE ARTS

24 hours of theatre arts courses which must include TA 120 and 121.

MINOR STUDY IN DANCE

- | | |
|--|----------|
| a. Required: Dance 212, 222, 250, 363 | 12 hours |
| b. Electives: 6-12 hours of Dance techniques selected with advisement, and 3-6 hours selected with advisement from Dance 105, 308, 311, 314, 422, 431, 495; Theatre 194, 196, 496. Note: Students majoring in Elementary Education pursuing this minor are required to take 6 hours of Dance 466 in their junior year. | 12 hours |
| | 24 hours |

MINOR IN FILM STUDIES

- | | |
|--|----------|
| a. Required: Film 210, 211, 326, 328, 390, 428 | 18 hours |
| b. Electives: 6 hours from Film 390 and/or 428 either of which may be repeated for credit. | 6 hours |
| | 24 hours |

FEES

Students are reminded that selected theatre, dance and television, and film courses have course fees associated with special supplies and services. These course fees must be paid to the UNM Cashier before the end of the third week of the semester. Refunds will be granted according to the refund schedule in the Student Expenses section of this catalog. Classes subject to this charge bear the notation "course fee required."

THEATRE ARTS (TA)**110. Evolution of Television. (3)**

(Also offered as Journ and Sp Comm 110.) Development of television in the areas of news, performing arts, ethics, taste, technology, and as industry. Social, cultural, and political impact of television on contemporary America, western civilization, and the world. {Fall, Spring}

111. Technical Introduction to Television. (3)

A technical introduction to the operation of television equipment. Culminates in demonstration tape. Course fee required.

Prerequisite: 110. {Spring}

120. Theatre Foundations I. (3)

Beginning acting. The basic fundamentals of acting including analytical and physical skills of the actor, personal work habits, and taking responsibility for the actor's craft.

Corequisite: 122. {Fall}

121. Theatre Foundations II. (3)

Continuation of 120 with emphasis on textual material. Prerequisite: 120. Corequisite: 123. {Spring}

122. Introduction to Theatre. (3)

The nature of theatre art: exploring the aesthetic and practical dimension of the unified work of the theatre production. Open to non-majors. Course fee required. {Fall}

123. Introduction to Drama. (3)

The nature of the staged dramatic work: analysis of plays with representative readings from the history of dramatic literature.

Prerequisite: 122. {Spring}

151. Artistic Traditions of the Southwest. (3)

(See Fine Arts 151.) {Fall}

192. Stagecraft I. (3)

Basic techniques, tools and materials for construction of stage scenery. Crew assignments on departmental production required. Course fee required. {Fall, Spring}

193. Stagecraft II. (3)

Advanced techniques of stagecraft, crew assignment on departmental production required. Course fee required. {Spring}

194. Introduction to Costuming. [Costume Crafts I.] (3)

Basic techniques, tools, materials of costume construction. Crew assignment on departmental production required. Course fee required. {Fall, Spring}

195. Costume Crafts. [Costume Crafts II.] (3)

Advanced techniques of costume crafts. Crew assignment on departmental production required. Course fee required. Prerequisite: 194. {Spring}

196. Introduction to Stage Lighting. (3)

Basic techniques of stage lighting. Crew assignment on departmental production required. Course fee required. {Fall, Spring}

198. Stage Makeup. (3)

Basic materials and techniques of stage makeup. Crew assignment on departmental production required. Course fee required. {Fall, Spring}

214. Television Studio Production. (3)

The practices and procedures of a television studio and control room. Students will be rotated through each of the functions essential to broadcasting, and videotaping, a TV program. Course fee required.

Prerequisites: 110, 111. {Fall}

215. Television Field Production. (3)

Recording television programs on location. Creation of a ten-minute videotape with a special emphasis on preproduction conceptualization and post-production editing. Course fee required.

Prerequisites: 110, 111. {Spring}

220. Theatre Foundations III. (3)

Actor preparation. Developing the physical and emotional craft of the actor through intensive exercises, emphasis on methods of study and preparation for presentation of dramatic materials.

Prerequisite: 121. {Fall}

221. Theatre Foundation IV. (3)

Continuation of 220.

Prerequisite: 220. {Spring}

224. Voice Techniques for the Actor I. (3)

Instruction for acting students in a method for effective voice production for the stage.

Prerequisite: 121. {Fall}

225. Voice Techniques for the Actor II. (3)

Continuation of 224.

Prerequisite: 224. {Spring}

235. Development of the Modern Theatre. (3)

Major theories, plays, directors, and productions of the theatre of the Twentieth Century. {Spring}

267. Acting Study for Non-Majors. (3)†

Introduction to the basic craft and experience of acting. {Summer, Fall, Spring}

290. Professional Theatre Tour. (1-3)‡

Comprehensive tour of New York or London theatre. Post-trip critique required. {Offered upon demand. January, Summer}

292. Design Skills I. (3)

Introduction to basic communication skills of the theatre designer. Emphasis on drafting and drawing. Crew assignment on departmental production required.

Prerequisite: 192. {Fall}

293. Design Skills II. (3)

Principles and elements of design as they relate to design processes for the theatre. Crew assignment on departmental production required.

Prerequisite: 292 or permission of the instructor. {Spring}

294. History of Styles I. [Costume History.] (3)

Survey of design related elements in costume, architecture, furniture, and decor in major periods of theatre history. Crew assignment on departmental production required.

Prerequisite: 194. {Fall}

295. History of Styles II. [Costume History.] (3)

Continuation of 294. Crew assignment on departmental production required.

Prerequisite: 294. {Spring}

296. Lighting Methods and Equipment. (3)

Theory and practice of lighting for the stage. Crew assignment on departmental production required.

Prerequisite: 196. {Fall, Spring}

297. Theatre Sound and Special Effects. (3)

Theory and practice of theatre sound design, recording, reinforcement; including a survey of special effects techniques. Crew assignment on departmental production required.

Prerequisite: 196. {Spring}

320. Acting Studio I. (3)††

Advanced actor training. The creation of a role related to the study of the collaborative process of theatrical art through the preparation and presentation of dramatic materials.

Prerequisite: 221. Permission of department. {Fall}

321. Acting Studio II. (3)

Continuation of 320. Advanced actor training with emphasis on laboratory work in the classroom.

Prerequisite: 320. {Spring}

355. Fundamentals of Playwriting I. (3)

Introduction to writing for the stage. Submission of an original one-act play or adaptation. {Fall}

356. Fundamentals of Playwriting II. (3)

Continuation of 355. Application of the principles of dramatic writing to a full length dramatic work (play, screen play, teleplay.) {Spring}

360. Arts Management I: Arts Organizations. (3)

An introduction to the not-for-profit organizational laws and structure including boards of directors, constitutions, by-laws, personnel, budgets, fund-raising. Crew assignment on departmental productions required. {Fall}

361. Arts Management II: Marketing the Arts. [Theatre Management.] (3)

Introduction to audience development, public relations promotion, box office, subscriptions, house management. Crew assignment on departmental productions required. {Fall}

364. Arts Management Workshop (2)‡‡

Management assignment within the College of Fine Arts. Prerequisite or corequisite: 361. {Summer, Fall, Spring}

366. Stage Management. (3)

The role, functions and duties of the stage manager in production, rehearsal, and performance. {Fall, Spring}

392. Scene Design I. (3)

Basic of scene design, emphasis on play analysis with series of projects to explore various types of production. Crew assignment on departmental production required.

Prerequisite: 293. {Fall}

393. Scene Design II. (3)

Exploration of designing for various types of stages (proscenium, thrust, arena.) Crew assignment on departmental production required.

Prerequisite: 392. {Spring}

394. Costume Design I. (3)

Introduction to basics of costume design through series of projects emphasizing period and small group relationships. Crew assignment on department production required.

Prerequisite: 294. {Fall}

395. Costume Design II. (3)

Series of projects emphasizing different production styles. Crew assignment on departmental production required.

Prerequisite: 394. {Spring}

396. Lighting Design I. (3)

Basics of lighting design, emphasis on play analysis, light plots, and plugging charts. Crew assignment on departmental production required.

Prerequisite: 292 and 296. {Fall}

397. Lighting Design II. (3)

Emphasis on designing for various types of stages. Crew assignment on departmental production required.

Prerequisite: 396. {Spring}

399. Special Problems in Theatre and Production. (2)‡

Intensive study and practice of special techniques and materials in theatre and production.

Permission of instructor. {Offered upon demand}

***403. Directing I. [Fundamentals of Directing I.] (3)**

Methods and techniques for the director in planning, rehearsal, and performance.

Prerequisites: 120, 192, 194, and 196. {Summer, Fall}

***404. Directing II. [Fundamentals of Directing II.] (3)**

Prerequisite: 403 or equivalent. {Offered upon demand}

414. Music Theatre Workshop. (1-4)‡

The content and form of this course will vary each time offered, normally culminating in public performance involving both departments of music and theatre arts. {Offered upon demand}

***415. Educational Theatre. (3)**

Foundations of developmental drama in the elementary and secondary school curriculum. Examination of a variety of performance forms for children and youth. Application of theories in developing curriculum for specified age groups. {Spring and alternate years.}

***418. Creative Drama. (3) Pearson, Schulz**

Principles and techniques of drama as a developmental tool for use with children, youth, and special populations. Observation of techniques with children as schedules permit. {Alternates Fall and Spring}

***419. Children's Theatre. (3) Pearson, Schulz**

An overview of theatre for children and youth in the U.S. and Europe. Examination of age-appropriate scripts and production approaches. Possible participation in workshop production.

Prerequisite: permission of instructor. {Fall, alternate years}

***420. Acting Studio III. (3)**

Advanced study for the actor with focus on particular historical periods and styles through scene work and audition preparation.

Prerequisite: 321. Corequisite: 437. {Fall}

***421. Acting Studio IV. (3)**

A historical and practical study of the contemporary professional theatre. Continued work on audition preparation.

Prerequisite: 420. {Spring}

***428. Ensemble Improvisation. (3)†**

Emphasis on the development of original dramatic material out of the process of individual and group improvisation. {Offered upon demand}

***429. Summer Workshop. (1-6)†**

{Summer}

***435. Theatre History I. (3)**

Development of dramatic writing and production techniques from the origin of tragedy in Greece through Jacobean. {Fall}

***436. Theatre History II. (3)**

Continuation of 435 from the Restoration to the Twentieth Century. {Spring}

***437. Theatre in Its Cultural Setting. (3)**

An interdisciplinary study of the cultural setting of a play which will be produced in the department's season. A series of lectures bring to the study of the play the expertise of faculty throughout the University. {Fall}

***455. Seminar in Playwriting. (3)**

Emphasis upon analysis of student-written plays.

Prerequisite: 355 or equivalent. {Fall in alternate years}

***456. Playwriting Laboratory. (3)†**

Offered to provide playwriting students opportunities to work in response to the enactment of their developing playscripts.

Prerequisite: 455 or equivalent. {Spring in alternate years}

460. Arts Management Internship. (1-6)

Internship with a major arts organization outside the structure of the University. Minimum of 1 semester UNM resident required after internship before degree will be granted. {Offered upon demand}

***467. [367.] Scene Study, (Acting Skills Tutorial.) [Acting Skills Laboratory.] (1-3)††**

Emphasis on acting skills in the preparation of dramatic materials.

Permission of instructor. {Summer, Fall, Spring}

491. Professional Apprenticeship. (1-5)†

Qualified students accepted by a professional company (e.g., The Santa Fe Opera) may be registered for credit in technical production or in acting apprenticeship.

Prerequisite: average of 3.0 or better in theatre arts courses. {Summer, Fall, Spring}

492. Advanced Scene Design. (3)

Projects emphasizing large multi-set production (Shakespeare, musical, operas, ballets). Preparation of design portfolio. Crew assignment on department production required.

Prerequisite: 393. {Fall}

494. Advanced Costume Design. (3)

Projects emphasizing large cast productions. Preparation of design portfolio. Crew assignment on departmental productions required.

Prerequisite: 395 or permission of instructor. {Fall}

495. Studies in Theatre. (1-3)†

496. Student Production Project. (1-3)†

{Summer, Fall, Spring}

497. Independent Study. (2-3)†

{Fall, Spring}

498. Design Seminar. [Senior Practicum.] (3)

{Summer, Fall, Spring}

499. Senior Thesis. (3-6)

{Fall, Spring}

***500. Dramatic Theory and Critical Analysis. (3)**

{Fall}

***503. Dramatic Theory and Critical Analysis. (3)**

{Spring}

***506. Critical Issues in the Performing Arts. (3)**

{Fall}

***509. Graduate Internship. (3-6)†**

***510. Internship in Educational Theatre. (3-9)**

***529. Advanced Topics in Theatre. (1-3)†**

***551-552. Problems. (1-3, 1-3)**

***596. Student Production Project. (1-3)†**

{Fall, Spring}

***597. Independent Study. (2-3)†**

{Fall, Spring}

***599. Master's Thesis. (1-6 per semester)**

DANCE (DANCE)

105. Dance Appreciation. (3)†

An introductory study of dance as spectacle, technique and ritual for today's audience. {Fall}

108. Introduction to Dance I. (2)††

(Also offered as PE 108). Fundamental work for the adult beginner, presenting the principles of efficient movement applicable to all dance styles. Basic work on articulation and locomotion, a survey of dance styles in Western civilization, and development of expressivity and improvisational skills. Course fee required. {Fall, Spring}

113. Introduction to Historical Dance Forms. (2) Bennahum

An introduction to Renaissance and Baroque dances. Participants will explore the style, music, costume, and movements of these periods. This course is useful to the actor, singer, dancer, and choreographer whose repertory deals with the Renaissance and Baroque periods.

{Fall}

149. Introduction to Ballet. (2)††

Ballet vocabulary and elements of alignment, strengthening, stretching, and rhythm as prerequisite to other technique courses. Course fee required. {Summer, Fall, Spring}

200. Accompaniment for Dance. (2)††

(Also offered as Music 200.) An introduction to the role of the musician in dance accompaniment. Study of the class structures of various dance forms (ballet, ethnic, and contemporary techniques), and the types of rhythmic, textural, and dynamic support most suitable to each. Selection of appropriate repertory and development of skills in improvisation. {Offered upon demand}

***210. Modern Dance I. (3)‡**

Intensive work in contemporary 20th Century dance styles. The extension of individual range through analysis of musicality and expression as well as the functional concerns of the technique.

Prerequisite: 108 or equivalent, pre- or corequisite: 222. Course fee required. Placement class required. {Summer, Fall, Spring}

212. Improvisation. (2)‡

Exploration of personal movement material and creative impulses.

Prerequisite: permission of instructor required. Course fee required. {Fall}

222. Rhythmic Fundamentals. (2)

An introduction to problems and solutions in rhythm and meter common in teaching dance, in collaborating with composers and accompanists, and in choreographing. Includes some singing, percussion playing, reading and writing of simple scores.

Prerequisite: permission of instructor required. {Fall}

***249. Ballet I. (3)††**

Further development of ballet technique at the barre and in center work.

Prerequisite: 149 or equivalent, pre- or corequisite: 222. Course fee required. Placement class required. {Summer, Fall, Spring}

***250. Movement Analysis. (3)††**

An introduction to Laban's theoretical system for observing and describing movement events and their component parts. Guidance in the application of Laban theory to dance, therapy, and awareness of the role of movement in the other arts through an understanding of dynamics, space and body function.

Prerequisite: permission of instructor required. Course fee required. {Fall}

308. Studies in Ballet Forms. (2)‡

Various techniques of ballet training such as partnering, variations, pointe work, and men's class.

Prerequisite: permission of instructor required. Course fee required. {Fall, Spring}

***310. Modern Dance II. (4)‡**

Graham, Limon, and Cunningham based techniques of modern dance and current developments of these models are offered in different semesters.

Prerequisites: 210 or equivalent, 222. Placement class required. Course fee required. {Summer, Fall, Spring}

***311. Studies in Forms of Choreography I. (3)‡**

Developing the skills of selecting and editing dance materials for individual and group compositions. Exploration of modern dance or classical forms.

Permission of instructor required. {Spring}

314. Kinesiology for Dancers. (3)††

Structural analysis of movement. Basic understanding of the skeletal and neuromuscular systems of the human body in movement. (Equivalent PE 277.)

Permission of instructor required. {Offered upon demand}

349. Ballet II. (4)‡

Further strengthening and development of the basic technique of an intermediate ballet dancer. Emphasis placed upon musicality, coordination or movements, and placement.

Prerequisites: 222, 249 or equivalent. Course fee required. Placement class required. {Summer, Fall, Spring}

362. [262.] History of Dance I. (3)

A survey of the essential features of dance styles from tribal culture to 19th Century Romantic ballet. {Fall}

363. [263.] History of Dance II. (3)

A study of the origins of modern ballet and modern dance

from the late 19th century to the present.

No prerequisite. {Spring}

368. Ethnic Dance. (3)‡

Studies in some of the ethnic forms of dance, including flamenco, East Indian, African, tap and jazz.

Prerequisites: 108 or equivalent, 222 recommended. Placement class required for admission to level. Course fee required. {Summer, Fall, Spring}

***410. Modern Dance III. (4)‡**

Advanced technique in contemporary dance with emphasis on performing skills. Course fee required. Placement class required.

Prerequisite: 310 or equivalent. {Fall, Spring}

***411. Advanced Studies in Forms of Choreography. (3)‡ Connor**

Further exploration in generating and organizing movement material for performance. (For graduate credit, a major piece of 20-30 minutes in duration or several smaller works of equivalent total length will be required.)

Prerequisite: 311. Permission of instructor required. {Spring}

***431. Dance Criticism. (3)††**

Observation and written analysis of dance events with an emphasis on contemporary theories and performances. (Graduate students will do extra critical readings, one paper a week, and a term paper that illustrates a refined understanding of contemporary dance events.) {Spring}

***449. Ballet III. (4)††**

Developing the ballet student's proficiency to a level in which the exercises become "second nature". Emphasis placed on a creative approach to the teaching and performance of ballet technique.

Prerequisite: 349 or equivalent. Placement class required. Course fee required. {Fall, Spring}

***450. Advanced Movement Analysis. (3) Connor**

Special problems in the effort, space harmony, and fundamentals aspects of Laban Movement Theory. (For graduate credit, there will be required a substantial final project, written or choreographic, integrating the course material with the student's individual concerns in movement.)

Prerequisite: 250. Permission of instructor required. {Fall}

***466. Theory and Practice of Teaching Dance. (6)**

(Also offered as PE 366.) Methods and materials for teaching modern dance and ballet. Lecture and field work. (Extensive readings culminating in a research paper will be additionally required for graduate credit.)

Prerequisites: 212, 222, 250, 311, 314, or PE 277, 300 level or above in two of the following technique courses: ballet, modern, ethnic. Permission of instructor required. {Spring}

***495. Special Studies in Dance. (1-3)‡**

Permission of instructor required. {Summer, Fall, Spring}

FILM (FILM)

NOTE: All film courses are cross-listed with Art History by the designation "also offered as". The numbers are the same.

210. Introduction to Film. (3)

Analysis of film as a unique art, and a survey of main trends in film history. Screenings and critical study of major films. Course fee required. {Fall}

*Open to graduate students and to undergraduates enrolled in the preprofessional curricula of the College of Fine Arts. Exceptions may be made with the permission of the department chairperson.

‡May be taken three times for credit. Instructor and Committee on Studies must approve additional repetition of this course.

211. Film Comedy. (3)

A history of film comedy from its beginnings to the present. Screening and analysis of major films. Course fee required. {Spring}

***326. History of Film I. (3)**

History of the motion picture from its beginnings to the era of sound. Screening and analysis of major films. Course fee required. {Fall}

***328. History of the Film II. (3)**

History of the motion picture from the advent of sound to the present day. Screening and analysis of major films. Course fee required. {Spring}

330. Studies in Film. (3, up to 6 hours)†

(Also offered as Art Hi 330.) Lecture and discussion on a specific topic or cultural tradition of international cinema. May be repeated once, as content varies.

390. Elements of Filmmaking. (3)

Practicum in basic conceptual and technical aspects of independent filmmaking. Course fee required. Permission of instructor. {Fall}

***428. Topics in Film History. (3)†**

Seminar on main issues and theories in the development of cinematic art. Course fee required.

GENERAL COLLEGE

John Rinaldi, Dean
General College
Onate Hall 115, 277-5353

GENERAL COLLEGE is an innovative attempt by the University of New Mexico to meet the varied and changing needs of today's students. Emphasizing small classes, individual counseling and advisement, and teaching-oriented instructors, General College is the University's open admissions college offering courses and programs for students who 1) wish to pursue two-year associate degrees or 2) need to take university skills courses that will prepare them for further University work. The product of more than three years of planning, General College is designed to be responsive to student and community needs for expanded career and educational alternatives and at the same time to support the University's high academic standards.

Admission to General College

Students may be admitted to General College if they have a high school diploma or if they have a General Educational Development (GED) certificate. There are no high school subject matter requirements for admission, and students need not have achieved a specified score on a national test, such as the ACT or the Scholastic Aptitude Test (SAT), although ACT scores are required for placement purposes.

The same materials are required to apply for General College as for the University in general:

1. A completed application
2. A \$15 nonrefundable application fee
3. A high school diploma or GED certificate
4. ACT scores

Although the only requirement for entrance into General College is a high school diploma or GED certificate, each associate degree program has its own admission requirements. Contact General College for details about these.

Associate Degree Programs

The associate degrees offered by UNM are career-oriented, providing training beyond high school but requiring fewer courses than bachelor's degrees. Typically requiring two years to complete, some associate degree programs have admission requirements different from those of UNM's four-year degree programs. Because these requirements are different for each program, students seeking information about a particular associate degree should contact the college or unit administering that program or the Office of School Relations and Prospective Student Services.

UNM's Office of Career Services is available to help associate degree students find suitable application for their training. Because many persons interested in the associate degree programs in General College are older or nontraditional students, many with full-time jobs or families, many courses are scheduled for the late afternoon or evening.

General College administers associate degree programs in three areas:

Commercial Skills. The core curriculum includes courses in economics, accounting, management, business law, and business communication. The degree qualifies persons for positions in basic retailing management or entry-level bookkeeping and accounting.



Computer Programming. The required computer science course work provides a basic understanding of the programming process, as well as mastery of several of the most common programming languages. This degree prepares students for jobs as computer programmers. Additionally, work done toward this degree may be applied to a bachelor's degree in computer science. There are also options in business or scientific computer programming.

Electronic Technology. This degree provides the basic training and skills required of an electronics technician and includes such topics as digital electronics, computer programming, and microprocessors. Up to thirty-seven credit hours from the electronics technology associate degree may be accepted toward a four-year degree.

UNM also offers associate degree programs administered by colleges other than General College. These include programs in dental hygiene, human services, laser electro-optic technology, pre-engineering, radiological technology, secretarial skills and office supervision, elementary education, and educational foundations.

University Skills Program

Many students come to UNM without the basic skills or academic preparation they need to succeed at university-level work. Some are students whose scores on the American College Test (used by UNM solely for placement purposes) indicate a need for additional preparatory work. Others are students who have not fulfilled minimum high school subject matter requirements. UNM's experience with such students has shown that additional preparation is vital for future success in any college program.

General College provides a special environment for this preparation. Most University Skills courses at UNM are administered by General College; courses are offered in English, mathematics, natural science, and social science. University Skills classes are small, and faculty members are selected with emphasis on their teaching ability. University Skills courses are also offered in the afternoon or evening to benefit working students or students with family responsibilities. In the community college atmosphere of General College, students have increased access to individualized academic counseling, program planning, and tutoring. For example, the University Skills Center, located in Zimmerman Library, offers free tutoring to students taking University Skills courses, as well as workshops in how to study, take notes, and other academic skills.

Students in General College are listed as unclassified until they have satisfied the entrance requirements for a degree program. They then have several degree options: 1) they may enroll in associate degree programs in General College or elsewhere in the University; 2) they may enroll in University College, the administrative unit for lower division students pursuing bachelor's degrees, including students who have not decided on an academic major; or 3) they may enroll in one of UNM's colleges offering bachelor's degrees.

General College and UNM

Students in General College are students of the University and thus are governed by the same rules and have the same rights and responsibilities as other UNM students. With proper advisement, students in General College may attend classes in other UNM colleges, if these classes are appropriate for the student's degree programs. General College students have the same eligibility as other UNM students for student facilities and services, including the Student Health Center, student health insurance, the residence halls, UNM's libraries, student discount at athletic and entertainment events,

and access to recreational and intramural programs and equipment. (Some student privileges are available only to students taking six or more hours.)

Costs

Tuition and fees for courses taught in General College are the same as those taught elsewhere in the University. See the Student Expense section of this bulletin

Financial Aid

One of UNM's goals is to ensure that no qualified student is denied educational opportunities because of financial obstacles, and students in General College are eligible to apply for the same financial aid programs as other UNM students. These programs include scholarships, work-study jobs, grants, and loans. For more information, contact the Office of Student Financial Aid, the University of New Mexico, Albuquerque, NM 87131, Tel. (505) 277-5042.

How to Find Out More About General College

There are several ways you may get information about General College and how it might fit into your educational plans. Advisers in General College can tell you about University Skills courses and requirements for admission to the General College associate degree programs. Counselors in the UNM Office of Admissions and Records can provide information about UNM admission procedures and requirements and tell you what University Skills courses, if any, you will need to take. The Office of School Relations and Prospective Student Services can help you with your educational planning and tell you about opportunities for you here at UNM. This office holds adult re-entry sessions each month at which older, nontraditional students ask questions and discuss problems and concerns. To contact these offices, please write or call:

General College, Onate Hall 115, the University of New Mexico, Albuquerque, NM 87131
Tel. (505) 277-5353

The Office of Admissions and Records, Scholes Hall, The University of New Mexico, Albuquerque, NM 87131
Tel. (505) 277-2446

The Office of School Relations and Prospective Student Services, 1716 Las Lomas NE, the University of New Mexico, Albuquerque, NM 87131

COMMERCIAL SKILLS (COM SK)

ASSISTANT PROFESSORS:

Janice Corzine, Ph.D., University of New Mexico
Keith E. Wells, M.B.E., University of Colorado

Requirements for an Associate of Professional Studies in Commercial Skills

- A. A minimum of 63 credit hours of which at least 15 hours must be University of New Mexico credits (with a minimum GPA of 2.0).
- B. General Education Requirements:
 - A minimum of 24 hours in the following:
 1. A minimum of 6 hours credit in communication skills including English 101, and a speech communication course.
 2. A minimum of 9 hours credit in the Arts/Humanities/Social Sciences

3. A minimum of 9 hours credit in Mathematics/Behavioral Sciences, including Math 120.

C. Core Requirements: #

A minimum of 21 hours in the following:

#Com Sk 105 Economics of the Firm	3
#Com Sk 111 Accounting I	3
#Com Sk 112 Accounting II	3
#Com Sk 114 Basic Management	3
#Com Sk 116 Human Relations in Business	3
Bus Ed 265 Business Communications	3

D. Speciality in Bookkeeping/Accounting #

A minimum of 18 hours in the following:

#Com Sk 120 Bookkeeping Systems and Procedures	3
#Com Sk 221 Accounting for Product Costs and Costs of Service	3
#Com Sk 222 Payroll Accounting	3
#Com Sk 223 Budgeting	3
And one of	
#Com Sk 217 Practicum in Business	3
#Com Sk 218 Analyzing Financial Statements	3

and one other commercial skills# or general education course of student's choice

E. Speciality in Retailing #

A minimum of 18 hours in the following:

#Com Sk 160 Salesmanship	3
#Com Sk 161 Retail Merchandising	3
#Com Sk 162 Fashion Merchandising	3
#Com Sk 263 Retail Store Management	3
#Com Sk 264 Purchasing	3

and one other commercial skills# or general education course of student's choice.

- F. Any University Skills course taken will add hours to the minimum 63 required and may not be used in fulfillment of the above listed course requirements.

105. Economics of the Firm. (3)

Economics course with particular emphasis on principles and applications employed in the modern industrial organization. Current economic thought and recent problems that affect our industrial economy will be covered.

111. Accounting I. (3)

This is an entry level accounting course introducing the theory of double entry bookkeeping. Emphasis is on the accounting cycle of small service and merchandising organizations. This course, along with 112 Accounting, will prepare one for work as an accounting clerk for a large organization or a bookkeeper in a small concern.

112. Accounting II. (3)

This course is a continuation of Accounting I and covers accounting for corporations, branch accounting, job order, process cost and standard cost accounting principles. Prerequisite: 111.

114. Basic Management. (3)

Modern concepts of organizations and their management. An overview of functional activities within business and other organizations.

116. Human Relations in Business. (3)

This course is designed to acquaint the student with *human relations* in business and the psychological implications of modern business practices as they apply to individual employees and supervisors.

120. Bookkeeping Systems and Procedures. (3)

Emphasis is on the accounting records and procedures necessary in small service and merchandising organizations. This course will prepare one for work as an accounting clerk

for a large organization or as a bookkeeper in a small concern. Prerequisite: 112.

160. Salesmanship. (3)

A survey of the varied job categories in the sales field is presented. Basic skills needed to improve one's salesmanship ability plus opportunities for practical application are stressed.

161. Retail Merchandising. (3)

Methods, theory and practice of retail merchandising, including the marketing process, basic retailing activities, location, layout, buying, pricing, selling, advertising, promotion and controlling. Classroom demonstrations and field trips. Helpful in qualifying for employment in the retail field.

162. Fashion Merchandising. (3)

Comprehensive introduction to the fast growing industry of fashion merchandising of men's and women's consumer products. All phases from material selection, design manufacturing, promotion and control procedures used on the job in merchandising of fashion goods.

217. Practicum in Business. (3)

A student with the permission of the instructor and the co-operation of his or her employer may earn up to 3 hours of credit for selected on-the-job experiences. Enrollment in this course will be limited and restricted to permission of the instructor. Each student will be required to develop a proposal which indicates that the educational experience will be significant and different than his/her routine employment duties. The instructor will assign the student a set of readings comparable to materials required for other courses at this level. Each student will be required to write a final report summarizing the work experience and integrating it with the course materials. Prerequisite: 120.

218. Analyzing Financial Statements. (3)

A study of the information that can be gained both by investors and managers from financial statements. Among other topics, student will learn how to perform ratio and comparative analyses. Prerequisite: 112.

221. Accounting for Product Costs and Costs of Service. (3)

A study of theory and methods of accumulating and analyzing the cost of manufactured products. Prerequisite: 112.

222. Payroll Accounting. (3)

A study of the methods of accounting for payroll costs and deductions (including Federal and State payroll taxes). This course will teach one how to compute payroll costs and deductions and how to make payroll payments for large and small organizations. Prerequisite: 120.

223. Budgeting. (3)

A study of the manner in which organizations plan and control their activities through budgeting. Students will study the different types of budgets and will learn how to prepare master budgets for both manufacturing and non-manufacturing activities. Prerequisite: 221.

231. Introduction to Personnel Practice. (3)

A basic course in personnel management. Fair employment practices, pre-employment advertising and interviewing, labor relations, employee evaluations, work rules, promotions, terminations and employee benefits.

Note: All of the courses with crosshatch (#) are General College courses only. They do not count toward a BBA at UNM, but may be accepted (on a course by course analysis) by other degree-granting colleges of UNM as elective credit, upon petition by the student.

263. Retail Store Management. (3)

Operation of a retail business including store location and layout, store organization and operations, store accounting, expense control and finance, store credit, retail store insurance and customer services will be studied.

264. Purchasing. (3)

A study of problems involved in wholesale purchasing. Topics covered include financial and trade discounts, economic order quantities, seasonal price movements, anti-trust law relating to price discounts, transportation (shipping) considerations, and inventory control practices.

COMPUTER PROGRAMING

Patricia A. Stans, Director
Onate 125, 277-6195

ASSOCIATE PROFESSOR:

Patricia A. Stans, Ph.D., New Mexico State University

Associate of Applied Science in Computer Programming

See College of Engineering.

101. Introduction to Computer Concepts. (3)

An elementary introduction to computing concepts. Topics include descriptions of computer systems and languages, and using a computer to solve business problems. No prerequisite.

150. Introduction to Computer Selection. (2)

An introduction to determining computing needs and selecting hardware and software to meet those needs, with emphasis on business applications. Prerequisite: 101 or equivalent.

UNIVERSITY SKILLS

ENGLISH

See College of Arts and Sciences, English Department, English 100.

MATHEMATICS AND STATISTICS

See College of Arts and Sciences, Mathematics and Statistics Department, Mathematics 100.

NATURAL SCIENCE**100. Natural Science. (4)**

For Students who score 17 or below in Natural Science in the ACT, or who are admitted with a Natural Science deficiency. 1 lecture, 3 1-hour discussion/laboratory sessions. Cannot be used for credit toward the biology major or minor. (Fall, Spring)

SOCIAL SCIENCE**100. Social Science. (3)**

An introduction to the Social Science disciplines. Emphasis on intensive skills improvement in communications, reading comprehension, study techniques and logical reasoning which are required for further study in any of the Social Science disciplines. Course themes may vary by department, but all courses will be interdisciplinary and will emphasize skills. For students who score 13 or below in Social Science on the ACT or who are admitted with a Social Science deficiency.

SCHOOL OF LAW

Robert J. Desiderio, Dean
Bratton Hall 2016, 277-4700 and 2146

THE STATE BAR of New Mexico having previously adopted a resolution to that end and the Legislature of New Mexico having 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 for 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), to provide transcripts through the Law School Data Assembly Service (LSDAS), and to have a baccalaureate degree from an accredited college or university before registration. Application material is available after September 1; application deadline is January 15.

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 \$12.00 material fee.

COURSES OF INSTRUCTION

LAW

PROFESSORS:

Robert J. Desiderio, J.D., Boston College
Charles T. DuMars, J.D., University of Arizona
James W. Ellis, J.D., University of California (Berkeley)
Willis H. Ellis, J.D., Indiana University
Myron Fink, M.S. in L.S., Columbia University, LL.M., New York Law School (Law Librarian)
W. Garrett Flickinger, J.D., University of Michigan
Joseph Goldberg, LL.B., Boston College
Richard A. Gonzales, J.D., New York University
Frederick Michael Hart, LL.M., New York University
Ruth L. Kovnat, LL.B., Southern Methodist University
William T. MacPherson, Jr., J.D., University of New Mexico (Director, Clinical Law Program)
Pamela B. Minzner, LL.B., Harvard University
Hugh B. Muir, J.D., University of Michigan
J. Michael Norwood, J.D., University of New Mexico

Mario E. Occhialino, Jr., J.D., Georgetown University
 Theodore Parnall, J.D., University of New Mexico
 Fred L. Ragsdale, Jr., J.D., University of California (Berkeley)
 Leo M. Romero, LL.M., Georgetown University
 Robert L. Schwartz, J.D., Harvard University
 Lee E. Teitelbaum, LL.M., Northwestern University
 Albert E. Utton, M.A. (Juris), Oxford University (Editor, *Natural Resources Journal*)
 Peter A. Winograd, LL.M., New York University (Associate Dean)

ASSOCIATE PROFESSORS:

Michael B. Browde, J.D., Georgetown University
 Michele S. G. Hermann, LL.M., Harvard University
 Jose L. Martinez, J.D., University of California (Berkeley)
 Paul Nathanson, M.C.L., University of Chicago
 Helene Simson, J.D., University of New Mexico
 Luis G. Stelzner, J.D., University of California (Davis)

ASSISTANT PROFESSORS:

Ann C. Scales, J.D., Harvard University
 Scott A. Taylor, LL.M., New York University

RESEARCH PROFESSORS:

C. Vance Mauney, LL.B., University of Michigan (Research Attorney, Institute of Public Law)
 Gary O. O'Dowd, J.D., University of New Mexico (Director, Institute of Public Law & Services)

LECTURERS:

Philip S. Deloria, J.D., Yale University (Director, American Indian Law Center and Special Scholarship Program in Law for American Indians)
 Nancy M. Tutthill, J.D., University of New Mexico (Deputy Director, American Indian Law Center)

PROFESSOR EMERITUS:

Henry Weihofen, J.S.D., University of Chicago

LAW (LAW)

FIRST-YEAR COURSES

- #500. Historical Introduction to the Legal System. (2)
- #501. Introduction to Constitutional Law. (3, 4)
- #502. Contracts. (4)
- 503. Law. (2, 3, 4)
- #504. Criminal Law. (3 or 4)
- 506. Legal Writing. (2, 3)
- 507. Spanish for Professionals. (3)
(See Mod Lang 277.)
- #508. Property I. (2, 3, 4)
- #510. Torts. (3, 4)
- #512. Civil Procedure I. (3)
- #513. Advocacy. (4)
- 533. Family Law. (2, 3)
- 575. Programmed Studies. (2)

ELECTIVES

- 505. International Law. (2, 3)
- 515. Conflict of Laws in Content of Indian Law. (1)
- 516. Civil Procedure II. (3)
- 517. Trial Practice Workshop. (2, 3)
- 518. Administrative Law. (1, 2, 3, 4)
- 520. Business Associations I. (3)
- 521. Business Associations II. (1, 2, 3)
- 523. Commercial Transactions II. (1, 2, 3)

- 524. Community Property. (1, 3)
- 525. Conflict of Laws. (3, 4)
- 526. Constitutional Rights. (3)
- 527. Business Planning. (3, 4)
- 528. Creditors' Rights. (3)
- 529. Criminal Procedure. (1, 2, 3)
- 530. Federal Taxation of Estates, Trusts & Gifts. (2, 3)
- 531. Injunctions. (1, 2)
- 532. Evidence. (3, 4)
- 534. Federal Income Taxation. (1, 2, 3)
- 535. Advanced Problems in Federal Income Taxation. (3)
- 536. State and Local Taxation. (1)
- 537. Labor Law. (1, 2, 3)
- 538-539. Natural Resources Journal. (1, 1)
- 540. Mortgages. (1)
- 542. Legal Process. (3)
- 543. Family Law II. (2, 3)
- 544. Oil & Gas. (3)
- 545. Estate & Retirement Planning. (2)
- 546. Antitrust. (2, 3)
- 547. Water Law. (3)
- 548. Legislation. (2)
- 549. Comparative Law. (2)
- 550. Unfair Trade Practices. (2)
- 551. Taxation of Corporations and Shareholders. (3)
- 552. Federal Jurisdiction. (3)
- 553. Products Liability. (2)
- 554. Wills. [Wills and Future Interests.] (2, 3)
- 555. Jurisprudence. (2, 3)
- 557. Wills and Trusts. (1, 2, 3, 4)
- 558. Construction Law. (2, 3)
- 561. Arbitration. (3)
- 563. National Moot Court Competition. (2)
- 564. Consumer Law. (2)
- 565. Natural Resources. (1, 2, 3)
- 568-569. Natural Resources Journal. (1, 1)
- 572. Legal Profession. (2)
- 574. Mining and Public Lands. (2)
- 578. Land Transfers and Finance. (3)
- 579. Juvenile Courts and Juvenile Delinquency. (2)
- 580. Environmental Law. (1, 2, 3)
- 581. Insurance. (2)
- 594. Independent Research. (1, 2, 3)
- 600. Role of the Lawyer. (3)
- 603. Law and Economics. (2)
- 606. Civil Procedure II. (3, 4)

#Required.

- 607. Selected Problems in Civil Procedure. (2)
- 608. Property II. (3)
- 609. Land Financing. (2)
- 610. Landlord/Tenant. (1)
- 611. Introduction to Legislation. (2)
- 612. Real Estate Planning. (2)
- 613. Appellate Advocacy. (3)
- 614. Constitutional Torts. (2)
- 616. Community Land Grants. (2)
- 617. Trial Practice. (2)
- 619. Mining Law. (3)
- 620. Taxation of Partners and Partnerships. [Federal Income Taxation of Trusts and Estates.] (2)
- 621. Taxation of Natural Resources Transactions. (1, 2, 3)
- 622. Commercial Transactions I A. (1)
- 623. Commercial Transactions I B. (2)
- 624. Commercial Transactions I. (1, 2, 3)
- 625. Supreme Court Decision-Making. (3)
- 626. Constitutional Problems. (2, 3)
- 628. Regulated Industries. (2)
- 629. Bankruptcy. (1, 2, 3,)
- 630. Rights of Children. (3)
- 631. Remedies. (3)
- 632. Evidence—Trial Practice. (5, 6)
- 634. Advanced Evidence. (3)
- 635. Land Use Planning. (2)
- 636. Seminar: Lawyers and Leadership: Theory and Practice. (2)
- 638-639. New Mexico Law Review. (1, 1)
- 644. Oil and Gas II. (3)
- 645. Sex Discrimination Law. (2, 3)
- 646. Private Pension Law. (1, 2)
- 650. Eminent Domain. (1)
- 651. Private International Law. (3)
- 652. International Law: The Public Sector. (2)
- 653. Special Problems in Criminal Procedure. (3)
- 654. Problems in Commercial Drafting. (2, 3)
- 655. First Amendment Rights. (2)
- 656. Trial Evidence. (2)
- 661. Fiduciary Administration. (2, 3)
- 663. Mental Health and Mental Retardation Law. (3)
- 664. Poverty Law. (3)
- 668-669. New Mexico Law Review. (1, 1)
- 671. Advanced Tort Litigation. (2, 3)
- 681. Client Counseling Competition. (1)
- 688. Legal Problems of the Elderly. (2, 3)
- 691. Patent Law. (2)
- 698. Advanced Real Estate Transactions. (3)
- 699. Wills Drafting. (2)

SEMINARS

- 514. Law and Social Change. (2)
- 556. State and Local Government. (2)
- 560. Women and the Law. (2)
- 567. Immigration Law. (2)
- 571. Law and Psychiatry. (2, 3)
- 576. Current Legal Problems. (2)
- 583. International Legal Problems. (2)
- 584. Indian Law. (2, 3)
- 592. Legal Education. (1)
- 595. Tax Policy. (2)
- 601. Art Law. (2)
- 604. Federal/State Issues and Natural Resources Allocation. (2)
- 615. Corrections. (2)
- 618. Current Issues in Property Law. (2)
- 627. Trusts and Future Interests. (1, 2, 3)
- 633. EEOC. (2)
- 637. Labor Law. (2)
- 640. Applications of Psychology. (3)
- 647. Employment Discrimination. (2)
- 648. Tribal Governments. (2)
- 660. Juvenile—Law and Practice. (2)
- 662. Mental Disability and Criminal Cases. (1, 2, 3)
- 666. Advanced Problems in Federal Litigation. (2)
- 667. Immigration Law. (2, 3)
- 670. Development of Legal Institutions. (2)
- 676. Teaching Law to High School Students. (2)
- 677. Equal Employment Litigation. (2)
- 680. Natural Resources Policy. (2)
- 684. Problems in Indian Law. (2)
- 685. Indian Child Welfare Issues. (2)
- 686. Idea of the Legal System. (2)
- 690. Law and Medicine. (2, 3)
- 692. Introduction to the American Jury System. (2)
- 693. Journalism and the Law. (2)
- 694. Public Utilities. (2)
- 695. Recent Legal Developments Affecting Minorities. (2)
- 697. Comparative Criminal Law. (2)

CLINICAL PROGRAM

- 700. Criminal Practice Clinic. (3)
- 701. Spanish for Lawyers. (1, 2)
- 702. Clinical Phase I. (1)
- 703. Lawyering Theory. (2)
- 704. Criminal Justice Seminar (Arraignment Intake). (3)
- 705. Litigation Ethics. (1, 2)
- 706. Advanced Litigation Program. (5, 6)
- 707. Tax Practice Clinic. (2, 3)

- 708. Applied Litigation Exercise. (1, 2, 3)
- 709. Practical Problems II. (1-4)
- 710. Pre-Trial Practice. (2, 3)
- 711. Accounting for Lawyers. (1)
- 712. Elderly Legislation. (1, 2, 3)
- 713. Trial Practice. (2, 3)
- 714. Law Office Management. (3)
- 715. Interviewing and Counseling. (1, 2, 3)
- 716. Appellate Practice. (1, 2)
- 718. Negotiation. (1)
- 719. Prisoner Services. (3)
- 720. Law Office Intern. (3-8)
- 721. Law Extern Program. (3)
- 722. Legal Aid. (3)
- 723. District Attorney Program. (3)
- 725. Field Experience. (3)
- 726. U. S. Public Defender. (3)
- 727. J. A. G. (3)
- 728. Women's Legal Services. (3)
- 729. U. S. Attorney. (3)
- 730. City Attorney. (3)
- 731. Centro Legal. (3-8)
- 732. USDA Solicitor. (3)
- 733. NMCLU. (3)
- 735. Basic Skills. (1)
- 736. Legal Rights of the Mentally Handicapped. (3)
- 737. EEOC. (3)
- 738. Juvenile Rights. (3)
- 739. State Public Defender. (3)
- 740. Law Practice Clinic. [Clinical Half-Semester.] (3-6)
- 741. Legislative Clinic. (3)
- 744. Judicial Extern. (3)
- 745. Legal Practice with Elderly Clients. (2, 3)
- 747. EEOC Intern. (3)
- 748. Felony Prosecution. (3)
- 750. Ethics. [Professional Responsibility.] (2, 3)
- 751. Advanced Spanish for Lawyers. (2)
- 760. Lawyers in Interpersonal Relations. (2)

SCHOOL OF MEDICINE

Leonard Napolitano, Dean
School of Medicine
Basic Med Sci Bldg 177, 277-2321

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 purchased for \$1.50 from the University of New Mexico Bookstore, Albuquerque, New Mexico 87131.

The MD Degree

The following courses are minimum requirements for 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, 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. Students who major in the humanities or social sciences are given equal consideration with those who major in the sciences.

All applicants are required to take the New Medical College Admission Test. The test 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; 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 November 1 of the year preceding anticipated enrollment. Applications will not be accepted after December 1.

Associate of Arts in Human Services

An Associate of Arts in Human Services is offered by the Department of Psychiatry through the School of Medicine. This two-year program prepares paraprofessionals to func-

tion in community agencies in a variety of new careers such as community mental health workers, client interviewers, substance abuse workers, and client service agents.

The curriculum includes a variety of academic subjects which will enhance the student's 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, mental health, and social service teams.

The degree is available to persons enrolled in the UNM School of Medicine's Human Services Worker Program.

For information concerning eligibility in this program, contact the University of New Mexico School of Medicine's Human Services Worker Program, 620 Camino de Salud NE, Albuquerque, NM 87131, or call 277-5428.

Admissions

Applicants must meet regular UNM entrance requirements. They must complete the Human Services Worker application forms as well as the standard form required by the Admissions Office.

Those applicants who are selected must:

1. Be over 18 years of age
2. Be interviewed by a staff member of the HSW Program

Curriculum

FIRST YEAR

First Semester

HSW 101 Intro to Hum Serv	3
Eng 101 Wrtg/Rdgs in Expos	3
HSW 102 Prin of Interviewing	3
Psy 102 General Psychology II	3
Soc 101 Intro to Soc	3
	<hr/>
	15

Second Semester

HSW 105 Group Dynamics	4
HSW 109 Tech of Assessment & Interv	3
#Eng 102 Analytic Wrtg	3
Anthro 105 Natural History of Man or	
Anthro 130 Cultures of the World	3
HSW 150 Clin Exper in HS	4
	<hr/>
	17

SECOND YEAR

First Semester

HSW 201 Family Process	3
Psych 220 Dev. Psych or	
Ed Fdn 303 Hum Growth & Dev.	3
Biol 136 Hum Anat & Physiology	3
HSW 250 Adv Clinical Exper in HS	4
Elective	3
	<hr/>
	16

Second Semester

HSW 202 Comm Mental Health	3
Humanities or Fine Arts requirement	3
Elective	6
HSW 251 Adv Clinical Exper in HS	4
	<hr/>
	16

Degree Requirements

1. Enrollment in UNM School of Medicine Human Services Worker Program
2. A UNM scholarship index of 2.0
3. A minimum of 64 hours of earned credit including:
 - a. HSW 101, 102, 105, 109, 150, 201, 202, 250 and 251—31 hours
 - b. Biol 136—3 hours
 - c. Psych 220/Ed Fdn 303—3 hours
 - d. Eng 101 and 102# (communication)—6 hours
 - e. Psy 102 (behavioral science)—3 hours
 - f. Soc 101 (social science)—3 hours
 - g. Anthro 105 or 130 (behavioral science)—3 hours
 - h. One course from Hist 110, 161, 162, 360, Phil 110 (humanities), Arch 101, 181, 281, Art Hist 101, 130, TA 122, Music 139, 140, Film 210, Dance 115 (fine arts)—3 hours

Electives: a minimum of 9 credit hours may be chosen from HSW courses (HSW 149, 204, 210 & 211) or from the general catalog, not to include more than 3 hours of PE and/or applied fine arts.

Medical Laboratory Sciences

Medical Technology Profession

Medical technology is the rapidly expanding health profession of clinical laboratory medicine. With tremendous advances in medical research in recent years, modern health care has become increasingly dependent on a growing variety of complex laboratory tests and technologies to diagnose and treat disease. The medical technologist is a professional clinical laboratory scientist who, as a member of the health care team, is responsible for providing this essential service.

Medical technology encompasses the fields of clinical chemistry, hematology, microbiology, immunology, urinalysis, and blood banking. A technologist requires a broad educational background and clinical laboratory training to work in these areas. A medical technologist may manage or supervise a clinical laboratory and may perform hundreds of different laboratory tests on blood, other body fluids, and tissues, often requiring the use of sophisticated equipment and techniques. The medical technologist is responsible for the quality and accuracy of these laboratory results, which provide critical information to the physician in treating patients. The medical technologist may find challenging opportunities in hospital and independent laboratories, physicians' offices, clinics, research, industry, and educational institutions.

Medical Technology Program

The Medical Technology Program at UNM is offered by the Medical Laboratory Sciences division of the Department of Pathology in the School of Medicine. The 18-month MT training program may be taken as part of a Bachelor of University Studies curriculum at UNM or as part of a four-year curriculum for the Bachelor of Science degree in Medical Technology from UNM's School of Medicine or another four-year academic institution program. In the degree programs, the student follows a prescribed curriculum which requires 2½ years of pre-professional academic study and 1½ years in the MT training program. The training program can also serve as a certificate program following a baccalaureate degree. The Medical Technology Program is accredited by AMA's

#If Engl 102 is waived due to passing the CST, 3 additional hours of electives are required to keep the total of the AA degree at 64 credit hours.

Committee on Allied Health Education and Accreditation (CAHEA).

This program meets the requirements for Medical Technology training leading to a B.S. in Medical Technology at the following New Mexico colleges or universities: College of Santa Fe, Eastern New Mexico University, New Mexico Highlands University, New Mexico Institute of Mining & Technology, New Mexico State University, and the University of Albuquerque. Students may also be accepted from other universities which agree to give credit for the training program toward a B.S. in Medical Technology. The parent institution awards the degree upon completion of training.

The medical technology training program begins each January with students taking Med Lab Sciences (MLS) courses on the Medical Campus. These courses continue through the summer session and into the fall with the conclusion of campus courses in October. Students are then assigned to an affiliate hospital for practicum training courses which continue through May. Hospital laboratories currently used as clinical affiliates for training students are: Clovis High Plains Hospital, Clovis; St. Vincent Hospital, Santa Fe; St. Mary's Hospital and Eastern New Mexico Medical Center, Roswell; Guadalupe Medical Center, Carlsbad; and the following Albuquerque hospitals: Lovelace Medical Center, Presbyterian Hospital Center, St. Joseph Hospital, University of New Mexico Hospital/BCMC, and Veterans Administration Medical Center. In the final course, students are placed in a different hospital setting in various New Mexico communities for 3-4 weeks. There, students can experience different aspects of their chosen profession prior to employment. Students register through UNM for all MLS courses.

Students who successfully complete the program are eligible to sit for national certification examinations given by the Board of Registry (ASCP) and/or by the National Certification Agency (NCA).

Requirements for Admission to the Medical Technology Training Program

Minimum education requirements are 76 semester hours of acceptable college credits from a college or university approved by a recognized accrediting agency. These credit hours must be acceptable towards a baccalaureate degree and upon completion of the Medical Technology training program culminate in the awarding of a baccalaureate degree.

Students coming from other universities or colleges who will earn their baccalaureate degree from their parent institutions, students at UNM who elect to earn the BUS degree, or students who already have a baccalaureate degree must have the following prerequisites for admission to the Medical Technology training program at UNM.

Total of 76 semester hours of credit including:

1. Chemistry—a minimum of 16 hours.* This must include one course in quantitative analysis, and one course in organic or biochemistry.
2. Biological Sciences—a minimum of 16 semester hours.* This must include courses in microbiology and immunology.
3. Mathematics—a minimum of one course in college level mathematics*, preferably algebra.

Other recommended courses are: Anatomy and Physiology, Parasitology, Pathogenic Bacteriology, Biochemistry, Physics, Psychology, Sociology, Computer Science, Management, and Education.

*Remedial and survey courses are not acceptable.

A minimum grade-point average of 2.0 in all subjects including a grade of C or better in each biology, chemistry, and math course is required. Applicants who met the mini-

mum requirements 7 or more years before making application to the program must update their academic preparation in a manner acceptable to the Selection Committee.

Students wishing to earn their B.S. in Medical Technology from the School of Medicine at UNM must follow the prescribed curriculum outlined below and should make their intentions known to a medical technology adviser as early in their student career as possible.

Students earning a BSMT degree from an academic institution other than UNM, must meet the degree requirements established by that university in addition to the minimum educational requirements specified above.

Prescribed Curriculum

FIRST YEAR (pre-med tech)

First Semester

Chem 121L Gen or 131L	4
Biol 121L Prin	4
Math 121 College Algebra or Math 150 Algebra & Trig	3-4
Engl 101 Wrtg/Rdgs in Expos	3
Electives	1-3
	<hr/>
	15-18

Second Semester

Chem 122L Gen or 132L	4
Biol 122L Prin	4
Engl 102 Analytic Wrtg	3
†Math Elective	3-4
Elective	1-3
	<hr/>
	15-18

SECOND YEAR

(pre-med tech)

First Semester

Chem 301-303L Organic	4
Physics 151 General	3
Physics 153L or 157	1
Biol 221 Genetics	3
Electives	4-7
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	15-18

Second Semester

Chem 302-304L Organic	4
Physics 152-154L General	4
Biol 350L Micro	4
Electives	3-6
	<hr/>
	15-18

THIRD YEAR

First Semester (pre-Med tech)

‡Chem 253L Quant Analysis	4
Biol 429 Cell Biology	4
Biol 456 Immunology	3
Elective	3
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	14

†Prefer Math 102 or a Math course higher than Math 150.

‡Not required if Chem 131L and 132L are taken.

Second Semester (Medical Technology Training)	
Med Lab Sci courses†	17-18
SUMMER SESSION (Medical Technology Training)	
Med Lab Sci courses†	7-8
FOURTH YEAR (Medical Technology Training)	
First Semester	
Med Lab Sci courses†	12-13
Med Lab Sci Practicum courses††	5
	17-18
Second Semester	
Med Lab Sci 499 Pre-Employment Prac	2
Med Lab Sci Practicum courses††	15
	17
MED LAB SCI courses† (on campus courses, Jan. to Oct.)	
MLS 400 Orientation	1
MLS 401 Clin Chemistry	8
MLS 402 Clin Hematology	8
MLS 403 Clin Bacteriology	7
MLS 404 Clin Immunohematology	5
MLS 405 Clin Urinalysis	2
MLS 406 Clin Serology	3
MLS 407 Clin Parasitology	2
MLS 408 Clin Mycology	2
	38
MED LAB SCI Practicum courses†† (at a clinical affiliate hospital, Oct. to May)	
MLS 451 Prac Clin Chemistry	5
MLS 452 Prac Clin Hematology	5
MLS 453 Prac Clin Microbiology	5
MLS 454 Prac Clin Immunohematology	3
MLS 455 Prac Clin Urinalysis	1
MLS 456 Prac Clin Immunology	1
	20

Note: Only 4 hours of PE are acceptable toward a degree. Description of courses offered may be found in the Courses of Instruction following School of Medicine section.

Application and Admission

Categories under which applicants may be admitted to the Medical Technology Program are:

1. Students who have completed 76 semester hours in the prescribed medical technology curriculum at UNM.
2. Students from other New Mexico colleges or universities who meet the minimum educational requirements previously stated and will be eligible for a degree from their parent institution upon completion of the Medical Technology Program.
3. Individuals who possess a baccalaureate or higher degree from an accredited college or university and meet the minimum course work requirements. Those whose academic work was seven or more years prior to making application must update their academic preparation in a manner acceptable to the selection committee.

4. Students enrolled in a curriculum leading to the Bachelor of University Studies degree at UNM and meeting the minimum educational requirements previously stated.

An application must be submitted to the Director of Medical Laboratory Sciences prior to the **September 15** deadline of the year prior to admission. Application may be made while enrolled in courses needed to complete the prerequisites. Official transcripts of all college course work must be sent directly from each institution. Admission is selective and limited to 24 students per year. Selection is based on cumulative GPA, science GPA, letters of reference, and a personal interview. A cumulative GPA of 2.5 is recommended. Selection of applicants will be made by the Medical Laboratory Sciences Selection Committee. All applicants will be notified of their admission status. Selection will be given to qualified persons regardless of their race, color, religion, sex, national origin, age, handicap, or military involvement.

Tuition and Expenses

Tuition and fees for the pre-Med Tech courses and the courses in the M. T. training program are the same as those established for undergraduate students at UNM and listed in the current Schedule of Classes. Refund policies also follow those for the University.

In addition to tuition and fees, the cost of laboratory coats, microscope rental, laboratory manuals, books, and living expenses during the training program must be assumed by the student.

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 Medical Technology Program. Information regarding these scholarships may be obtained from the Director of Medical Laboratory Sciences.

Degree Requirements

A Bachelor of Science in Medical Technology will be awarded by the School of Medicine at UNM to students who:

1. Complete 128 semester hours, including all courses in the prescribed Medical Technology curriculum.
2. Have a cumulative GPA of 2.0 with a grade of C or better in each required science and Med Lab Sci courses.
3. Are recommended for the degree by the faculty.

Information Requests

Communications regarding information and applications should be addressed to the Director, Medical Laboratory Sciences, School of Medicine Bldg. #4, the University of New Mexico, Albuquerque, NM 87131.

NOTE: Changes in the Medical Technology Program could occur. Therefore, you need to follow the prescribed curriculum carefully and stay in touch with the medical technology advisers.

Physical Therapy

The Profession

Physical Therapy is an allied health profession concerned with optimum functional restoration of patients disabled by illness or injury.

As a physical therapist you will:

- a. be a member of a challenging health profession, one in which your knowledge, skills, and interest in people

will enable you to make a significant contribution to the well being of others.

- b. function as an integral member of the health team, working closely with the physician, nurse, occupational therapist, counselor, and all others associated with comprehensive health care.
- c. utilize your knowledge and judgment in the application of therapeutic properties of exercise, heat, cold, light, sound, electricity, and massage.
- d. work with patients whose disabilities result from fractures, nerve injuries, birth defects, brain damage, cardiac problems, and other diseases or injuries of the musculoskeletal, circulatory, respiratory, and neuromuscular systems.
- e. evaluate each patient as he is referred to you by the physician and plan a treatment program designed to help the patient achieve his maximum potential.

In choosing physical therapy as a career, you will be limited only by your competency and initiative. You will be able to extend your services beyond the clinical setting into other exciting and challenging areas. These include teaching, planning and coordinating health services, administration, consultation, and research.

Educational Requirements

As a high school student, you should:

- a. pursue a college preparatory program with emphasis on the physical, biological, and social sciences.
- b. contact the physical therapy program of your choice so that you receive the necessary information regarding course requirements and admissions criteria for entrance into that program.

As a college student seeking admission into the University of New Mexico's physical therapy program:

- a. you must complete the equivalent of 74 semester credits in the pre-professional studies (basic sciences and liberal arts) with a grade of C or better in each course. Specific group requirements are described under PRE-PROFESSIONAL CURRICULUM.
- b. early in your college career, you should contact the UNM Division of Physical Therapy for advisement regarding specific course requirements and other requirements for admission.

A good academic record is essential, but it does not guarantee acceptance. Applicants must demonstrate familiarity with the practice of physical therapy and the personal qualifications necessary for the professional responsibilities of the therapist.

Our Program

The curriculum in Physical Therapy at the University of New Mexico is a five-academic-year course of study leading to a Bachelor of Science degree in Physical Therapy, granted by the School of Medicine. The program is accredited by the American Physical Therapy Association (APTA) and the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association.

Admissions Procedure

APPLICATION DEADLINE IS JANUARY 15 OF EACH YEAR. Students are admitted once a year, with classes beginning in the summer. Your application form and accompanying materials must be received by January 15 of the year you wish to enter.

Application is made directly to the Division of Physical Therapy. *Preference is given to applicants who are New Mexico*

residents or students certified by the Western Interstate Commission for Higher Education (WICHE) Exchange Program. Only residents of Idaho, Wyoming, Oregon, Nevada, Alaska, and Hawaii are eligible for admission to our program under WICHE.

A personal interview by the Physical Therapy Admissions Committee is required. The program's student selection process does not discriminate against any student on the basis of sex, age, race, religion, creed, or national origin.

If you do wish to apply, please request an application from our department.

Professional Curriculum

The professional program is six semesters in length and begins with the summer session each year in June. During the junior and senior years, students take professional courses in the theory and practice of physical therapy and affiliate at local hospitals for clinical experiences that are correlated with classroom activities.

Following satisfactory completion of the didactic portion of the curriculum, students must successfully prepare and present a written and oral report of a senior project and complete a 15-week period of full-time clinical education before the degree may be conferred. Hospital and health care facilities throughout New Mexico and a limited number outside the state are utilized in the final clinical education program. The costs associated with the clinical affiliations for transportation, room, and board are borne by the student.

You will be required to carry health and liability insurance. Both types are available through the University for a reasonable fee, or you may select your own carriers.

For further information concerning this program, contact us at this address or phone number:

Chairman, Admissions Committee
Division of Physical Therapy
UNM School of Medicine
Albuquerque, NM 87131
(505) 277-5755

Pre-Professional Curriculum

The pre-professional curriculum consists of courses in the basic sciences and liberal arts which will provide the student with a well-rounded general education background: 74 semester hours (or equivalent if not on semester system), as described below.

Sciences	Sem. Hours	Recommended UNM Course Numbers
Gen Biol	8 with lab	Biol 121L, 122L
Gen Chem	12 with lab	Chem 121L, and 122L
Gen Physics	8 with lab	Phys 151, 153L; 152, 154L
Math	6	Math 102 and any course above intermediate algebra⊗
Microbiol	4	Biol 239L
Organic/Biochem	4	Chem 212
Nutrition	3	HEC 125
Psychology	9	General, developmental, abnormal, or psychology of personality, or others as approved by adviser.

⊗Clep credit will be accepted for 3 hours math, but not for statistics.

Credit/No Credit option, CLEP, or ACT credits are **NOT** acceptable for above courses.

Liberal Arts

In 4 of the 5 areas listed below, you must present 6 semester hours (CLEP or ACT credits are acceptable). No single course may be applied to more than one group.

1. Communications: English writing, speech communication, linguistics, or journalism.
2. Humanities: Literature, including foreign and comparative; history or philosophy.
3. Social Sciences: Economics, geography, political science, sociology, or anthropology.
4. Foreign Language: As many hours as needed to complete the second year of a foreign language. May be established through testing. Six hours of a computer language will also be accepted to fulfill this area.
5. Fine Arts: Acceptable courses are generally those related to the history or appreciation of art, music, theatre, and dance:
 Art: Any course listed under 'Art History' in General Catalog
 Music: Any course listed under 'History and Literature' or 'non-majors'
 TA 122, 123, 151
 Dance 105, 262, 263
 or other courses as approved by adviser. Unacceptable for this group are all other courses in studio, design, dance, applied music, music theory, or ear training.

Professional Curriculum

SUMMER SESSION(10 weeks) JUNIOR YEAR

	CREDITS
Phy Th 321 Human Anatomy	6
Phy Th 310 Intro to Physical Therapy	2
	<hr/> 8

FALL SEMESTER

Phy Th 301 Therapeutic Exer I	3
Phy Th 330 Prof Development	2
Phy Th 341 Survey of Med Sci I	2
Phy Th 361 Human Physiology	4
Phy Th 370 Kinesiology/Funct Anat	3
Phy Th 371 Clin Educ I & Sem	1
Elective	0-3
	<hr/> 15-18⊗

SPRING SEMESTER

Phy Th 302 Therapeutic Exercise II	3
Phy Th 306 Therapeutic Procedures	3
Phy Th 322 Neuroanatomy	3
Phy Th 342 Surv of Med Sci II	2
Phy Th 352 Eval Proced I	3
Phy Th 372 Clin Educ II	1
Elective	0-3
	<hr/> 15-18⊗

FALL SEMESTER SENIOR YEAR

Phy Th 401 Therapeutic Exercise III	4
Phy Th 431 Hlth Care Sys & Delivery	1
Phy Th 441 Surv of Med Sci III & Sem	3
Phy Th 451 Eval Proc II	2

Phy Th 471 Clin Educ III	3
Phy Th 499 Independent Study	1-3

14-16⊗

SPRING SEMESTER

Phy Th 402 Therapeutic Exer IV	3
Phy Th 422 Psych of Disability	2
Phy Th 442 Surv of Med Sci IV	2
Phy Th 472 Clin Educ IV	3
Phy Th 480 Admin & Superv	2
Phy Th 499 Independent Study (Senior Paper)	1-3

13-15⊗

SUMMER SESSION (15 weeks)

Phy Th 475 Clin Educ V	9
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Radiologic Sciences Programs

The following radiologic science programs are offered through the UNM School of Medicine under the direction of the Department of Radiology:

1. A two-year program in radiologic technology, leading to an Associate of Science in Radiologic Technology.
2. A one-year program in nuclear medicine technology.
3. A one-year program in diagnostic medical sonography.

Associate of Science in Radiologic Technology

This approved program prepares the Allied Health professional to perform complex radiographic procedures which assists the radiologist in disease investigation and diagnosis. A radiographer performs effectively by:

1. Applying knowledge of the principles of radiation protection for the patient, self, and others.
2. Applying knowledge of anatomy, positioning, and radiographic techniques to accurately demonstrate anatomical structures on a radiograph.
3. Determining exposure factors to achieve optimum radiographic techniques with a minimum of radiation exposure to the patient.
4. Examining radiographs for the purpose of evaluating technique, positioning, and other pertinent technical qualities.
5. Exercising discretion and judgement in the performance of medical imaging procedures.
6. Providing patient care essential to radiologic procedures.
7. Recognizing emergency patient conditions and initiating life-saving first aid.

Five to ten students are admitted each year. The course of study begins the first week in June and ends the last week in May, after twenty-four consecutive months of clinical and didactic experience.

After successful completion of the program, students are eligible to take the national certifying examination given by the American Registry of Radiologic Technologists.

⊗ Student may take an elective approved by adviser to raise total semester credit hours to 18, without an increase in tuition.

Entrance Requirements

1. Meet the University of New Mexico requirements.
2. A minimum of 15 hours of accredited college course work in the following areas: 6 hours in English/Speech, 6 hours in Art/Humanities/Social Sciences, 6-10 hours in Math/Natural/Behavioral Sciences, (must take Math 121 or higher and Anatomy & Physio with Lab).
3. A minimum grade-point average of 2.5 on all course work attempted.
4. Personal interview with the program selection committee.
5. Application, transcripts, and ACT scores must be received by the Radiologic Sciences office before January 31, prior to June entrance.

Transfer from Other Accredited Programs

If you seek transfer into the Radiologic Technology Program from another accredited program, you must meet this program's general admission requirements (see above) and the University of New Mexico's admission requirements. The Radiologic Technology Program is approved for a total of 20 students. Transfer students will only be considered if there is a vacancy in the program. In addition, you must present a minimum of 15 semester hours of transferable college credit in the following subject areas: radiographic exposure/technique, professional orientation/ethics, medical terminology, radiation protection, human structure and function, radiographic procedures, radiographic film evaluation, clinical radiologic technology.

The program faculty reserves the right to evaluate prospective transfer students through objective testing in any subject area.

Fees

Tuition for the radiologic technology program is listed in the bulletin under "Student Expenses". In addition to tuition, required books and uniforms will cost approximately \$400.

Informational Requests

Communications regarding information and applications should be addressed to the Director of Radiologic Technology, The University of New Mexico Allied Health Sciences Center, Albuquerque, New Mexico, 87131.

RADIOLOGIC TECHNOLOGY CURRICULUM*

FIRST YEAR

Summer Session

RS 105 Intro to Rad Sci	3
RS 107 Prin of Rad Exp	3
RS 205 Rad Protection	2

Fall Semester

RS 161 Rad Proc I	5
RS 108 Clin Rad Tech I	4
RS 200 Rad Exp Tech	3

Spring Semester

RS 101 Rad Physics	4
RS 163 Rad Proc II	4
RS 164 Clin Rad Tech II	4
RS 301 Research Problems	1

SECOND YEAR

Summer Session

RS 207 Clin Rad Tech III	8
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Fall Semester

RS 221 Rad Proc Tech	2
RS 281 Rad Proc III	3
RS 301 Research Problems	1
RS 260 Clin Rad Tech IV	6

Spring Semester

RS 275 Imaging Systems	2
RS 291 Surv of Med & Surg Diseases	3
RS 300 Basic Radiation Biology	1
RS 261 Clin Rad Tech V	6

Certificate Program in Nuclear Medicine Technology

The approved program in nuclear medicine technology provides the student with the knowledge and skills necessary to perform complex diagnostic procedures involving the in vitro and in vivo use of radionuclides using state-of-the-art instrumentation.

Enrollment is limited to four students each year. The course of study begins the first week in June and ends the last week in May, after twelve consecutive months of clinical and didactic experience at UNM Hospital/BCMC.

Upon successful completion of the program, the student receives a certificate in nuclear medicine technology and is eligible to sit for national certifying examinations given by the American Registry of Radiologic Technologists, the American Society of Clinical Pathologists, and the Nuclear Medicine Technology Certification Board.

Admission Requirements

1. The applicant must have a baccalaureate degree, or hold certification as a radiologic technologist, medical technologist, or registered nurse.
2. Meet UNM entrance requirements.
3. A minimum grade-point average of 2.0 in all post-secondary courses.
4. Personal interview with program selection committee.
5. Application and official post-secondary transcripts must be received by the Radiologic Sciences Office by January 31, prior to June entrance.

Nuclear Medicine Technology Curriculum*

SUMMER SESSION

RS-205 Radiation Protection	2
NM-211 Intro Nuc Med Tech	3
NM-215L Clin Nuc Tech I	3
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	8

FALL SESSION

NM-242 Nuclear Instrumentation I	2
NM-232 Clinical Nuclear Medicine I	4
NM-230 Clinical Radiopharmacy	2
NM-250L Clin Nuc Tec II	8
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	16

*These courses can only be taken by students in the Radiologic Sciences programs

SPRING SESSION

NM-270 Clinical Nuclear Medicine II	2
NM-224 In Vitro Nuclear Medicine	2
NM-276L Nuclear Instrumentation II	1
NM-265 Nuclear Radiation Biology	1
NM-280L Clin Nuc Tech III	10
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	16

Fees

Tuition for the nuclear medicine program is listed in the bulletin under "Student Expenses". In addition to tuition, required books and uniforms will cost approximately \$250.

Information Requests

Communications regarding information and applications should be addressed to Program Director, Nuclear Medicine Technology, The University of New Mexico Allied Health Sciences Center, Albuquerque, New Mexico, 87131.

Certificate Program in Diagnostic Medical Sonography*

The program in diagnostic medical sonography provides the student with the knowledge and skills necessary to perform complex diagnostic procedures using high frequency sound in the categories of general abdomen and obstetrics and gynecology.

Enrollment is limited to 4 students each year. The course of study begins the first week in June and ends the last week in May after 12 consecutive months of clinical and didactic experience at UNM Hospital/BCMC and the Cancer Research and Treatment Center.

Upon successful completion of the program, the student receives a certificate in diagnostic medical sonography and is eligible to sit for the national certifying examination given by the American Registry of Diagnostic Medical Sonographers.

Admission Requirements

1. Applicant must meet UNM entrance requirements.
2. Applicant must hold certification as a radiologic technologist, or nuclear medicine technologist; or must have post-secondary course work in general physics, general chemistry, biology, and human anatomy.
3. Applicant must have a minimum 3.0 grade point average in post-secondary course work.
4. Applicant must participate in a personal interview with the program selection committee.
5. Application and transcripts must be received by the Radiologic Sciences Office by January 31, prior to June admission.

Diagnostic Medical Sonography Curriculum

Summer Session

Rad T 208 Intro Cross Sec Anat	2
Rad T 222 Intro Sono Physics	2
Rad T 201 Clin Sono I	2
Rad T 204 Sono Equip Imag Eval	2
	<hr/>
	8

Fall Session

Rad T 202 Clin Sono II	6
Rad T 223 Sono Physics and Instr	3
Rad T 225 Current Problems I	1
Rad T 235 Sono Imag Proc	4
Rad T 209 Sono Path and Anat	3
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	17

Spring Session

Rad T 203 Clin Sono III	8
Rad T 236 Sono Imag Proc II	4
Rad T 245 Sono Admin Proc	2
Rad T 226 Current Problems II	1
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	15

Fees

Tuition for the diagnostic medical sonography program is that of a full-time UNM student (undergraduate). In addition to tuition, required books and uniforms will cost approximately \$250.00.

MEDICAL SCIENCES

ANATOMY

Robert O. Kelley, Chairperson
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Robert E. Waterman, Ph.D., University of Washington

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Stewart P. Mennin, Ph.D., University of California (Los Angeles)
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BIOCHEMISTRY

Robert B. Lofffield, Chairperson
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ASSOCIATE PROFESSORS:

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Philip Reyes, Ph.D., University of California (Davis)
Leslie F. Smith, Ph.D., University of London

*These courses may be taken only by those enrolled in the Radiological Sciences Programs.

ASSISTANT PROFESSORS:

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 Gaynor C. Wild, Ph.D., Tulane University
 Beulah M. Woodfin, Ph.D., University of Illinois

RESEARCH ASSISTANT PROFESSOR:

Andrej Pastuszyn, Ph.D., University of Vienna

CELL BIOLOGY

Thomas B. Tomasi, Jr., Chairperson
 Cancer Research and Treatment Center, 277-2151

PROFESSOR:

Thomas B. Tomasi, M.D., Ph.D., (Director of the Cancer Center),
 University of Vermont, Ph.D., Rockefeller University

ASSOCIATE PROFESSOR:

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ASSISTANT PROFESSORS:

William L. Anderson, Ph.D., University of Minnesota
 David G. Bear, Ph.D., University of California (Santa Cruz)
 Craig W. Spellman, Ph.D., University of Utah

RESEARCH ASSISTANT PROFESSOR:

Abdul-Latif Kazim, Ph.D., University of Minnesota

FAMILY, COMMUNITY AND EMERGENCY MEDICINE:

Warren Heffron, M.D., Chairperson
 Family Practice/Psychiatry Center, 277-3003

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 Jerome Levy, Ph.D., (Psychiatry), University of Denver
 S. Scott Obenshain, M.D. (Assistant Dean) (Pediatrics), Bowman Gray
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 Catherine Kincaid, M.D., Creighton University
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MEDICINE

Ralph C. Williams, Jr., Chairperson
 University of New Mexico Hospital—7th Floor, 277-4661

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 Denis M. McCarthy, M.D., University College, Dublin (Ireland)
 Darwin L. Palmer, M.D., New York University
 Glenn T. Peake, M.D. (Director, Clinical Research Center), University
 of Kansas
 J. Loren Pitcher, M.D. (Associate Dean), Northwestern University
 William P. Reed, M.D., Harvard Medical School
 John H. Saiki, M.D., McGill University
 Robert G. Strickland, M.D., University of Adelaide (Australia)
 Ralph C. Williams, Jr., M.D., Cornell University

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 Robert T. Cauthorne, M.D., Medical College of Virginia
 Thomas W. Chick, M.D., University of Arkansas
 Laurence Elias, M.D., Stanford University
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 Veena Raizada, M.D., Lady Hardinge Medical College (India)
 Joseph H. Sakers, M.D., University of New Mexico
 Jonathan M. Samet, M.D., University of Rochester
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MICROBIOLOGY

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Basic Medical Science Building, 277-3344

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PATHOLOGY

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 Marilyn H. Duncan, M.D., University of Washington
 Norton Kalishman, M.D., University of Missouri
 Marshall D. Levine, M.D., Tufts Medical School
 Rogelio (Roger) Menendez, M.D., Tulane University
 Glenn T. Peake, M.D. (Medicine), University of Kansas
 Nancy Rieder, M.D., Medical College of Virginia
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PHARMACOLOGY

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 Milan Slavik, M.D. (Medicine), Charles University, Czechoslovakia
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 Daniel T. Savage, Ph.D., University of Pennsylvania
 Charles T. Spaulding, M.D., Ph.D., University of New Mexico
 William F. Woodside, Ph.D., Vanderbilt University

PHYSIOLOGY

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 Albert Ratner, Ph.D., Michigan State University
 Sidney Solomon, Ph.D., University of Chicago

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 Gerald K. Weiss, Ph.D., University of Illinois
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 Stephen R. Perlis, Ed.D., University of Oregon
 Samuel Roll, Ph.D. (Psychology), Pennsylvania State University
 Ross L. Snyder, Jr., M.D., Yale Medical School
 Albert Vogel, M.D., University of California (Los Angeles)
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 Humberto Diaz, M.D., University of Nuevo Leon (Mexico)
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 Joanne W. Sterling, Ph.D. (Director BCM/MRC), University of New Mexico

RADIOLOGY

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ASSOCIATE PROFESSORS:

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 Richard G. Lane, Ph.D., University of California, Los Angeles
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 Robert S. Seigel, M.D., Northwestern University
 Gerald F. Stevens, M.D., University of Alberta (Canada)
 Jeffrey D. Wicks, M.D., University of Michigan
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Donald L. Cyphert, R.T.,

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 William A. Sterling, M.D., University of Pennsylvania

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Bechara Akl, M.D., Faculte Francaise de Medecine (Beirut)
 E. David Crawford, M.D., University of Cincinnati
 Michael G. Orgel, M.D., Ohio State
 Jeffrey R. Woodside, M.D., University of Oregon
 Steven M. Yabek, M.D. (Pediatrics), State University of New York,
 Downstate Medical Center

ASSISTANT PROFESSORS:

David C. Allison, M.D., University of Michigan
 Joseph W. Flynn, M.D., University of California, Irvine
 Lawrence J. Gibel, M.D., Jefferson Medical College
 John O. Kucan, M.D., Loyola-Stitch School of Medicine
 Stuart B. Pett, Jr., M.D., University of Utah
 V. Srinivasan, M.D., Osmania Medical College, Hyderabad (India)
 Robert V. Wiggins, M.D., University of New Mexico

COURSES OF INSTRUCTION**CLINICAL SCIENCE (CLIN SCI)**

511. First Year Curriculum. (18)

521. Second Year Curriculum. (18)

530-531. First Year Curriculum. (PCC) [Primary Care Track.] (18, 18)

532. Second Year Curriculum. (PCC) [Primary Care Track I-B.] (18)

540. Medicine Clerkship. (12)

541. Obstetrics-Gynecology Clerkship. (6)

542. Pediatric Clerkship. (6)

543. Psychiatry Clerkship. (6)

544. General Surgery. (6)

550. Surgical Specialties. (6)

570. Fourth Year Curriculum. [Neurology-Neurosurgery Clerkship.] (16)

FAMILY, COMMUNITY AND EMERGENCY MEDICINE (EMT)

Open only to students admitted to Emergency Medicine Program.

101. EMT-A Course. (4) Staff

This is U.S.D.O.T. EMT-A course designed specifically for ambulance personnel who have access to specialized vehicles equipped with specialized items of equipment. The course content trains ambulance attendants to recognize and stabilize patients with life-threatening emergencies at the scene and in transport, utilizing the specialized vehicles and specialized items of equipment.

Prerequisite for paramedic training. Restricted: approval by instructor. {Fall, Spring}

111. EMT Refresher. (1)

A course for Emergency Medical Technicians that reviews current trends and treatment techniques of emergency care. {Spring}

201. EMT-I Modules I, II, III. (2) Staff

This is a 40-hour course which consists of the first three modules of the Paramedic course: I- The role, responsibilities, and medical-legal status of the EMT-P; II- Human systems and patient assessment; III- Shock and fluid therapy. Following the didactic sessions, each student must successfully start five IVs on patients under supervision.

Prerequisite: Successful completion of an 81-hour EMT-A course and support, in writing, from the sponsoring community. Restricted: approval by instructor.

202. EMT-I Modules IV, V, X. (3) Staff

This is an 80-hour course which consists of three Paramedic Modules: IV- Pharmacology (60 hours) V- Respiratory System, and X- Medical Emergencies. Following the didactic sessions, each student must have 20 hours of clinical experience in the hospital in Emergency Department and/or Intensive Care and/or Respiratory Therapy.

Prerequisite: successful completion of 201 (EMT Modules I, II, III). Restricted: approval of instructor.

203. EMT—I Modules VI, XV. (3)

This 80 hour course consists of two paramedic modules: VI—cardiovascular system, and module XV—telemetry and communications. Following the didactic sessions (60 hours), each student must have twenty hours of clinical experience in the hospital in Emergency Department, Coronary Care, Intensive Care.

Prerequisites: successful completion of 201 (Mod. I, II, III) and 202 (Mod. IV, V, X). Passing screening process. Restricted: approval by instructor.

301. EMT-Paramedic Course. (23) Staff

Comprehensive study of the acute, critical differences in physiology, pathophysiology, or clinical symptoms as they pertain to the prehospital emergency medical care of the infant, child, adolescent, adult and geriatric patient. Emphasis on skills and knowledge essential for administering field care. Consists of three components: classroom, clinical (in-hospital) and field internship.

Prerequisites: 101 (EMT-A Course), minimum 6 months' field experience as EMT-A, current EMT-A certification passing screening process for admission into program. Support , in writing, from the sponsoring community. (Spring)

HUMAN SERVICES (HS)

General prerequisite: enrollment in UNM School of Medicine Human Services Worker Program or permission of instructor.

101. Introduction to Human Services. (3)

An overview of the caregivers, the delivery systems, and the types of services provided within the field of Human Services, with particular emphasis on the development of the Human Service Worker and the roles and functions performed by these "new professionals."

102. Principles of Interviewing. (3)

Provides basic knowledge of the interviewing process with emphasis on developing interviewing skills. Developing an awareness of ways in which the student's background, attitude, and behavior influence the interview. Videotaped class interviews will provide material for discussion and critique.

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.

109. New Techniques of Assessment and Intervention. (3)

Looks at means of obtaining and evaluating information about difficulties which bring people to mental health or social service settings. Introduces the student to a variety of modalities for assisting individuals, groups, and families to enhance their capacities for coping with their personal and environmental stresses.

149. Workshop. (1-3)##

In-depth individual and/or small-group exploration of problem or special interest areas (e.g., behavior therapy or substance abuse). May be research or demonstration project.

150. Clinical Experience in Human Services. (4)

Practical experience in a clinical setting involving service to clients and patients in various human service agencies; understanding the helping process through closely supervised assumption of responsibility for human service care; developing skill in observation, report writing and interviewing; guidance in establishing therapeutic relationships with individuals by participation in case analysis, case presentation and program planning. 240 hours per semester plus weekly seminar with Human Service staff required.

201. Family Process: Functional and Dysfunctional Families. (3)

Assists in developing an understanding of how families function in today's society, in terms of their ability to cope with various sources of stress. Describes theoretical and therapeutic systems which serve as a guide for human services workers in family interventions.

202. Contemporary Issues in Mental Health. [Community Mental Health.] (3)

Contemporary issues in Mental Health—Current social, ethical, legal, medical issues and trends will be explored including the community mental health movement, patient's rights, functions and side effects of psychopharmacology. Prerequisites: 101 and 109, or equivalent.

204. Aging: A Psycho-Social Exploration. (1-3)##

An introduction to the process of aging and the problems of the aged. An examination of the life changes which occur during the aging process with a focus on the social and psychological aspects. {Offered upon demand}

210. The Culture of Youth. (3)

Physical, social and psychological development of the adolescent will be explored to provide a base for understanding the changing behavior, mores, and value systems of youth. Prerequisite: Ed Fdn 303 or equivalent. {Offered upon demand}

211. Institutions and the Exceptional Child. (3)

Theory of abnormal development as it manifests itself from infancy through adolescence. Behavioral characteristics and causes of emotional and social deviancy in children. Examination of how institutions and institutionalization hinder and help the child's growth and development. Prerequisite: Ed Fdn 303 or equivalent. {Offered upon demand}

250-251. Advanced Clinical Experience in Human Services. (4, 4)

Continuation of 150 with increased student responsibility for client care/service. Weekly seminar.

Prerequisite: 150.

MEDICAL LABORATORY SCIENCES

Barbara A. Fricke, Director
Medical Building 4 #101, 277-5434

LECTURERS:

Penelope P. Allen, B.S.M.T.(ASCP), New Mexico State University
Cecilia C. Dail, B.S.M.T.(ASCP), Carson Newman College
Barbara A. Fricke, M.S., M.T. (ASCP), Ohio State University
Rebecca Hill, B.S.M.T.(ASCP), University of Texas, (Houston)
B. Joseph Hinnebusch, M.S., M.T.(ASCP), University of Arizona
S. J. Sperry, B.S.M.T. (ASCP), University of New Mexico

MEDICAL LABORATORY SCIENCES (MED LAB)

121. Introduction to Medical Laboratory Sciences. (1)

Introduction to scope and ethics of profession. Basic techniques, instrumentation, laboratory safety, and terminology. 1 lecture and tours of hospital laboratories.

\$400. Orientation to Medical Technology Professional Training. (1)

Introduction to the scope and ethics of the profession including a review and/or study of lab math, safety procedures, venipuncture techniques, spectrophotometry, electronics, care and use of the microscope, blood cell morphology, glassware and general lab equipment; 32 hrs. per week for 2 weeks. Prerequisite: acceptance into Medical Technology Program. (January-October)

\$401. Clinical Chemistry II. (8)

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; 8 hrs. per day for 33 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

\$402. Clinical Hematology and Hemostasis II. (8)

A thorough study of the blood and blood-forming tissues, including normal and abnormal morphology and a study of the coagulation mechanism; 8 hrs. per day for 32 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

##May be repeated for credit to a maximum of 9 hours.

\$Credit limited to students in Medical Laboratory Science Program.

§403. Clinical Bacteriology. (7)

The microbiological aspects of infectious disease is studied with emphasis on techniques, methods, and differential media used to isolate and identify pathogenic bacteria; 8 hrs. per day for 24 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

§404. Clinical Immunohematology II. (5)

The theory and principles of blood banking, including the techniques of cell typing, antibody identification, and component therapy; 8 hrs. per day for 15 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

§405. Clinical Urinalysis II. (2)

A study of the kidney and the physical, chemical, and microscopic examination of urine; 8 hrs. per day for 9 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

§406. Clinical Immunology and Serology II. (3)

A study of the fundamental principles of immunology and serological methods used in evaluation and diagnosis of disease; 8 hrs. per day for 12 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

§407. Clinical Parasitology. (2)

A thorough study of the medically important parasites including staining and wet prep procedures, life cycles, identification of and diseases; 8 hrs. per day for 9 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

§408. Clinical Mycology. (2)

A study of the medically important fungi including diseases and methods of isolation and identification; 8 hrs. per day for 8 days.

Prerequisite: acceptance into Medical Technology Program. (January-October)

§451. Practical Training in Clinical Chemistry II. (5)

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 16 weeks.

Prerequisite: 401. (October-May)

§452. Practical Training in Hematology and Hemostasis II. (5)

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 6 weeks.

Prerequisite: 402. (October-May)

§453. Practical Training in Microbiology. (5)

Supervised instruction in the performance of microbiological procedures in an affiliated hospital for students enrolled in the Med Tech Program; 40 hrs. per week for 6 weeks.

Prerequisites: 403, 407, and 408. (October-May)

§454. Practical Training in Immunohematology II. (3)

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. (October-May)

§455. 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. (October-May)

§456. Practical Training in Immunology and Serology. (1)

Supervised instruction in the performance of immunological and serological test procedures in an affiliated hospital for students enrolled in the Med Tech Program; 40 hrs. per week for 2 weeks.

Prerequisite: 406. (October-May)

§499. Pre-Employment Practicum (PEP). (2)

Full-time supervised experience in a variety of clinical settings. Increased responsibility in all aspects of laboratory procedures.

Prerequisite: Successful completion of all Medical Technology courses; 4 weeks. CR/NC Grading. (Spring)

MEDICAL SCIENCE (MED SCI)**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.

202. Seminar—Medicolegal Investigation of Death, Advanced. (1)

Offered through the Division of Forensic and Environmental Pathology, will acquaint the student with modern techniques and concepts in the performance of medicolegal investigative systems with in-depth information necessary for proper investigation and examination of complex and unnatural deaths. The student is required to assist in preparation and presentation of study cases presented in Path 201.

Prerequisite: Path 201.

203. Medicolegal Examination (P). (2)

Offered through the Division of Forensic and Environmental Pathology, will acquaint the student with modern techniques and concepts in the performance of medicolegal autopsies. Topics will vary with the subject matter. The presentations are: routine dissection and special techniques, case evaluation and assessment, toxicology, and evidence. Designed primarily for those with medical laboratory or related background who are currently functioning in a position to be of assistance to the pathologists in performing autopsies, both routine and medicolegal. Requires 20 hours of didactic presentation and 60 hours of laboratory experience and on-the-job training. Satisfactory completion of a written examination and demonstration of competence in the laboratory are required for credit.

****301. Introductory Physiology for Engineers. (3) Physiology Staff**

Course designed to provide rudimentary familiarization with physiological systems for nonbiological 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.

§Credit limited to students in Medical Laboratory Science Program.

****302. Fundamentals of Cellular Physiology. (3)** Physiology Staff

Cell physiology for nonbiological scientific personnel, with emphasis on cellular function.

Prerequisites: college physics, advanced algebra, inorganic chemistry, or permission of instructor. Offered at Los Alamos Residence Center only.

****303. Physiology for Scientists and Engineers. (3)** Physiology Staff

Physiological mechanisms underlying abnormally functioning biological systems.

Prerequisite: 301 or permission of instructor. Offered at Los Alamos.

***400. Special Problems in Medical Physics. (1-3)** Kelsey

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. {Fall, Spring}

***410. Research in Medical Sciences. (1-3)** Medical School Staff

Laboratory research in the medical sciences for undergraduate students.

Prerequisite: permission of instructor. {Offered upon demand}

***423. Introductory Biochemistry. (3)** Biochemistry Staff

(Also offered as Chem and Biol 423.) Introductory course into metabolic reactions 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.

Prerequisite: Chem 302 or Chem 308. {Fall, Spring}

***425. Environmental Biochemistry. (3)** Vander Jagt

(Also offered as Chem 425.) Evaluation of natural and man-made environmental agents to which we are all exposed; emphasis will be placed on understanding the biochemical reactions which accompany this exposure. Topics include mutagens, carcinogens, antibiotics, pesticides, water and air pollution, food additives, radiation biology.

Prerequisite: 423 or Biol 429. {Spring}

***434. Clinical Laboratory Microbiology. (2)** Staff

Prerequisite: permission of department. May be repeated under different areas of concentration. {Offered upon demand}

***436. Medical Virology. (3)** 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: pathogenic bacteriology. {Spring 1984 and alternate years}

***437L. Medical Virology Laboratory. (2)** McLaren

Laboratory experience in animal cell culture techniques, animal inoculation, and serological reactions for the isolation and identification of viruses of medical importance.

Prerequisites: pathogenic bacteriology, immunology, and permission of instructor. {Spring 1984 and alternate years}

***510. Human Microscopic Anatomy. (3)** Anatomy Staff

Prerequisite: 6 hrs. of biology or its equivalent or permission of instructor. Offered at Los Alamos Laboratory only.

***511. Advanced Human Microscopic Anatomy. (3)** Moffat

Prerequisite: 510, 6 hrs. biology or equivalent or permission of instructor. Offered at Los Alamos Laboratory only.

***520. Biochemistry of the Nervous System. [Energy and Metabolism.] (4)** Wood

Prerequisite: 423 or permission of instructor.

***570. Surgical Pathology Seminar-Elementary. (1)** Pathology Staff

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.

***583. Clinical Chemistry. (1-2)** Standerfer

Prerequisites: organic chemistry and biochemistry.

***584L. Clinical Chemistry Laboratory. (8)** Standerfer

Prerequisite: permission of instructor.

***585. Advanced Biochemistry I. (3)**

(Also offered as Chem 585.)

Prerequisites: Chem 302 or Chem 308, 423 or a passing grade on ACS placement exam; pre- or corequisite: Chem 311 or Chem 315; undergraduates: approval of instructor. {Fall}

***586. Advanced Biochemistry II. (3)**

(Also offered as Chem 586.)

Prerequisites: Chem 302 or Chem 308, 423 or a passing grade on ACS placement exam; pre- or corequisite: Chem 311 or Chem 315; undergraduates: approval of instructor. (585 and 586 are independent courses and may be taken in either sequence.) {Spring}

***587. Advanced Topics in Biological Chemistry. (1-3)††**

(Also offered as Chem 587.)

Prerequisite: 423 and sometimes 585 or 586, depending upon topic. {Offered upon demand}

***588-589. Advanced Biometry for Research. (3, 3)** Pathak

Prerequisite: Math 162-163 or 180-181 or permission of instructor.

***590-591. Medical Biology I. (1-18, 1-18 hrs. per semester)**

Prerequisite: permission of the Dean of the School of Medicine.

***592L-593L. Medical Biology I Laboratory. (1-6, 1-6 hrs. per semester)**

Prerequisite: same as 590-591.

***594-595. Medical Biology II. (1-18, 1-18 hrs. per semester)**

Prerequisites: 590-591, 592L-593L, and permission of the Dean of the School of Medicine.

***596L-597L. Medical Biology II Laboratory. (1-6, 1-6 hrs. per semester)**

Prerequisite: same as for 594-595.

***599. Master's Thesis. (1-6 hrs. per semester)**

***601-602. Advanced Physiology. (1-7, 1-7 hrs. per semester)** Staff

Prerequisites: 590-591 or consent of Physiology Department.

***610L. Experimental Cytology. (3-6)** Anatomy Graduate Staff

Prerequisites: 590-591 or equivalent.

***611L. Fine Structure and Electron Microscopy. (6-12)** Anatomy Graduate Staff

Prerequisites: 590-591 and 610L or equivalent and approval of Anatomy Department Chairperson.

***612L. Histochemistry and Cytochemistry. (4-6)** Anatomy Graduate Staff

Prerequisites: 590-591 and 619L or equivalent.

***613. History of Anatomy. (1-2)** Anatomy Staff

- *614. Research Techniques in Morphology. (2-4)** Anatomy Staff
Prerequisites: 590-591 or equivalent.
- *615. Current Topics in Morphology. (1-2)** Anatomy Staff
Prerequisites: 590-591 or equivalent. {Fall, Spring}
- *616. Selected Topics in Developmental Biology. (3)** Kelley, Waterman
Prerequisite: Biol 412L or 429L or consent of instructor. {Offered upon demand}
- *618. Seminar in Anatomy. (1)** Kelley
- *619. Comparative Vertebrate Physiology. (3)** Wood
(Also offered as Biol 519.)
Prerequisites: 590-591, or Biol 429L, 430L, or equivalent, or permission of instructor. {Fall 1983 and alternate years}
- *620. Advanced Biochemistry. (6)‡** Smith
{Summer only}
- *621. Biochemistry of Proteins and Enzymes.** [Biochemistry of Proteins.] (3)‡ Lotfield, Smith, Woodfin
In alternate years, the Biochemistry of Proteins and the Biochemistry of Enzymes.
Prerequisites: Chem 311-312 and either Chem 481-482 or Med Sci 590-591.
- *622. Biochemistry of Phospholipids. (3)** LeBaron
Prerequisites: Chem 423 or 481-482 or Med Sci 590-591.
- *623. Biochemistry of Steroids. (3)** Scallen
(Also offered as Chem 623.)
Prerequisites: Chem 301-302, Chem 423 or Med Sci 590-591.
- *631L. Introduction to Research Techniques in Microbiology. (2-5)‡** Radloff
Prerequisite: permission of instructor. Limited to students in the Department of Microbiology. {Fall 1984 and alternate years}
- *632. Advanced Topics in Microbiology. (1-3)** Microbiology Staff
Prerequisites: biochemistry, general microbiology or equivalent. {Offered upon demand}
- *633L. Microbial Diversity.** [Advanced Microbial Physiology and Metabolism.] (4) McDowell
Prerequisites: Medical microbiology, biochemistry and permission of instructor. {Spring 1985 and alternate years}
- *634. Biochemical Genetics. (2-4)‡** Baker
Prerequisites: Med Sci 590 or biochemistry, genetics, microbiology. {Fall 1985 and alternate years}
- *635. Immunobiology. (3)** Tokuda
Prerequisites: biochemistry, general microbiology, and permission of instructor. {Fall}
- *636. Advanced Virology. (3)** Cords, Radloff
Prerequisites: biochemistry, immunology, virology, or equivalent and permission of instructor. {Offered Spring 1983 and alternate years}
- *637. Immunogenetics. (3)††** Goldberg
Prerequisites: 635 and permission of instructor. {Offered Spring 1983 and alternate years}
- *638. Microbiology Seminar. (1)**
- *639. Phagocytic Cells. (2)** Van Epps
Prerequisites: 635 and permission of instructor. {Offered Spring 1984 and alternate years}
- *649. Circulatory-Respiratory Physiology. (3)** Priola, Wood, Weiss
Prerequisite: general physiology course and/or permission of instructor. **Offered at Los Alamos Laboratory only.**

- *650. Biological Membrane-Structure and Function. (3)** Galey
Prerequisites: 590-591 or Biol 429, 430 or permission of instructor. {Offered in alternate years}
- *651. Integrative Functions of the Endocrine System. (3)** Ratner
Prerequisites: same as 650. {Offered in alternate years}
- *652. Advanced Cardiovascular Physiology. (3)** Priola, Weiss
Prerequisites: 590-591. {Offered in alternate years}
- *653. Renal Water and Electrolyte Metabolism. (4)** Solomon
Prerequisites: same as 650. {Offered in alternate years}
- *654. Hormonal Control of Sex and Reproduction. (3)** Ratner
Prerequisite: same as 650. {Offered in alternate years}
- *655. Integrative Neurophysiology. (3)** Weiss, Feeney
(Also offered as Psych 650.)
Prerequisites: general physiology course and/or consent of instructor. {Spring}
- *656. Cellular Neurophysiology.** [Advanced Neurophysiology.] (3) Partridge
Prerequisite: same as 650. {Fall}
- *657. Special Topics in Physiology. (1-3)** Physiology Staff
Prerequisite: permission of instructor.
- *658. Physiological Techniques. (4)** Physiology Staff
Prerequisite: permission of instructor.
- *659. Seminar in Physiology. (1)** Priola
- *660. Advanced Respiratory Physiology. (3)** Wood
Prerequisites: 590-591. {Fall 1984 and alternate years}
- *661. Advanced Cellular Physiology. (3)** Galey and Physiology Staff
Prerequisite: permission of instructor. {Offered upon demand}
- *670. Principles of Drug Action at the Cellular Level. (2)** Pharmacology Staff
Prerequisites: 590-591 or equivalent or special permission of instructor. {Spring, Fall}
- *671. Advanced Topics in Pharmacology. (1-3)‡** Staff
Prerequisite: permission of instructor. {Fall, Spring}
- *672. Special Problems in Pharmacology. (1-3)‡** Staff
Prerequisite: permission of instructor. {Fall, Spring}
- *673L. Laboratory Techniques in Pharmacology. (1-3)‡** Pharmacology Staff
Prerequisite: permission of instructor. {Fall, Spring}
- *674. Pharmacology Seminars. (1)‡** Staff
Prerequisite: permission of instructor. {Fall, Spring}
- *682. Pathology Research Seminar. (1)** Tung
Prerequisite: permission of instructor.
- *683. Immunology Seminar. (1)** Tung
Prerequisite: permission of instructor.
- *690. Research in Clinical Medical Sciences. (2-6 hrs. per semester, to a maximum of 12)** Obenshain
Prerequisite: matriculated in an accredited medical school.
- *691. Scientific Writing for Graduate Students. (1)** Ladman
- *695. Research in Basic Medical Sciences. (2-6 hrs. per semester, to a maximum of 12)** Staff
- *699. Dissertation. (3-12 hrs. per semester)**
See Graduate Programs Bulletin for description of courses numbered 500 and above.

PHYSICAL THERAPY (PHY T)

301L. Therapeutic Exercise I. (3) Rutan

Basic transfers and gait training; nonspecific therapeutic exercise techniques; coordination and relaxation exercises. Prerequisite: 321L. 1 lecture, 6 hrs. lab. {Fall}

302L. Therapeutic Exercise II. (3) Rutan

Continuation of 301. Use of apparatus and assistive devices. Evaluation and program planning for specific orthopaedic problems. Prerequisite: 301L. 1 lecture, 5 hrs. lab. {Spring}

306L. Therapeutic Procedures. (3) Rutan

Physiological effects, indications, contraindications, rationale for therapeutic uses of heat, cold, water low- and high frequency electrical currents, ultrasound, ultraviolet, and infrared irradiation. Prerequisite: 341 and 361L 2 hrs lecture, 3 hrs. lab. {Spring}

310. Introduction to Physical Therapy. (2) Rutan

Professional ethics, quality of care assessment, communication and the professional organization. Corequisite: 321L. {Summer}

321L. Human Anatomy for Physical Therapists. (6) Gregory

Gross anatomy of the musculoskeletal, nervous, circulatory, respiratory, digestive, and reproductive systems. Prerequisite: admission to program. 5 hrs. lectures, 15 hrs. lab. {Summer only}

322L. Neuroanatomy for Physical Therapists. (3) O'Brien

Gross and microscopic anatomy of the brain and spinal cord with emphasis on integration of the sensory and motor systems. Prerequisite: 321L. {Spring}

330. Professional Development II. (2) O'Brien

Research design and methods; survey and critique of professional literature. Prerequisite: admission to program. {Fall}

341. Survey of Medical Sciences for Physical Therapists I. (2) Gregory

Basic pathological processes of disease and injury and mechanisms of defense and repair. (Not offered in 1983 and 1984.) Prerequisite: 321L. {Fall}

342. Survey of Medical Sciences for Physical Therapists II. (2) Orthopaedic Faculty, Gregory

Acquired and congenital orthopaedic problems, traumatic injuries, peripheral nerve lesions, and amputations. Prerequisites: 321L, 341. {Spring}

352L. Evaluative Procedures I. (3) Gregory

Evaluation of joint range of motion, strength, and body alignment. Interpretation and documentation. Prerequisite: admission to program. 1 lecture, 6 hrs. lab. {Spring}

361L. Human Physiology for Physical Therapists. (4) O'Brien

Physiology of the human body with emphasis on cardiovascular, respiratory, and neuromuscular systems. Prerequisite: 321L. 3 lectures, 3 hrs. lab. {Fall}

370L. Kinesiology and Functional Anatomy. (3) Gregory

Biomechanics; functional characteristics of muscle; analysis of therapeutic exercises; normal gait. Prerequisite: 321L. {Fall}

371L. Clinical Education I and Seminar. (1) Clinical Associates, Roehrig

Observation and supervised treatment of patients in affiliated hospitals and facilities; introduction to hospital and patient care. CPR certification. Prerequisite: admission to program. Two-half days per week in clinical setting. {Fall}

372L. Clinical Education II. (1) Clinical Associates, Roehrig
Supervised treatment of patients in affiliated hospitals and facilities correlated with therapeutic procedures and exercise. Prerequisite: 371L. Two-half days per week in clinical setting. CR/NC grading. {Spring}

401L. Therapeutic Exercise III. (4) Roehrig

Neurophysiological approaches to treatment of neuromuscular dysfunction; facilitation and inhibition techniques. Prerequisites: 302L, 361L. 1 lecture, 8 hrs. lab. {Fall}

402L. Therapeutic Exercise IV. (3) Roehrig

Rehabilitation of patients with burns and spinal cord injury; sports medicine, orthopedics, obstetrics. Team concept in comprehensive patient care. Prerequisites: 401L, 441. 1 lecture, 6 hrs. lab. {Spring}

422. Psychology of Disability. (2) Roehrig

Psychosocial and cultural factors in aging and disability; personality changes and motivational techniques; sexual dysfunction in disability; long term disability and terminal illness. Prerequisite: 372L. {Spring}

431. Health Care Systems and Delivery. (1) Rutan

Historic bases, current status, and future prospects of the organization and operation of health care facilities and their implications for the practice of physical therapy. Prerequisite: 372L. {Fall}

441. Survey of Medical Science for Physical Therapists III and Seminar. (3) Department of Neurology Faculty, O'Brien

Etiology, symptomatology, clinical course and management common central nervous system disorders. Physical therapy management of CNS disorders. Prerequisites: 322, 361L. 2 lectures, 1 hr. seminar. {Fall}

442. Survey of Medical Science for Physical Therapists IV. (2) Staff

Medical and/or surgical management of problems related to metabolism, circulatory and cardio-respiratory systems; autoimmune disorders and collagen disease in adults and children. (Not offered in 1983 and 1984.) Prerequisites: 341, 441. {Spring}

451L. Evaluative Procedures II. (2) Gregory

Electrodiagnostic, functional, and sensorimotor testing; neurodevelopmental testing; analysis of amputee gait; abnormal gait patterns, and special tests. Prerequisites: 306L, 370. 1 lecture, 3 hrs. lab. {Fall}

471L. Clinical Education III. (3) Clinical Associates, Rutan

Supervised treatment of patients in affiliated hospitals and facilities correlated with advanced techniques of treatment. Increasing responsibility for evaluation and treatment planning. Prerequisite: 372L. Three half days per week in clinical affiliations. CR/NC grading. {Fall}

472L. Clinical Education IV. (3) Clinical Associates, Rutan

Supervised treatment of patients in affiliated hospitals and facilities correlated with advanced treatment and evaluation techniques. Prerequisite: 471L. Three half days per week in clinical affiliations. CR/NC grading. {Spring}

475L. Clinical Education V. (6) Clinical Associates, Rutan

Full-time experience in a variety of clinical settings. Increased responsibility in all aspects of patient care. Prerequisite: satisfactory completion of all physical therapy courses. 15 weeks. CR/NC grading. {Summer}

480. Administration and Supervision. (2) Rutan

Planning and administration of physical therapy services; supervisory and consultation techniques. Prerequisites: 310, 471L. {Spring}

499. Individual Study. (1-3 hrs. per semester, to a maximum of 9)

Supervised program of study of selected topics not covered in regular courses. May be repeated with change of content. Admission by approval of the P. T. program director. {Fall, Spring}

RADIOLOGIC AND NUCLEAR MEDICINE TECHNOLOGIES

RADIOLOGIC TECHNOLOGY (RAD T)

101. Radiologic Physics. (4) Kelsey

An introduction to the basic principles of electrical and radiation physics, and the operation of x-ray and auxiliary equipment, including demonstrations. {Spring}

105. Introduction to Radiologic Sciences. (3) Seubert

An introduction to the field of radiologic technology; the nature and value of ethics and professional conduct; medical terminology; basic concepts and techniques in nursing. {Summer}

107. Principles of Radiographic Exposure. (3) Seubert

Principles and theory of formulating radiographic techniques, exposure factors and the generation and properties of x-radiation. {Summer}

108. Clinical Radiologic Technology I. (4) Seubert, Cyphert

Introduction and practice in the principles of radiographic exposure, formulae, and technique. {Fall}

161. Radiographic Procedures I. (5) Seubert, Cyphert

Comprehensive review of skeletal/radiographic anatomy and study in the art of radiographic positioning of the structures of the human body, with laboratory. {Fall}

163. Radiographic Procedures II. (4) Seubert, Cyphert

Radiographic positioning of the structures of the human body. Clinical competency practice through role-playing techniques. {Spring}

164. Clinical Radiologic Technology II. (4) Seubert, Cyphert

Principles and practice of radiographic positioning of the patient utilizing an artificial phantom patient. {Spring}

200. Radiographic Exposure Technique. (3) Seubert

Continuation of 107 with laboratory exercises. {Fall}

201. Clinical Ultrasound Technology I. (2) Howe

The student will be assigned to a rotational schedule in Diagnostic Imaging, CRTC, where they will gain practical experience in performing ultrasound examinations with a variety of sonographic instrumentation under the direct supervision of a registered sonographer. {Summer}

202. Clinical Ultrasound Technology II. (6) Howe

A continuation of student rotation through the section of ultrasound, Diagnostic Imaging, Cancer Research and Treatment Center. Corequisite: 235. {Fall}

203. Clinical Ultrasound Technology III. (8) Howe

A continuation of student rotation through the section of ultrasound, Diagnostic Imaging, Cancer Research and Treatment Center. Corequisite: 236. {Spring}

204. Sonographic Equipment and Imaging Evaluation. (2) Howe

A practical study in the recognition of differences between diagnostic and poor quality sonograms, and the study of equipment calibration, operational standards and laboratory quality control. {Spring}

205. Radiation Protection. (2) Christie

Principles of nuclear physics; radiation survey procedures and instrumentation; shielding and exposure concepts; Nuclear Regulatory Commission regulations.

207. Clinical Radiologic Technology III. (8) Seubert, Cyphert

Actual clinical radiographic positioning in radiographic suites under the supervision of certified radiologic technologists. {Summer}

208. Introduction to Cross-Sectional Anatomy. (2) Howe

Introduction to the relationships of anatomic structures on cross-section in all body planes. {Summer}

209. Sonographic Anatomy and Pathology. (3) Howe, Wicks

A study of organ system anatomy and pathology of particular interest to the sonographer, the changes in sonographic characteristics caused by pathology, and clinical data pertinent to sonographic diagnosis.

Prerequisite: 208. {Fall}

221. Radiographic Processing Technique. (2) Seubert

Principles of the chemistry and processing (manual and automatic) of radiographs, the theory of the latent image, sensitometric and quality control principles, planning, equipping and operation of processing areas in a department of radiology. {Fall}

222. Sonographic Physics and Instrumentation. (2) Howe, Kelsey

Study of the physical properties of ultrasound and the instrumentation used in diagnostic sonographic imaging. {Summer}

223. Advanced Sonographic Physics and Instrumentation. (3) Howe

A continuing study of the interaction of ultrasound and biological tissue and the instrumentation which records that interaction. Biological effects of ultrasound will also be presented.

Prerequisite: 222. {Fall}

225. Current Problems in Sonography I. (1) Howe, Wicks

A review of the literature related to current research in the field of diagnostic ultrasound. Student may work on a project for publications or presentation. {Fall}

226. Current Problems in Sonography II. (1) Howe, Wicks

A continuing review of current ultrasound literature and further work on student project initiated in the previous semester.

Prerequisite 225. {Spring}

235. Sonographic Imaging Procedures I. (4) Howe

Study of the ultrasound procedures used in abdominal, pelvic, and obstetric diagnosis.

Corequisite: 202. {Fall}

236. Sonographic Imaging Procedures II. (4) Howe

Study of the ultrasound procedures used in cardiac, pediatric, cerebral, thyroid, testicular and breast diagnosis. {Spring}

245. Sonographic Administrative Procedures. (2) Howe

An overview of the skills necessary to organize and manage an ultrasound laboratory; including ordering, data retrieval, patient flow, and budgeting. {Spring}

260. Clinical Radiologic Technology IV. (6) Seubert, Cyphert

Continuation of 207. {Fall}

261. Clinical Radiologic Technology V. (6) Seubert, Cyphert

Continuation of 260. {Spring}

275. Imaging Systems. (2) Seubert

Conventional and electronic imaging systems; introduction to other imaging modalities/disciplines such as nuclear medicine, radiation therapy, ultrasound and computerized tomography. {Spring}

281. Radiographic Procedures III. (3) Seubert, Cyphert
Principles and theory of the highly specialized procedures involving the administration of contrast media for the detection and diagnosis of pathology and/or traumatic initiated conditions. {Fall}

291. Survey of Medical and Surgical Diseases. (3) Thornbury
Study of the nature and the cause of diseases and the changes that occur with disease and injury. {Spring}

300. Basic Radiation Biology. (1) Staff
Survey of the acute, intermediate and late effects of ionizing radiation on biological levels of organization ranging from the molecule through the organism. {Spring}

301. Research Problem. (1) Seubert
Survey of literature related to research in the field of radiologic technology and radiology. {Fall, Spring}

***401. Introduction to Radiation Protection. (3)** Kelsey
A one semester survey of the principles and techniques of radiation protection as applied to nuclear fuel processing and power industries, health sciences and research applications. Prerequisite: Senior or Graduate standing or permission of instructor.

265. [321.] Nuclear Radiation Biology. (1) Staff
Interaction of alpha, beta, electromagnetic, and high LET particle radiations from nuclear interactions and disintegrations with biologic material.
Prerequisite: 211. {Spring}

270. [314.] Clinical Nuclear Medicine II. (2) Christie
Continuation of 232.
Prerequisite: 232. {Spring}

276. [342L.] Nuclear Instrumentation II. (1) Christie
A continuation of 241; principles and theory of tomographic imaging techniques; lab practice in set-up, calibration and quality control of standard nuclear instrumentation; computer processing of data and image manipulation.
Prerequisite: 241.

280. [317.] Clinical Nuclear Technology III. (10) Christie, Staff

A continuation of student rotation through the division of nuclear medicine at UNM Hospital/BCMC.
Prerequisite: 250. {Spring}

290. [391.] Special Problems. (1-3) Staff
Supervised investigation of radiopharmaceutical effects and tissue localization.
Pre- or corequisites: 241-276L, Pharm 412. {Fall, Spring}

NUCLEAR MEDICINE TECHNOLOGY (NMT)

211. [311.] Introduction to Nuclear Medicine Technology. (3) Christie
Basic concepts of radiopharmacy, nuclear instrumentation, and applicable anatomy and physiology; patient positioning; venesection techniques; medical and professional ethics; medical terminology; radiation safety; methods of patient care.
Corequisite: 232. {Summer}

215. [315.] Clinical Nuclear Technology I. (3) Christie, Staff
The student is assigned to a rotational schedule in the division of nuclear medicine at UNM Hospital/BCMC. The student will gain experience performing diagnostic examinations with a variety of nuclear instrumentation.
Corequisite: 211. {Summer}

224. [320.] In Vitro Nuclear Medicine. (2) Christie
Principles and practical aspects of performing radioimmunoassay and competitive protein-binding assays, ferrokinetics, blood volumes, RBC survival, G.I. blood loss and Schilling's studies.
Prerequisite: 232. {Spring}

230. [330.] Clinical Radiopharmacy. (2) Christie
Review of basic chemistry; Principles of radiopharmacy/radiochemistry including radiopharmaceutical preparation dose calculation, quality control, and federal/state regulations.
Prerequisite: 211. {Fall}

232. [313.] Clinical Nuclear Medicine I. (4) Christie
Basic anatomy and pathophysiology, methods of localization, radiopharmaceuticals, nuclear instrumentation, and imaging techniques. {Summer}

241. [341.] Nuclear Instrumentation I. (2) Christie
Principle and demonstration of ionization chambers, G-M tubes, scintillation and solid-state detectors, pre-amplifiers, amplifiers, pulse-height analysis, and read-out instrumentation.
Prerequisite: 211. {Fall}

250. [316.] Clinical Nuclear Technology II. (8) Christie, Staff
A continuation of student rotation through the division of nuclear medicine at UNM Hospital/BCMC.
Prerequisite: 215. {Fall}



COLLEGE OF NURSING

Barbara Lippincott-Rees, Dean
College of Nursing
Nursing/Pharmacy Bldg 166, 277-4221

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 lifelong 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.

Degrees Offered. The College of Nursing offers two degrees, the Bachelor of Science in Nursing and the Master of Science in Nursing.

The graduate program offers concentrations in advanced nursing practice, teaching of nursing, and administration of nursing. Consult the current Graduate Programs Bulletin for details about this program.

Accreditation. The basic program in nursing is approved by the New Mexico Board of Nursing and is accredited by the National League for Nursing. The graduate program is accredited by the National League for Nursing.

Licensure Of Graduates. Graduates of the College of Nursing are eligible to take the State Board of Nursing Examinations to become 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 the 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.

Deadlines for submitting applications are February 1, July 1, and November 1 each year. Students should submit applications early to allow for adequate advisement and processing of applications.

Requirements for Admission. To be considered for acceptance into the College of Nursing the student must have:

- Submitted application and required academic records by deadline dates;
- Completed or be enrolled in at least 26 credit hours of college work, including at least six of the first eight required courses in the freshman year;

Engl 101	3
Soc or Anthro	3
Psych 102	3
Biol 121L or 123L	4
Chem 111L	4
Chem 212	4
Sp Comm 221	3
Math 102, Psych 201, or Soc 280 (Statistics)	3

3. Maintained grade-point averages as follows:

- Students transferring from University College: a grade-point average of 2.0 or better during the previous semesters. For those students who have completed fewer than 26 hours during the previous two semesters, the grade-point average will be calculated for those hours accumulated.
- Students transferring from other degree-granting colleges of the University: scholarship index of 2.0 while enrolled in the other degree-granting college.
- Transfer students from other accredited institutions shall meet all University requirements and have a grade-point average of 2.0 or better.
- 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.

Degree Completion Program for Registered Nurse Students.

All registered nurses seeking entrance into the College of Nursing must meet requirements for admission to the University and to the College of Nursing.

College credit earned in associate degree nursing programs or in hospital-based diploma schools of nursing is transferable to the University, provided the original program was offered in a regionally accredited institution and the nursing program was accredited by the National League for Nursing. It is possible that such credit may be applied toward meeting the graduation requirements for a Bachelor of Science in Nursing. See section entitled "Technical Institutes, Credit From."

The degree completion plan for registered nurse students allows for flexible lower division work as well as some self-paced progress through the upper division nursing major.

Lower division credit may be earned through the College Level Examination Program (CLEP). Thirty semester credits may be earned by successfully passing the CLEP general examinations. Additional credits may be earned by passing certain CLEP subject examinations. The following courses are lower division requirements for RN students: Chem 212; Math 102; Nurs 225, 239, and 240. With respect to Pharmacology 276, RN students may elect to take the course, receive credit for the course based upon a credit by examination process, or be exempted from the requirement by successfully passing an exemption exam.

RN students are allowed to accelerate through the upper division major according to individual capacity and need based upon a credit by examination process and enrollment in required nursing courses. Each RN student must demonstrate achievement of the terminal performance behaviors at each level as expected of all College of Nursing graduates.

Each registered nurse student is counseled individually to help clarify career goals and to plan an educational program which will be of greatest benefit in meeting those goals.

Prospective registered nurse students are urged to contact the College of Nursing Student Advisement Office prior to registration.

The College of Nursing supports career mobility for nurses.

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 (see Student Services section of this catalog). In the College of Nursing a Student Affairs Committee provides for coordination and facilitation of student activities within the College.

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 are available to students in the nursing program. Students contemplating entry to the program should contact the College of Nursing Student Advisement Office.

Students are responsible for their own transportation to and from clinical agencies and for their own living arrangements (see Student Housing Section of this catalog).

High School Preparation. It is important that the high school student who wishes to enter the nursing program at the University of New Mexico orient his subject selection toward this goal at the earliest possible time. It is recommended that the student who intends to obtain a Bachelor of Science in Nursing take the following subjects in high school: one year of chemistry, one year of biology, one year of physics, two years of mathematics (one of which should be algebra), four years of English. These are recommended courses, NOT requirements for admission.

Honors Program. 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 overall scholarship index of 3.4, (2) 6 hours in honor study in addition to the usual requirements for the degree, (3) at least 60 hours earned at the University, and (4) application for honors with approval of the 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 3.4 or better.

Scholarships. Various types of financial aid are available to University students. Certain scholarships from local and national organizations and from public and private sources are available specifically for nursing students (see listing under

Financial Aid section of this catalog). Information regarding scholarships and loans may be obtained from the College of Nursing Student Affairs Office and the University Student Financial Aid and Career Planning and Placement Office. Students in need of assistance are urged to investigate these sources.

Educational Facilities. Zimmerman Library and the Medical Center Library are both available to nursing students. The latter houses an extensive collection of books, journals, and other multimedia learning aids appropriate to nursing and medical science.

Most nursing classes are held in clinical agencies and in the Nursing-Pharmacy Building. The nursing portion of the building contains nursing simulator laboratories, seminar rooms, and additional specialized classrooms.

Clinical Facilities. Clinical facilities are located in the greater Albuquerque area and include University of New Mexico Hospital (BCMC), Lovelace-Bataan Medical Center, Presbyterian Hospital Center, Anna Kaseman Hospital, Vista Sandia Hospital, St. Joseph Hospital, Veterans Administration Hospital, Bernalillo County Mental Health Center, Maternal-Infant Care Clinics, Indian Health Service stations and centers, and other facilities in outlying areas in New Mexico.

Special learning opportunities such as field trips to other agencies may be arranged. Many clinical agencies make libraries and classrooms available to nursing students.

Health Program. Students in the College of Nursing follow the health requirements described in the Admission and Registration section of this catalog and may use the health service described in the Student Expenses section of this catalog. Nursing students are encouraged to carry insurance for hospitalization and medical care. Students who do not have health insurance will find that an adequate policy may be purchased through the University at the time of registration.

Students must present the following prior to registering for a nursing practice course:

1. Up-to-date immunizations as specified by the College of Nursing.
2. An annual tuberculin test.

The annual tuberculin test or T.B. screening and the required immunizations can be obtained at the Student Health Center. A copy of the result must be filed with the College of Nursing Student Affairs Office.

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 clinical practice periods. Information regarding uniforms may be obtained at the College of Nursing Student Affairs Office. Caps are available at the north campus UNM Bookstore.

Fees. Students enrolled in nursing laboratory courses will be expected to pay a fee. Fees may also be charged for required educational materials. Laboratory and instructional material fees are subject to change. A fee may be charged for standardized nursing achievement tests for regularly enrolled senior students. Information about other fees and expenses may be obtained in the Student Affairs Office.

Each student is required to obtain nursing student liability insurance before beginning clinical experience.

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 in the College of Nursing must be enrolled in nursing courses and/or progressing toward the Bachelor of Science in Nursing. Students failing to meet this requirement are subject to administrative disenrollment from the College of Nursing.

College of Nursing students who withdraw from the University may return to the College. Because of constraints in the clinical facilities, however, the student must notify the College of Nursing in writing of his/her intent to return. Notice must be received by March 15 for return summer or fall semester and by November 1 for spring semester. Because a returning student is subject to the regulations of the Bulletin in effect at the time of readmission, she/he is subject to a reevaluation of his/her academic standing. The student must receive academic advisement prior to registration.

Students must have a cumulative scholarship index of 2.0 or better to be eligible to enroll in upper division nursing courses.

Students must be admitted to the College of Nursing before enrolling in Level I Nursing and subsequent levels.

Students must earn a grade of C or better in all required nursing courses, pharmacology, microbiology, and human anatomy and physiology. All nursing courses may be taken once and repeated once. Prior to repeating a nursing course a student's record will be reviewed by the Academic Standards Committee; progress will be monitored by this committee.

Probation and Suspension. A student will be placed on academic probation when the overall scholarship index drops below 2.0. The student is eligible for suspension if the cumulative index does not raise during the the first probationary period or if the cumulative index is less than 2.0 at the end of the second semester of the probationary period.

Requirements for Graduation

The Bachelor of Science in Nursing is granted to basic and registered nurse students on fulfillment of the following requirements:

1. Completion of 136 semester hours of course work of the prescribed curriculum.
2. Completion of at least 70 semester hours of upper division course work. Such courses are numbered 300 or above.
3. Compliance with the minimum residence requirements, as stated in the General Academic Regulations section of this catalog.
4. Maintenance of an overall scholarship index of 2.0 minimum.
5. Unanimous recommendation for the degree by the faculty of the College of Nursing.

Curriculum

First Year

Engl 101 Wrtg w/ Rdgs in Expos	3
Soc or Anthro	3
Psych 102 General Psych II	3
Sp Com 221 Interpersonal Comm	3
Chem 111L Elem of Gen Chem	4
Chem 212 Integ org Ch & Biochem	4
Biol 121L Prin of Biol or	4
123L Biol for Hlth Rel Sci	
Math 102, Psych 201, or Soc 280 (Statistics)	3
Electives	6
	<hr/> 33

Second Year

Biol 237 Human Anat & Phys I	3
Biol 247L Anat Phys H S Lab I	1
Biol 239L Hlth Sci Micro	4
H Ec 125 Intro Nutri	3
Nurs 225 Intro Concept Nurs	3
Nurs 239 N/P Pathophysiology	3
Biol 238 Hum Anat & Phys II	3
Biol 248L Anat Phy Sci Lab II	1
Nurs 324L App G & D to Hlth Care	4
Pharm 276 Prin of Pharmacol	3
Nurs 240 N/P Pathophysiology	3
Elective	3
	<hr/> 34

Third Year

Nurs 331L Prob Solv Hlth Thpy Pat	5
Nurs 332 Level I Nurs	2
Nurs 333 Level I Nurs	2
Nurs 334L Nurs Intrvt Hlth Care	4
Elective	4
Nurs 335L Hlth Care Del	3
Nurs 336L Interact—Comm	5
Nurs 337L Nurs Process	6
Elective	3
	<hr/> 34

Fourth Year

Nurs 441L Hlth Care Delivery	5
Nurs 442L Interact Comm	5
Nurs 443L Nurs Process	4
Elective	3
Nurs 444L Advanced Nursing	8
Nurs 445L Elec Experience	8
Elective	2
	<hr/> 35

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 Academic Standards Committee.

See UNM Schedule of Classes for further information prior to registration.

It is the student's responsibility to meet all departmental requirements.

COURSES OF INSTRUCTION

NURSING

PROFESSORS:

Deane L. Critchley, Acting Associate Dean, Ph.D., New York University
Barbara Lippincott-Rees (Dean), Ph.D., University of Arizona

ASSOCIATE PROFESSORS:

Zella A. Bray, M.S.N.E., Indiana University
Dorothy H. Clough, M.N., University of California (Los Angeles)
Estelle H. Rosenblum, Ph.D., University of New Mexico
Jacqueline Solomon, M.S., University of New Mexico
Joann R. Weiss, Ph.D., University of New Mexico

ASSISTANT PROFESSORS:

Charlotte R. Abbink, Associate Dean, M.S.N., University of Colorado
 Sara J. Anderson, M.S.N., Wayne State University
 Phoebe J. Becktell, M.A., University of New Mexico
 Gloria A. Birkholz, J.D., University of New Mexico
 Margaret Brown, Ph.D., University of New Mexico
 Corina B. Casias, M.S.N., University of Texas (El Paso)
 Jeannette M. Cochran, M.S.N., Indiana University
 B. Roberta Cunico, M.B.A., University of New Mexico
 Patsy L. Duphorne, M.S.N., University of Washington
 Carol L. Furgal, M.S.N., University of Nebraska
 Chiyoiko Furukawa, M.S.N., University of Colorado
 Helen A. Hamilton, M.S.N., Boston University
 Catherine N. Harris, M.S.N., University of California (San Francisco)
 Patricia Higgins, M.S.N., University of Arizona
 Carol A. Johnson, M.S.N., Catholic University
 Sharon L. Lewis, M.S.N., University of Colorado
 Carol L'Esperance, M.S.N., Case Western Reserve
 Lois G. Long, M.S.N., University of Arizona
 Laura A. Martinez, M.A., University of New Mexico
 Elsie S. Morosin, M.A., University of New Mexico
 Barbara D. Rickert, M.S.N., University of Alabama
 Sandra L. Schwanberg, M.S.N., University of Illinois
 Donea L. Shane, M.S. University of New Mexico
 Dianna M. Shomaker, M.S., University of Washington
 Patricia E. Stephens, M.S.N., University of California (San Francisco)
 Evelyn J. Suesse, M.S.N., Loma Linda University
 Julia M. Thornbury, M.S.N., University of Michigan
 Edythe M. Tuchfarber, M.S.N., Marquette University
 S. Jan Wayland, M.S.N., Texas Woman's University

INSTRUCTORS:

Debra P. Brady, M.S.N., University of Pittsburgh
 Robin Meize-Grochowski, M.S.N., University of Texas (Austin)
 Nicki L. Potts, M.S.N., University of Texas (Austin)
 Patricia Van Sciver, M.S.N., University of Arizona

PROFESSOR EMERITUS:

Virginia Crenshaw, Ed.D., Peabody College
 B. Louise Murray, Ed.D., Teacher's College, Columbia University

NURSING (NURS)**129. Workshop. (1-3)**

An opportunity for nurses to update their knowledge and skills in nursing process in maintenance of, preventive, therapeutic, and restorative health care.

225. Introduction to Concepts in Nursing. (3)

Introduces concepts relating to the health care delivery system, roles of health care team members, issues and trends in nursing, and the philosophy and conceptual framework of the College of Nursing.

Prerequisites: Engl 101, Sp Com 221, Chem 111, Biol 121 or 123. {Fall, Spring}

239. Nursing Pathophysiology I. (2-3)

(Also offered as Pharm 239.) A beginning course in human pathophysiology for pharmacy and nursing students. Nursing students are required to take 3 credit hours.

Prerequisite: Chem 212. Pre- or corequisites: Biol 237, 247L, 239L. {Fall}

240. Nursing Pathophysiology II. (2-3)

(Also offered as Pharm 240.) Continuation of 239.

Prerequisite: 239. Pre- or corequisites: Biol 238 and 248L. Nursing students are required to take 3 credit hours. {Spring}

277. Spanish for Professionals. (3, 3)

(See Spanish 277.)

297. Independent Study. (1-3)

Prerequisite: permission of instructor. {Fall, Spring}

302L. Clinical Instrumentation. (3)

(Also offered as EECE 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}

305, 306, 307. Problems in Nursing: Selected Topics. (3, 3, 3)

Focus on study of the theoretical bases of selected problems in nursing. {Fall, Spring}

308, 309, 310. Problems in Nursing: Selected Topics. (2, 2, 2)

Focus on study of the theoretical bases of selected problems in nursing.

324L. Application of Concepts of Human Growth and Development to Health Care Delivery. (4)

Presentation of theories of psychosocial and biological growth and development across the life span. Laboratory experiences in a variety of health care settings allow for assessment of the application of these concepts as well as actual application of specified concepts within the health care delivery system. Prerequisites: Engl 101, Soc or Anth, Psych 102, Sp Com 221, Statistics. 2 hrs. lecture, 1 hr. seminar, 2 hrs. lab. {Fall, Spring}

331L. Problem Solving for the Healthy and Coping Client. (5)

Theoretical study of basic roles of professional nursing. Emphasis placed on problem-solving process including non-intrusive assessment skills as it relates to clients of all ages who are healthy or coping with mild dysfunction.

Prerequisites: 225, 239L, 240L, Biol 237, 238, 239L, 247L, 248L, H Ec 125, Pharm 276; pre- or corequisite: Nurs 324L; corequisites for full-time students: 332, 333, 334L; corequisite for part-time students: 333. 4 hrs. seminar, 2 hrs. lab. {Fall, Spring}

332. Interaction with the Healthy and Coping Client. (2)

Theoretical study of basic roles of professional nursing. Emphasis placed upon principles of stress/adaptation theories, techniques of communication, and teaching-learning principles. Relates to clients of all ages who are healthy or successfully coping with mild dysfunction.

Prerequisites: 225, 239L, 240L, Biol 237, 238, 239L, 247L, 248L, H Ec 125, Pharm 276; pre- or corequisite: Nurs 324L; corequisites for full-time students: 331L, 333, 334L; corequisite for part-time students: 331L. 2 hrs. seminar. {Fall, Spring}

333. Health Care Delivery System for the Healthy and Coping Client. (2)

Theoretical study of basic roles of professional nursing. Emphasis placed upon health/willness continuum, and aspects of the health care delivery system applied to clients of all ages who are healthy or successfully coping with mild dysfunction.

Prerequisites: 225, 239L, 240L, Biol 237, 238, 239L, 247L, 248L, H Ec 125, Pharm 276; pre- or corequisite: Nurs 324L; corequisites for full-time students: 331L, 332, 334L; corequisites for part-time students: 334 prerequisites for part-time students: 331L, 332. 2 hrs. seminar. {Fall, Spring}

334L. Nursing Intervention for the Healthy and Coping Client. (4)

Theoretical study, laboratory, and clinical application of basic roles of professional nursing. Emphasis placed upon non-intrusive assessment skills as a means to enhance nursing judgment. Clients include healthy and successfully coping individuals of all ages.

Prerequisites: 225, 239L, 240L, Biol 237, 238, 239L, 247L, 248L, H Ec 125, Pharm 276; pre- or corequisite: Nurs 324L; corequisites for full-time students: 331L, 332, 333; corequisite for part-time students: 333; prerequisites for part-time students: 331L, 332. 1 hr. seminar, 6 hrs. clinical lab. {Fall, Spring}

335L. Health Care Delivery System and the Client in Moderate Disequilibrium. (3)

Theoretical and laboratory application of nursing functions

in restorative care. Emphasis upon different aspects of the health care delivery system providing services to clients coping with moderate disequilibrium.

Prerequisites: 331, 332L, 333, 334L; corequisites for full-time students: 336, 337; corequisites for part-time students: 336. 2 hrs. seminar, 2 hrs. lab. {Fall, Spring}

336L. Interaction-Communication with the Client in Moderate Disequilibrium. (5)

Theoretical, laboratory, and clinical application of nursing function in restorative care. Clinical experience in acute care facilities. Emphasis upon communication skills. Clients include children, adults, and families needing support to cope with acute illness.

Prerequisites: 331, 332L, 333L, 334L; corequisites for full-time students: 335L, 337L; corequisite for part-time students: 335L. 2 hrs. seminar, 2 hrs. sim. lab, 4 hrs. clinical lab. {Fall, Spring}

337L. Nursing Process and the Client in Moderate Disequilibrium. (6)

Theoretical, laboratory, and clinical application of nursing functions in restorative care. Clinical experience in acute care facilities. Work with individuals in moderate disequilibrium. Emphasis upon the application of the nursing process to differing situations.

Prerequisites for all students: 331, 332L, 333L, 334L; corequisites for full-time students: 335L, 336L; prerequisites for part-time students: 335L, 336L. 2 hrs seminar, 2 hrs. sim. lab., 6 hrs. clinical lab. {Fall, Spring}

397. Independent Study. (1-3)

Upper-division standing.

Prerequisite: 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 upon demand}

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 upon demand}

***429. Workshop. (1-6)**

{Offered upon demand}

441L. Health Care Delivery System and the Client in Severe Disequilibrium. (5)

Theoretical and clinical application of nursing roles in working with clients in severe dysfunction. Special emphasis is placed upon different aspects of the health care delivery system providing services to clients with complex problems.

Prerequisites: 335L, 336L, 337L; corequisites for full-time students: 442L, 443L; corequisite for part-time students: 442L. 2 hrs. seminar, 6 hrs. clinical lab. {Fall, Spring}

442L. Interaction-Communication with the Client in Severe Disequilibrium. (5)

Theoretical and clinical application of nursing functions for clients with severe problems. Emphasis is placed upon communication skills that enhance client coping with severe dysfunction.

Prerequisites: 335L, 336L, 337L; corequisites for full-time students: 441L, 443L; corequisite for part-time students: 441L. 2 hrs. seminar, 6 hrs. clinical lab. {Fall, Spring}

443L. Nursing Process and the Client in Severe Disequilibrium. (4)

Theoretical and clinical application of nursing functions with clients in severe dysfunction. Experience in acute care, extended care, and community agencies. Emphasis upon the application of the nursing process to clients with complex problems.

Prerequisites: 335L, 336L, 337L; corequisites for full-time students: 441L, 442L; prerequisites for part-time students: 441L, 442L. 2 hrs. seminar, 4 hrs. clinical lab. {Fall, Spring}

444L. Advanced Nursing. (8)

Theoretical and clinical application of previous knowledge. Principles of management, leadership, evaluation of services, professional accountability, and advanced nursing emphasized. Experiences include advanced nursing in community and inpatient settings with individuals and groups of all ages. Prerequisites: 441L, 442L, 443L. 4 hrs. seminar and 24 hrs. clinical lab. per week. {Fall, Spring}

445L. Elective Experience. (8)

Theoretical and clinical study of nursing responsibilities with client groups needing preventative maintenance, or restorative care. Emphasis on integration of prior knowledge and skill, and acculturation to professional nursing practice. Student selects experience with faculty adviser.

Prerequisite: 444L. 4 hrs. seminar and 24 hrs. clinical lab per week. {Fall, Spring}

497. Independent Study. (1-3)

Prerequisites: 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}

***501. Advanced Nursing Theory I. (3)**

{Fall}

***502. Advanced Nursing Theory II. (3)**

Prerequisite: 501. {Spring}

***503. Research in Nursing I. (3)**

Prerequisite: an acceptable course in basic inferential and descriptive statistics. {Fall}

***504. Research in Nursing II. (3)**

Prerequisite: 503. {Spring}

***505. Professional Seminar. (2)**

{Fall}

***506. Problems in Clinical Nursing: The Family as Client. [Problems in Clinical Nursing: The Client with Behavioral Disorders.] (3)**

2 hrs. seminar, 6 hrs. clinical lab. {Fall}

***507. Problems in Clinical Nursing: The Individual as Client. (3)**

2 hrs. seminar, 6 hrs. clinical lab. {Spring}

***508. Advanced Clinical Practicum: Psychiatric-Mental Health Nursing. (5)**

2 hrs. seminar, 18 hrs. clinical lab.

Prerequisites: 506 and 507. {Fall}

***509. Principles of Curriculum Development in Nursing. (2)**

{Fall}

***510. Teaching in Nursing Programs. (3)**

{Spring}

***511. Measurement and Evaluation in Nursing Education. (3)**

Prerequisite: basic course in inferential and descriptive statistics. {Fall, Spring}

***512. Advanced Teaching Practicum in Nursing. (5)**

2 hrs. seminar, 18 hrs. clinical lab.

Prerequisites: 509 and 510. {Fall}

COLLEGE OF PHARMACY

Carman A. Bliss, Dean
College of Pharmacy
Nursing/Pharmacy Bldg. 182, 277-3241 or 2461

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 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. The New Mexico Poison, Drug Information and Medical Crisis Center of the College of Pharmacy provides poison information for the public and health care institutions, drug information support for health professionals and is an important link in the state's emergency medical response system. All services are provided 24 hours a day. Cooperative teaching, research, and service programs exist between the College and the University of New Mexico Hospital (BCMC). The College of Pharmacy also operates a centralized radio-pharmacy which supplies service to various hospitals and institutions throughout the state of New Mexico.

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 75 percent 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 education, and holds membership in the American Association of Colleges of Pharmacy.

*514. Nursing Administration in Health Institutions/Agencies. (3)

2 hrs. seminar, 6 hrs. clinical lab. {Spring}

*515. Advanced Practicum: Administration in Nursing. (5)

2 hrs. seminar, 18 hrs. clinical lab.

Prerequisite: 514. {Fall}

*516. Problems in Clinical Nursing: Family Systems and Health Care Needs. (3)

2 hrs. seminar, 6 hrs. clinical lab. {Fall}

*517. Problems in Clinical Nursing: Community and Environmental Systems. (3)

2 hrs. seminar, 6 hrs. clinical lab.

Prerequisite: 516. {Spring}

*518. Advanced Clinical Practicum: Community Health Nursing. (5)

2 hrs. seminar, 18 hrs. clinical lab.

Prerequisites: 516 and 517. {Fall}

*519. Problems in Clinical Nursing: The Child-bearing Client at Risk. (3)

2 hrs. seminar, 6 hrs. clinical lab. {Fall}

*520. Problems in Clinical Nursing: The Client with a Developmental Deviance. (3)

Clinical experience with a preceptor required.

Prerequisite: 519. {Spring}

*521. Advanced Clinical Practicum: Maternal and Child Nursing. (5)

2 hrs. seminar, 18 hrs. clinical lab.

Prerequisites: 519 and 520. {Fall}

*526. Advanced Medical-Surgical Nursing I. (3)

2 hrs. seminar, 6 hrs. clinical lab. {Fall}

*527. Advanced Medical-Surgical Nursing II. (3)

2 hrs. seminar, 6 hrs. clinical lab. {Fall}

*528. Advanced Clinical Practicum: Medical-Surgical Nursing. (5)

2 hrs. seminar, 18 hrs. clinical lab.

Prerequisites: 526 and 527. {Fall}

*591. Graduate Problems. (1-6)

May be repeated on different topic. {Summer, Fall, Spring}

*593. Topics. (1-6)

Prerequisite: permission of instructor. {Summer, Fall, Spring}

*599. Nursing Thesis I. (1-6)

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 Chairperson, Grants and Financial Aids Committee, College of Pharmacy. A list of pharmacy scholarships and loans follows:

William C. Fiedler Scholarship. The income from the William C. Fiedler Memorial Fund is available for scholarships to pharmacy students. Awards are made on the basis of these criteria; Excellent scholastic achievements and demonstrated financial need.

Burroughs Wellcome Pharmacy Education Scholarship. The income from a trust fund is available for scholarships to pharmacy students who can demonstrate financial need. Funds for this trust are presented to the College of Pharmacy by the Burroughs Wellcome Pharmacy Education Program on behalf of practicing pharmacists in the state of New Mexico.

The Arthur B. Hall and 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 Drug Company Scholarship. One scholarship of \$150 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 Division of McKesson Drug Company.

Presidential Scholarships. Presidential scholarships of \$1000 annually and renewable for three years are available for incoming students from New Mexico. These scholarships are awarded strictly on the basis of academic ability and renewal is dependent upon maintenance of a prescribed grade-point average. Additional information is available from high school counselors throughout the state.

Health Professions Scholarship for First Professional Year Students. One scholarship is awarded annually to a first professional year student in the College of Pharmacy. The scholarship is awarded competitively on the basis of exceptional financial need. Other eligibility requirements include U.S. citizenship (or permanent residency in the U.S.) and full-time enrollment (12 hours or more) in good standing (2.0 scholastic index or better). The scholarship is made possible by a grant from the Bureau of Health Manpower of the Department of Health and Human Services. Deadline for application is August 1. Interested students may obtain information and application by contacting the Chairperson, Grants and Financial Aids Committee, College of Pharmacy.

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 full-time 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 pharmacist intern 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 pharmacist intern un-

der 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, Pan American Building, Suite 216, 2340 Menaul Blvd., NE, Albuquerque, New Mexico 87107.

Professional Conduct

Pharmacy is a profession based on high standards of ethical, moral and legal accountability. These standards are applicable to all practitioners, clinicians, and students of the profession.

As members of the College of Pharmacy, the students, faculty, and staff of the College of Pharmacy should demonstrate responsibility by practicing the highest level of professional behavior and maintaining this level by observing all laws, including those dealing with the use, abuse, and control of dangerous drugs and controlled substances.

Any act not in keeping with these standards, duties, and laws shall be deemed a violation of professional conduct. The College of Pharmacy reserves the right to take disciplinary action by appropriate due process.

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/her subject selection in the proper direction at the earliest possible time.

It is recommended that the student intending to obtain a Bachelor of Science 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 to the College of Pharmacy.

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 that participates in the pharmacy component of the WICHE program. Additional information concerning the WICHE program may be obtained from: Western Interstate Commission for Higher Education (WICHE), Student Exchange Programs, P.O. Drawer P, Boulder, Colorado 80302, telephone (303) 497-0214.

Residency in Radiopharmacy

The University of New Mexico Radiopharmacy offers a one-year residency program in radiopharmacy. Applicants are

primarily selected from individuals who are practicing registered pharmacists eligible for licensure or reciprocity in the state of New Mexico. Upon completion of the program the individual is fully qualified to practice radiopharmacy in both dispensing and clinical settings. A certificate is issued to all participants who satisfactorily complete the residency. For application requirements and specific information, write: The University of New Mexico Radiopharmacy, University of New Mexico, Albuquerque, New Mexico 87131.

Admission

The College of Pharmacy admits students for the summer session and fall semester only.

All freshman students are admitted to the University College. A detailed statement of admission requirements to University College is in the Admission and Registration section of this catalog.

Minimum Admission Requirements

1. Completion of at least 30 hours, which should include all preprofessional year course requirements, or the equivalent, as listed below:

English (comp and rhetoric)	6 semester hours
General biology	4 semester hours
(UNM Students should take Biol 123 (Biology for Health Related Science))	
General chemistry	8 semester hours
Calculus, At least	4 semester hours
Electives, to make a total of 30 semester hours	

Conditional admission for any applicant who has not completed the listed course requirements will be considered by the Pharmacy Admissions Committee on an individual basis.

2. (a) A scholarship index of at least 2.2 on all hours attempted in all colleges and universities or
(b) If the cumulative scholarship index in (a) is less than 2.2, a scholarship index of at least 2.2 on all hours attempted in the previous 2 sessions of enrollment in a college or university, provided that, if fewer than 30 semester hours were attempted in the previous 2 sessions, a scholarship index of at least 2.2 shall be required on all work attempted in as many consecutive sessions as are necessary to bring the student's total semester hours to 30.
3. Completion of the Pharmacy College Admission Test (PCAT). The PCAT must be taken prior to admission or during the first year of enrollment in the College of Pharmacy. It is currently used to provide necessary data for validity and reliability studies. Applications for the test may be obtained from the College of Pharmacy or by writing to the Pharmacy College Admission Test, The Psychological Corporation, 304 East 45th Street, New York, New York 10017.

Application Procedures

From University College

In addition to filing the transfer petition in the University College Office, students are required to submit the following credentials to the Chairperson of the Pharmacy Admissions Committee: (1) Advisement copy of UNM transcript, (2) Official or advisement copy of transcripts from all other colleges or universities attended (if applicable), (3) Personal, Bio-

graphical, and Educational Information form. This form may be obtained from the College of Pharmacy Student Affairs Office.

From Other UNM Degree Granting Colleges

Students are required to submit the following credentials to the Chairperson of the Pharmacy Admissions Committee: (1) Advisement copy of UNM transcript, (2) Official or advisement copy of transcripts from all other colleges or universities attended (if applicable), (3) Personal, Biographical, and Educational Information form. This form serves as the unofficial application form and may be obtained in the College of Pharmacy Student Affairs Office.

From UNM Non-Degree

In addition to filing the application for admission in the University of New Mexico Admissions Office, students are required to submit the following credentials to the Chairperson of the Pharmacy Admissions Committee: (1) Advisement copy of the UNM transcript, (2) Official or advisement copy of transcripts from all other colleges or universities attended (if applicable), (3) Personal, Biographical, and Educational Information form. This form may be obtained in the College of Pharmacy Student Affairs Office.

Transfer from Other Colleges or Universities

Students are required to submit the following to The University of New Mexico Office of Admissions: (1) Application for Undergraduate Admission to the University of New Mexico which also serves as the application for admission to the College of Pharmacy. No additional application forms are necessary. (2) *Official transcript(s) from all colleges and universities attended.* (3) Other credentials as required by the University of New Mexico.

Students are required to submit the following to the Chairperson of the Pharmacy Admissions Committee: (1) Official transcript(s) from all colleges or universities attended*, (2) Courses in progress which are not included on transcript(s), (3) PCAT scores, (4) Personal, Biographical and Educational Information form.

The deadline for receipt of application and credentials is no later than one week before classes begin for the summer session and not later than August 1 for the fall semester.

For additional information and advisement on admission requirements and procedures, students should contact: Chairperson, Admissions Committee, College of Pharmacy, the University of New Mexico, Albuquerque, New Mexico 87131, Telephone (505) 277-2625.

Scholastic Regulations

In general, students 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:

General Academic Regulations

Requests for waiver of these regulations should be submitted to the Dean of the College of Pharmacy for consideration by the faculty of the College of Pharmacy.

*Note that two (2) copies of the official transcript(s) are required—one for the University of New Mexico Office of Admissions and one for the College of Pharmacy.

1. Credit will not be transferred for any pharmacy courses taken in another institution if a grade of D or F has been previously received in the course at The University of New Mexico.
2. Only nonprofessional electives may be taken under the Credit (CR) Grade Option, subject to the regulations as stated in the General Academic Regulations section of the official catalog of the University.
3. Students are required to complete at least 29 hours of post-fourth year curriculum.

Probation/Suspension Regulations

Requests for waiver of these regulations should be submitted to the Chairperson of the Academic Scholarship Committee for consideration by the Committee.

1. Probation or suspension incurred while in residence may not be removed by taking extension or correspondence courses.
2. No student will be permitted to enroll in the courses of the fifth year if his/her grade-point average is less than 2.0.
3. All students who have been placed on probation are required to obtain counseling from their academic adviser in the College.
4. A student may not repeat a pharmacy course more than once unless he/she has shown an improvement in letter grade or received a W.

Maximum Number of Hours

Students in the College of Pharmacy may not enroll for more than 20 hours per semester without prior approval from the Assistant Dean for Student Affairs of the College of Pharmacy.

Academic Advisement The College of Pharmacy Advisement Center is located in rooms 183 and 185 of the Pharmacy/Nursing Building.

The Chairperson of the Admissions Committee of the College of Pharmacy is the academic adviser for all pre-pharmacy students.

The Assistant Dean for Student Affairs is the academic adviser for all pharmacy students enrolled in the College of Pharmacy.

Minimum Residence Requirement

Students entering the College of Pharmacy with advanced standing from nonpharmacy colleges are required to complete not less than six semesters of 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.

Graduation Requirements

The University of New Mexico College of Pharmacy awards the degree of Bachelor of Science in Pharmacy upon completion of all the specified requirements.

Requests for waiver of any of these requirements should be submitted to the Dean of the College of Pharmacy for consideration by the faculty of the College of Pharmacy.

The candidate for this degree must:

1. Complete all the work outlined in the pharmacy curriculum, which includes:
 - a. 160 semester hours of course work. 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 160 HOURS REQUIRED FOR GRADUATION.
 - b. 18 hours of nonprofessional electives. Nonprofessional electives courses must be selected from at least two of the following groups:
 - 1) Communications: English writing, speech communications, linguistics, or journalism. (English 100, 101, or 102 are not acceptable.)
 - 2) Humanities: literature, including English, American, foreign and comparative literature, history, or philosophy.
 - 3) Social/Behavioral Sciences: anthropology, psychology, economics, geography, political science, or sociology. (The University Skills Social Science 100 course is not acceptable.)
 - 4) Foreign Languages
 - 5) Fine Arts: Acceptable are selected courses in the history, appreciation, and criticism of art, music, theatre, and dance. Not acceptable for this group are all other courses in studio, design, dance, applied music, music theory, or ear training.
 - c. All required courses.
2. Maintain a 2.2 in all UNM work and a 2.2 in all pharmacy courses.
3. Receive no more than two D grades in professional courses.
4. No student will be allowed to graduate with an F grade in any pharmacy course unless repeated with a higher grade.
5. Satisfy the minimum residence requirement.

CURRICULUM LEADING TO THE BACHELOR OF SCIENCE IN PHARMACY

FIRST YEAR

(Preprofessional Year)

First Semester

English 101 Wrtg w/Rdgs in Expos	3
Chem 121L Gen Chem	4
*Math 182 Calc for Life Sci I	3
**Nonprofessional electives	6
	<hr/> 16

Second Semester

Engl 102 Analytic Wrtg	3
Chem 122L Gen Chem	4
*Math 183 Calc for Life Sci II	3
***Biol 123L Biol for Hlth Rel Sci	4
**Nonprofessional elective	3
	<hr/> 17

**Nonprofessional electives: For acceptable course see page 296 under Graduation Requirements.

*Math 162 or 180-181 is accepted in lieu of Math 182 and 183.

***Biology 121L and 122L is accepted in lieu of Biology 123L.

SECOND YEAR

(First Professional Year)

First Semester

Pharm 291 Pharm Orient	1
Chem 301 Organic Chem	3
Chem 303L Organic Lab	1
Biol 237 Hum Anat and Physiol I	3
Biol 247L Hum Anat and Physiol Lab I	1
Pharm 239L Pharm Path I	2
Physics 151 Gen Physics	3
Pharm 343 Pharm Calculations	2

Second Semester

Chem 302 Organic Chem	3
Chem 304L Organic Lab	1
Biol 238L Hum Anat and Physiol II	3
Biol 248L Hum Anat and Physiol Lab II	1
Pharm 240L Pharm Path II	2
Physics 152 Gen Physics	3
Nonprofessional elective	3

THIRD YEAR

(Second Professional Year)

First Semester

Pharm 345 Pharmaceutics I	4
Pharm 292 Soc-Econ of Hlth Care Del	3
Chem 423 Biochemistry	3
Biol 239L Microbiology for Hlth Sci	5
Nonprofessional elective	3

Second Semester

Pharm 346L Pharmaceutics II	4
Pharm 373 Pharmacology I	3
Pharm 296 OTC Drugs and Prod	2
Pharm 302 Immunology for Pharm	3
Chem 253L Quant Analysis	4

FOURTH YEAR

(Third Professional Year)

First Semester

Pharm 441 Pharmaceutics III	3
Pharm 431 Clin Therapeutics I	4
Pharm 461 Org Pharm Chem I	3
Pharm 475 Pharmacology II	4

Second Semester

Pharm 442 Pharmaceutics IV	3
Pharm 432 Clin Therapeutics II	4
Pharm 445L Pharmaceutics V	1
Pharm 462 Org Pharm Chem II	3
Pharm 476 Pharmacology III	4
Nonprofessional elective	3

FIFTH YEAR

(Fourth Professional Year)

The fifth-year pharmacy curriculum consists of a College-sponsored externship program of supervised practical experience in a clinical clerkship, a hospital pharmacy externship, and a community pharmacy externship. In addition, each student is required to complete Pharmacy Law and 14 hours of professional elective courses.

The following represents the curriculum for fifth-year students:

First and Second Semester Combined

#Pharm 433L Clin Phar Rotations I	4 sem hours (180 clock hours)
Pharm 457L Hosp Pharm Externship I	2 sem hours (90 clock hours)
Pharm 435L Comm Pharm Externship I	6 sem hours (270 clock hours)
Pharm 422 Pharm Law	3 sem hours
##Professional electives	14 sem hours
Total	29 cr. hrs.

Externship courses are offered fall, spring, and summer. Placement of students in an appropriate externship setting is the responsibility of the Coordinator for Externship Programs. Following completion of the twelve required hours of externship/rotation, an additional three hours of course work in hospital pharmacy externship, community pharmacy externship, or clinical pharmacy rotation will be allowed as a professional elective.

Students may elect to take a three-hour Radiopharmacy Rotation in place of two hours of Clinical Rotations and one hour of Hospital Pharmacy Externship. The number of students admitted to the Radiopharmacy program is limited and students who elect to take the Radiopharmacy program must have the permission of both the Coordinator of Externship Programs and the Director of the Radiopharmacy.

COURSES OF INSTRUCTION

PHARMACY

PROFESSORS:

Carman A. Bliss, Ph.D., Purdue University
William M. Hadley, Ph.D., Purdue University
Gopal B. Saha, Ph.D., McGill University

ASSOCIATE PROFESSORS:

Jerry L. Born, Ph.D., University of Iowa
Joachim J. Hermann, Ph.D., University of Michigan
William H. Jeffery, Pharm. D., University of California (San Francisco)
H. William Kelly, Pharm. D., University of Minnesota
G. Philip Lehrman, Assistant Dean, Ph.D., University of Connecticut
William G. Troutman, Pharm. D., University of California (San Francisco)
Roland L. Watkins, Ph.D., University of Iowa

#All students are required to take at least one Clinical Pharmacy Rotation in the Drug Information Center.

#A list of courses that are acceptable as professional electives will be made available each spring prior to summer and fall registration, in the office of the Assistant Dean of Student Affairs. No more than three hours of Problems in Pharmacy will be counted towards graduation.

ASSISTANT PROFESSORS:

Scott W. Burchiel, Ph.D., University of California at San Francisco
 Robert C. Eschbach, Pharm. D., University of Texas
 Christopher M. Miller, M.S., University of Kansas
 J. Michael Rutledge, Ph.D., University of Florida
 Brian R. Smith, Ph.D., Utah State University
 Mark A. Stratton, Pharm. D., University of Missouri (Kansas City)

PROFESSORS EMERITI:

George Baker, Ph.D., Purdue University
 Kenneth H. Stahl, Ph.D., University of Maryland

Explanation of footnotes not indicated will be found on p. 316.

PHARMACY (PHARM)**239L. Pharmacy Pathophysiology I. (2)** Colleges of Nursing/Pharmacy and School of Medicine Staff

(Also offered as Nurs 239L.) A beginning course in human pathophysiology for pharmacy and nursing students. The course will be offered as an autotutorial program. Space restrictions limit admission to enrolled pharmacy students or by permission of instructor.

Pre- or corequisite: Biol 237L or 239L. 1 lecture, 2 hrs. lab. {Fall}

240L. Pharmacy Pathophysiology II. (2) Colleges of Nursing/Pharmacy and School of Medicine Staff

(Also offered as Nurs 240L.) Continuation of Pharm 239L. Pre- or corequisite: Biol 237L or 238. 1 lecture, 3 hrs. lab. {Spring}

276. Principles of Pharmacology. (3) Sather

Actions of drugs on living tissues and the basis upon which drugs are classified for their therapeutic usefulness. Includes the subdivisions of pharmacology: pharmacodynamics, pharmacology, toxicology, and pharmacy.

Prerequisite: Chem 212; pre- or corequisites: Biol 237-238 or 136-139L. (Open only to students in the College of Nursing and in the Dental Hygiene Program.) {Spring}

291. Pharmacy Orientation. (1) Lehrman

Analysis of the pharmacy profession, pharmaceutical practice and education, legal responsibilities of pharmacists, and an introduction to the use of the professional literature.

Prerequisite: enrollment in the College of Pharmacy. {Fall}

292. Socio-Economics of Health Care Delivery. (3) 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. {Fall}

296. O.T.C. Drugs and Products. (2) Stratton

Lectures on various O.T.C. Drugs and Products. Emphasis on the pharmacist's role in O.T.C. counseling. Additionally, the student is exposed to aspects of effective communication skills.

Prerequisites: 291 or permission of the instructor. {Spring}

302. Immunology for Pharmacy. (3) Burchiel

The basics of molecular and cellular immunology with special emphasis on the effects of drugs on the immune system. Introduction to vaccines, toxins and anti-toxins, and chemotherapeutic agents.

Prerequisites: third year standing, Biol 239, or permission of instructor. {Spring}

343. Pharmaceutical Calculations. (2) Rutledge

Metrology and the arithmetic involved in compounding and prescription work. {Fall, Summer}

345. Pharmaceutics I. (4) Hermann

The physicochemical principles and concepts that form the basis for the study of pharmaceutical delivery systems are

presented. Topics considered include intermolecular forces, thermodynamics, states of matter, ionic equilibria, solubility, partition phenomena and chemical kinetics.

Prerequisites: Physics 152, Math 181, Chem 302, 304L, Pharm 343 or concurrent enrollment in Pharm 343. 3 lectures, 1 hr. recitation. {Fall}

346L. Pharmaceutics II. (4) Rutledge

A course designed to familiarize the student with the classification, fundamental principles and processes of pharmacy and pharmaceutical dosage forms. Classroom study is augmented by laboratory preparation.

Prerequisites: 343, 345. 3 lectures, 1 lab. {Spring}

373. Pharmacology I. (3) Hadley

Study of the general principles of pharmacology followed by study of antimicrobials and antineoplastics.

Prerequisites: 239L-240L, Biol 237-238, and Chem 423. {Spring}

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}

411L. Nuclear Pharmacy Instrumentations. (4) Christie, Study, Wylie

Interactions of radiation with matter and the measurement of radiation in a nuclear pharmacy or nuclear medicine laboratory. 3 lectures, 3 hrs. lab. {Fall}

412. Nuclear Pharmacy/Nuclear Medicine. (3) Hladik, Johnson, Saha, Study

Basic concepts essential to nuclear pharmacy practice. Topics include the anatomy and physiology of organ systems and diseases evaluated by nuclear medicine procedures, mechanisms of radiotracer localization, preparation, quality control, and use of radiotracer drugs. 3 lectures. {Spring}

414. Advanced Radiopharmacy Practices. (3) Hladik, Saha

The course will be taught in the block methods. Specific block topics will include quality control in nuclear medicine, in-vitro nuclear medicine procedures (radioimmuno-assay, blood volumes, Shilling tests, CO₂ breath tests, etc.), and radiopharmaceutical manufacturing.

Prerequisite: permission of instructor. 3 lectures. {Spring}

415. Basics of Nuclear Medicine Science. (3) Saha, Wenderoth

This introductory course provides the scientific basis for nuclear medicine science and radiopharmacy. Topics include: laws of radioactive decay, counting statistics, fundamentals of tracer methodology, radiochemistry, radiation chemistry, nuclear chemistry, and radiation biology. 3 lectures. {Fall}

417L. Radiopharmacy Rotation I. (1-4) Levit, Mason, Wenderoth

Active involvement in all aspects of radiopharmacy dispensing, on-the-job training, lectures, demonstrations and special assignments are involved. Self-disciplined, objective based, task oriented approach is employed. 1 lecture, 3-9 hrs. lab. {Summer, Fall}

418L. Clinical Nuclear Pharmacy. [Radiopharmacy Rotation II.] (2-5) Hladik

Involvement in clinical aspects of radiopharmacy including professional communications; patient interviews; clinical consultations and problem solving; scan analysis; specialized nuclear diagnostic procedures; clinical trial design and coordination.

Prerequisite: 417L. {Spring}

419. Radiopharmacy Operations. (1) Levit

Focuses on unique principles and procedures used in the operation of commercial radiopharmacies. {Fall}

421. Pharmacy Accounting and Financial Management. (3)

Watkins

Principles and practices involved in basic accounting, the keeping of records, financial analysis, and the interpretation of financial reports applicable to community pharmacy. {Fall}

422. Pharmacy Law. (3) Lehrman

Laws and regulations relating to the practice of pharmacy. Includes federal and state drug laws, business law pertinent to pharmacy practice, and review of current health-related legislation.

Prerequisite: fifth year standing or permission of instructor. {Spring}

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. {Spring}

425. Seminar in Pharmacy Administration. (1) Lehrman

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: fifth year standing or permission of instructor. {Fall}

426. Pharmaceutical Marketing. (3) Lehrman

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: fifth year standing or permission of instructor. {Spring}

431. Clinical Therapeutics I. (4) Eschbach, Jeffery, Kelly, Stratton, Troutman

Introduction to disease states; laboratory tests used in their diagnosis and treatment; clinical drug therapy, adverse reactions, drug interactions and interferences with laboratory procedures inherent in such therapy.

Prerequisite: 373; corequisite: 475. 3 lectures, 2 hrs. conference. {Fall}

432. Clinical Therapeutics II. (4) Eschbach, Jeffery, Kelly, Stratton, Troutman

Continuation of 431.

Prerequisites: 475 and 431; corequisite: 476. 3 lectures, 2 hrs. conference. {Spring}

433L. Clinical Pharmacy Rotations I. (1-4)† Eschbach, Jeffery, Kelly, Stratton, Troutman

A directed experience with the student functioning at a professional level as a member of a health care team.

Prerequisites: 432, 445 and 476. Enrollment may be adjusted to balance the number of students in 433L and 434L. {Fall}

434L. Clinical Pharmacy Rotations II. (1-3)† Eschbach, Jeffery, Kelly, Stratton, Troutman

Optional rotations in clinical pharmacy.

Prerequisite: 433L. Enrollment may be adjusted to balance number of students in 433L and 434L. {Spring}

435L. Community Pharmacy Externship I. (6)† Henline

Consists of practical experience for students in a community pharmacy under the guidance of pharmacy practitioners.

Prerequisite: 445L. {Fall}

436L. Community Pharmacy Externship II. (1-3) Henline

A continuation of Pharmacy 435L.

Prerequisite: 435L. {Summer, Fall, Spring}

437. Clinical Pharmacy V Lecture. (3) Eschbach, Jeffery, Kelly, Stratton, Troutman

A study of drug-induced diseases by an organ systems approach, utilizing current medical literature. Emphasis is placed

on the detection and treatment of the most clinically significant adverse drug reactions, particularly drug allergy.

Prerequisites: 432 and 476. {Fall}

441. Pharmaceutics III. (3) Rutledge

The course is designed to present to the student the basic principles of biopharmaceutics and includes aspects of absorption, distribution and elimination of drugs, and an introduction to clinical pharmacokinetics.

Prerequisite: 346. {Fall}

442. Pharmaceutics IV. (3) Hermann

Introduction to pharmacokinetic principles and their application to the evaluation of absorption, distribution and elimination profiles of drugs in man. The course is designed to emphasize the manner in which pharmacokinetic equations are used to develop safe and effective drug dosage regimens.

Prerequisite: 441. {Spring}

445. Pharmaceutics V. (1) Rutledge, Staff

A laboratory course designed to introduce and prepare the student for functions and practice of dispensing of medications in a community pharmacy.

Prerequisites: 441, 3 hrs. lab. {Spring}

446. Advanced Physical Pharmacy. (3) Hermann

In-depth physicochemical approach to the understanding of pharmaceutical delivery systems such as emulsions, suspensions, capsules, and tablets. Other topics include ionic equilibria of polybasic acids and their salts, diffusion and permeability characteristics of drugs, controlled release concepts.

Prerequisite: 442. {Spring}

449. Advanced Pharmacokinetics. (3) Hermann

The course is designed to emphasize both the derivation and use of pharmacokinetic equations. Suitable models for the interpretation of pharmacokinetic data are developed. Computer technology, as applied to pharmacokinetics, is discussed.

Prerequisite: 442. {Fall}

450L. Manufacturing Pharmacy. [Clinical Pharmaceutics.] (3) Rutledge

Introduces the student to the technology involved in the industrial preparation of pharmaceutical dosage forms—characteristics and manufacturing technology of pharmaceutical dosage forms such as oral solids, compressed tablets and capsules, oral fluids and ointment preparations. Emphasis through the course is placed on quality control and assurance, and current good manufacturing practices.

Prerequisite: 442. 1 hr. lecture, 6 hrs. lab. {Fall}

451. Institutional Pharmacy Practice. (3) Miller

Objectives, principles, and methods for the provision of comprehensive pharmaceutical services in meeting modern patient care goals in hospitals and nursing facilities.

Prerequisite: fifth year standing or permission of instructor. {Fall, Spring}

452L. Institutional Pharmacy Management. (4) Miller

Administrative and managerial processes and decision making in the organization, control and operation and evaluation of pharmacies or drug rooms in hospitals and nursing facilities.

Prerequisite: 451. 3 lectures, 2 hrs. lab. {Spring}

454L. Projects in Hospital Pharmacy Practice. (2-3) Miller

Administrative project out in the field in any area of hospital pharmacy practices.

Prerequisite: fifth year standing. 9 hrs. lab. {Fall, Spring}

457L. Hospital Pharmacy Externship I. (1-2)† Henline

The externship is designed to build basic working competencies required in hospital pharmacy practice.

Prerequisite: 445L. {Summer, Fall, Spring}

458L. Hospital Pharmacy Externship II. (1-3) Henline

An optional continuation of Pharm 457L.

Prerequisite: 457L. {Summer, Fall, Spring}

459L. Sterile Preparations. (4) Miller

Theory and application of principles involved in the formulation, preparation, packaging, sterilization of sterile pyrogen-free products. Sterile techniques and control procedures are stressed.

Prerequisites: Pharm 346L, fifth year standing, and permission of instructor. 3 lectures, 4 hrs. lab. {Fall, Spring}

461. Organic Pharmaceutical Chemistry I. (3) Born

A study, from the chemical viewpoint, of organic substances used in pharmacy and medicine.

Prerequisite: Chem 301; corequisite: Pharm 475. {Fall}

462. Organic Pharmaceutical Chemistry II. (3) Born

A continuation of 461.

Prerequisite: 461; corequisite: 476. {Spring}

463. Advanced Pharmaceutical Chemistry I. (3) Born, Smith

A comprehensive study of organic medicinal agents, with emphasis on the synthesis, properties, and relationships between chemical constitution and physiological activity.

Prerequisites: 462, 476. {Fall}

464. Advanced Pharmaceutical Chemistry II. (3) Born

A continuation of 463.

Prerequisite: 463. {Spring}

465L. Organic Pharmaceutical Chemistry Laboratory I. (3) Born

The synthesis and analysis of representative organic compounds used as drugs.

Prerequisite: Chem 253L. Pre- or corequisite: Pharm 461. 1 lecture, 6 hrs. lab. {Fall}

466L. Organic Pharmaceutical Chemistry Laboratory II. (3) Born

A continuation of 465L.

Prerequisite: Chem 253L. Pre- or corequisite: Pharm 462. 1 lecture, 6 hrs. lab. {Spring}

467. Chemistry of Natural Products I. (3) Bliss, Staff

The study of drugs of biological origin with emphasis on active constituents, their biosynthesis, structure, properties, and medicinal application.

Prerequisites: 462, 476. {Fall}

468. Chemistry of Natural Products II. (3) Staff

A continuation of 467.

Prerequisites: 462, 476. {Spring}

475. Pharmacology II. (4) Burchiel, Smith

A continuation of 373. Coverage includes drugs affecting the autonomic and central nervous systems, and cardiovascular and endocrine system pharmacology. The actions of the more important drugs are demonstrated.

Prerequisites: 373, Chem 423 or permission of instructor. {Fall}

476. Pharmacology III. (4) Burchiel, Smith

A continuation of 475.

Prerequisite: 475 or permission of instructor. {Spring}

477. Immunopharmacology. (2) Burchiel

Continuation of Pharmacy 302 with detailed emphasis on immunoassay, receptors, regulation of inflammation and immunity by pharmacologic and other agents, natural products/mediators, and immunotherapy.

Prerequisites: fifth year standing, 302, 476, or permission of instructor. {Fall}

479L. Pharmacology Laboratory. (3) Staff

Advanced pharmacological experimentation utilizing both in vitro and in vivo techniques commonly employed in the evaluation of therapeutic agents.

Prerequisites: 475, 476. 9 hrs. lab. {Fall}

482. Toxicology I. (3) Hadley, Troutman

Study of the toxicities produced by household, environmental, and industrial chemicals with emphasis on symptomology and treatment. Special emphasis will be directed toward industrial, economic, and therapeutic toxicity problems encountered by the hospital and community pharmacist.

Prerequisites: 475L and 476L or permission of instructor. {Fall}

483L. Pharmaceutical Chemistry/Pharmacological Lab. (2) Born, Hadley

The synthesis and testing for biochemical pharmacologic effects of compounds which may be useful as drugs.

Prerequisites: fifth year standing or permission of instructor. One 6 hr. lab./week. {Fall}

484L. Analytical Toxicology. (3) Born, Hadley

The study of analytical techniques and instruments used in toxicology research. 1 lecture, 6 hrs. lab. {Spring}

485. Biochemical Pharmacology/Toxicology. [Biochemical Pharmacology Lecture.] (3) Hadley, Smith

The interaction of drugs and other chemicals with life forms at the biochemical or molecular level. Desirable and undesirable effects will be covered, and mechanisms of metabolism and excretion will be emphasized. 3 lectures. {Fall}

487. Pollution Toxicology. [The Toxic Environment.] (2) Hadley

The effect of the environment on health will be considered. Factors such as air, water, soil, and noise pollution will be included.

Prerequisite: fifth year standing. {Fall}

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. {Spring}

DIVISION OF PUBLIC ADMINISTRATION

T. Zane Reeves, Division Director
Division of Public Administration
Mesa Vista 3059, 277-3312

THE DIVISION OFFERS an interdisciplinary Master of Arts in Public Administration for the professional preparation of men and women presently employed or interested in public service careers at all levels of government. The Curriculum is also offered through the Santa Fe Graduate Center.

The Division offers concentration areas for persons interested in energy management, health, administration, budget-financial management, tribal administration, criminal justice administration, public science policy. It is not necessary to choose a concentration and many students select a general program. Joint degree programs with the School of Law, Latin American Studies and Community and Regional Planning enables students to earn both degrees on a coordinated basis.

For description of courses offered in public administration, see the Courses of Instruction following this section. For curriculum see the Graduate Programs Bulletin.

COURSES OF INSTRUCTION

T. Zane Reeves, Division Director
Mesa Vista 3059, 277-3312

PROFESSORS:

T. Zane Reeves, Ph.D., University of Southern California
Leonard Stitelman, Ph.D., University of Colorado

ASSOCIATE PROFESSOR:

Alan B. Reed, Ph.D., University of Texas

ASSISTANT PROFESSORS:

Timothy J. De Young, Ph.D., Claremont Graduate School
Helen J. Muller, Ph.D., University of Southern California
Bruce J. Periman, Ph.D., Claremont Graduate School
Jose A. Rivera, Ph.D., Brandeis University

RESEARCH ASSOCIATE PROFESSOR:

Jan Knippers Black, Ph.D., American University

PROFESSORS EMERITI:

Ferrel Heady, Ph.D., Washington University
Albert H. Rosenthal, Ph.D., Harvard University
Donald W. Smithburg, Ph.D., Harvard University

For a description of the curriculum leading to the degree Masters of Arts in Public Administration, see the Graduate Programs Bulletin.

PUBLIC ADMINISTRATION (PUB AD)

*421. Introduction to Public Management. (3)

(Also offered as Pol Sci 375.) The organization, administration, and operation of federal, state, and local agencies with emphasis on the dynamics and problems involved in carrying out public policy. (No credit for Division students.)

*497. Social Planning Seminar. (3)

(Also offered as CRP 497.) Consequences of social and cultural change on design and planning.
Prerequisite: senior standing. {Fall, Spring}

*500. Contemporary Public Administration. [Issues in Contemporary Public Administration.] (3)
(Also offered as Pol Sci 500.)

*521. Administrative Behavior. (3)

*522. Administrative Process. (3)

(Also offered as Pol Sci 522.)

*523. Administration of Urban and Local Government. (3)

*524. Intergovernmental Administrative Problems. (3)

*525. Public Personnel Administration. (3)

*530. Health Care Administration. [Public Health Administration.] (3)

*535. Comparative Public Administration. (3)

(Also offered as Pol Sci 535.)

Prerequisite: 500 or permission of instructor.

*540. Administration of State Governments. (3)

*544. Public Budgeting and Financial Management. (3)

*545. Economics of Budget Process. (3)

(Also offered as Econ 445.)

*550. Automation in Public Management. (3)

*551. Problems. (1-3 hrs. per semester)

Prerequisite: permission of instructor.

*555. Workshop for Interns. (1-3 hrs. per semester, to a maximum of 6)

Prerequisite: permission of instructor.

*560. Public Policy and Aging. (3)

*565. Urban Design, Concepts, and Methods. (3)

(Also offered as CRP 565.)

*570. Pro-Seminar in Public Policy. (3)

(Also offered as Pol Sci 570.)

*575. Seminar on Energy Administration. (3)

(Also offered as Econ 343 and CRP 575.)

*580. Criminal Justice Administration. (3)

*585. Tribal Administration. (3)

*590. Division Seminar. (3)

*595. Public Science Policy and Administration. (3)

*597. Research Methodology. (3)

Prerequisite: 500.

*599. Master's Thesis. (1-6 hrs. per semester)

See the Graduate Programs Bulletin for total credit requirements.

UNIVERSITY COLLEGE

William H. Huber, Dean
University College
University College 20, 277-2631

THE UNIVERSITY COLLEGE is an academic division of the University of New Mexico that incorporates the University College, the Bachelor of University Studies degree program, and the Testing Division.

University College

All freshmen meeting the admission requirements for baccalaureate level work at UNM are admitted to and enrolled in the University College together with many lower division transfer students.

The University College was created to accomplish these fundamental objectives:

1. to provide freshmen time to adjust to college life and to assume the new responsibilities of a college student;
2. to allow freshmen to select from courses offered by most academic departments at the University so that they can explore various fields of study or pursue immediately an academic major, change an academic concentration, or bring one into focus;
3. to give students the opportunity to meet the admission requirements of the degree granting program they ultimately plan to pursue;
4. to aid freshmen who are undecided on an academic major explore areas of academic and personal interest by offering guidance in the proper selection of fields of study and specific courses and in choosing among alternatives.

University College maintains an advisement center and also coordinates the work of the college advisement centers of the eight UNM degree-granting colleges to assist students in their formulation of academic directions, goals, and commitments. All new UNM undergraduate students are required to meet with an adviser prior to registration for their first semester.

University College students with a definite major in mind or with a preference in an academic area go to the advisement center in the college offering that major to ensure they have available to them current and relevant course and academic information. While students may be directed to a degree granting college for course advisement, they are nevertheless enrolled in University College, and this is also where their academic records are kept.

Students, who are as yet unsure of their academic interests or those who wish to consider several possible areas of study, meet with a Special Adviser in University College in order to explore their interests and abilities, to discuss academic strengths and weaknesses, and to relate these to an appropriate selection of courses.

The Special Advisers of University College endeavor to be consultants, referral sources, and friends. The advisers hope to develop a caring and trusting relationship with students which will have an important influence on students' educational growth and development. Students will find advisers offering suggestions, raising questions for consideration, discussing academic matters, and explaining applicable university regulations and policies. The staff of University College is available to students throughout the entire calendar year.

It should be noted that at the University *students are solely responsible for understanding and meeting all requirements for transfer to, and eventual graduation from, whichever degree program they ultimately select.*

Admission Requirements.

For admission requirements to the University College, see the Admission and Registration section of this catalog. The University College cannot 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. Students, who reach sophomore status and meet the specific admission requirements of the degree-granting college they have selected, should transfer to that college without delay. Students who wish to continue to explore different areas of interest may remain in University College through the sophomore year. However, students are not permitted to re-enroll in the University College if, at the end of their previous semester or session of enrollment, they had attempted a total of 72 or more semester hours. Attempted work, for purposes of University College eligibility, includes all hours of credit 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 students be eligible to re-enroll in the University College if, at the end of their previous semester or session of enrollment, they had earned a total of 64 or more semester hours. Earned hours, for purposes of continued eligibility to enroll in University College, are defined as all semester hours of credit recognized in University College, whether earned at UNM or at any other institution of higher learning, including hours such as basic university skills course credits, accepted military credits, and CLEP credits. Students may not enroll in the University College after admission to any baccalaureate degree program at the University of New Mexico.

Scholastic Regulations. Students enrolled in the University College are classified only as freshmen or sophomores and cannot obtain junior or senior status until they transfer to a degree-granting college. The most important scholastic regulation that relates to classification is the following:

Courses numbered in the 100s are those open to freshmen. Courses numbered in the 200s are normally for those of sophomore status, although in some instances freshmen may qualify for them. Courses numbered in the 300s and 400s are for upper-class students with junior and senior status. These courses are **not** open to freshmen except in **rare** instances. An instructor can disenroll freshman students from courses numbered 300 and above in appropriate cases. Only when placement scores or previous background warrant would a student be enrolled for a 200-level course. The only instances of a freshman receiving 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 *General Academic Regulations* section of this catalog. Determination of the minimum required scholastic index of 1.40 or 1.70 is based upon University College *eligibility hours* as defined in the section above.

Admission to a Degree-Granting College. The *minimum* requirements for transfer from the University College to any UNM degree-granting college are:

1. Twenty-six hours of earned credit acceptable to that college;

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 two semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous two 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.)

It should be noted that most degree colleges have admission requirements beyond the minima noted above. In many instances a grade point average much higher than a 2.0 minimum is required. In addition, most of the colleges also have specific course requirements before students are admitted to their program. For information on admission requirements of a particular degree-granting college, students should refer to the admission regulations set forth in the section of this catalog devoted to that college.

Transfer from the University College

To transfer from University College into a UNM degree-granting college students **MUST** fill out a petition in the University College. The transfer will take place at the close of the semester (or summer session) during which the student files a transfer petition, provided the student meets the admission requirements of the designated degree college. If students do not meet the admission requirements, the transfer petition becomes invalid. This makes it necessary for students to re-petition for transfer in some future semester (or summer session).

Certificate of Completion

Upon application to the University College office, students will be awarded a University College Certificate if the following requirements are met: (1) completion of 60 semester hours of acceptable college credit (30 of these hours must be UNM credits and 15 of these hours must have been earned in University College); 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. This program, initiated in 1969, is administered through the University College.

The fundamental purpose of this baccalaureate degree program is to provide the opportunity for individual students to take responsibility for developing a unique program of studies not available through other UNM degree-granting colleges. This degree program permits both intercollege and interdepartmental combinations of courses that would be difficult or impossible to obtain if students were meeting the specific requirements of a traditional undergraduate degree program. Also, students may structure a program of studies so that the sequence and combination of courses reflect either a specialized or a broad pattern of educational experience, depending upon individual preference. This program is not intended for the undecided student. It may not be used for a second undergraduate degree.

Strict compliance with degree program scholarship requirements is mandatory for entrance and continuation in the program. An entry advisement interview is required. This

interview is not utilized to restrict entrance to the program. Rather, students will have an opportunity to review their educational plans and strategies in light of the program requirements. The advisement of students is provided by the Special Advisers of University College.

Students in the Bachelor of University Studies Program must meet the general academic regulations of this University specified for all baccalaureate degree programs. Questions regarding any aspect of the program should be addressed to the Bachelor of University Studies Program, University College. The University College office has information about any new revised requirements in the program that have become effective subsequent to the preparation of this issue of the Bulletin (catalog).

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

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 acceptable to this program. (Note: these 26 hours cannot include credits in English 100, Mathematics 100, Natural Science 100 courses, Social Science 100 courses, nor credits in Mathematics 120 earned Fall 1979 or later. Also, certain technical and paraprofessional credits will be disallowed.)
2. (a) A B.U.S. grade point average of at least 2.0; or (b) A B.U.S. grade point average of at least 2.0 on all hours attempted in the previous two semesters of enrollment; provided that, if fewer than 26 hours were attempted in the previous two semesters, a B.U.S. grade point average 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 B.U.S. grade point average below).
3. An entry advisement interview prior to transfer.
4. Demonstrated competence in the writing of English as evidenced by one of the following: (a) Passing English 102, offered since Fall of 1980 at UNM, with a grade of C or higher; (b) An English ACT score of 25 or higher (or an equivalent score on a comparable entrance exam—SAT verbal score, for instance); (c) Passing the CLEP exam comparable to English 102; (d) For students who transfer English 102 credit from another institution or who have passed English 102 at UNM prior to Fall 1980, passing the Communications Skills Test (C.S.T.).

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 B.U.S. grade point average of 2.0 (see definition below), the entry advisement interview, and fulfillment of the English competency requirement. To transfer, students must begin the process in the University College Office.

Transfer from Other Accredited Institutions. Students seeking transfer into the Program from another accredited institution must meet the University's general qualitative admission requirements for transfer and also present a minimum of 26 transferable semester hours of credit acceptable to this Program. Acceptable transfer credits will be reduced if credits are subsequently earned in comparable UNM courses. Also, note that transfer work is not computed in the determination of the UNM scholarship index. The required entry advisement interview must be held no later than the end of the fourth week of the initial semester in the Program; the English competency requirement must be met within time limits specified by the program.

Degree Requirements.

Students planning to graduate at the close of a given semester must make application for the degree with the Bachelor of University Studies Staff Assistant in the University College office by the end of the fourth week of that semester. *Students are encouraged to make such application during the semester preceding that in which graduation is planned.* A summary specifying the work remaining for the degree will be prepared and sent to students by the B.U.S. Staff Assistant. **However, students are solely responsible for completing all the requirements for graduation.** No credit is recognized for English 100, Mathematics 100, Natural Science 100 courses, Social Science 100 courses, nor for Mathematics 120 earned Fall 1979 or later.

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, or, up to eight hours of PE 188 (Therapeutic Physical Education).
2. A minimum B.U.S. grade point average of 2.0 (see definition below).
3. A minimum of 50 semester hours earned in courses at the upper division level. (300 level or higher.)
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 B.U.S. Program, a minimum of two complete semesters of enrollment for UNM residence credit. These semesters in the B.U.S. Program must be the last two semesters of attendance at UNM.
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.

B.U.S. Grade Point Average. The B.U.S. grade point average is based on all attempted UNM courses that are acceptable to the B.U.S. Program. The only exception to this statement at the present time is the inclusion of the University Skills courses (English 100, Mathematics 100, Social Science 100, and Natural Science 100) and Mathematics 120 for computation of the grade point average but not as earned credit toward the degree. Technical, vocational, and special courses taken at UNM and transfer credits from other accredited institutions are not included in the B.U.S. grade point average.

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 program are able to advance more rapidly toward positions requiring management and supervisory competencies. Students interested in this Program should consult a Business Education Programs adviser since the emphasis of the Program can be modified to meet the student's needs. (See also the "Associate of Arts Degree in Secretarial Studies and Office Supervision" in the Department of Secondary and Adult Teacher Education.)

Suggested Curriculum

First Semester

Engl 101 Wrtg w/Rdgs in Expos	3
Bus Ed 112 Intern Typing	3
Bus Ed 113 Shorthand Theory (Gregg or Forkner)	3
Sp Com 101 or 130 Intro to Spch or Pub Spkg	3
Elective	3
	<hr/> 15

Second Semester

Engl 102 Analytic Writing	3
Hist Elective	3
Bus Ed 114 Shorthand Dictation	3
Bus Ed 262 Adv Typing	3
Elective	3
	<hr/> 15

Third Semester

Bus Ed 293 T/Bus Math/Elect Calcs	3
Bus Ed 253 Shorthand Trans (Symbolic system)	3
Bus Ed 201 Intro to Data Processing	3
Bus Ed 267 Secretarial Admin	3
Electives	4
	<hr/> 12

Fourth Semester

Bus Ed 265 Bus Communications	3
**Mgt 201 Secretarial Accounting	3
Bus Ed 350 Voc Off Lab (May be waived if student has had acceptable office experience. Elective may be substituted.)	3
Econ 200 or 201 Prin & Problems	3
Elective	3
	<hr/> 15

Electives should be taken from the following areas in consultation with the student's major adviser:

English, mathematics, psychology, geology, fine arts, political science, sociology, business, computer science.

A student who has had previous instruction in shorthand and typewriting should talk with 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 electives. Two hours in non-professional physical education courses may be chosen as electives. Sixty hours are required to complete the certificate program.

Testing Division

The Testing Division is located in the Student Health Center-University College Building. The Division coordinates testing which is required by the University and administers individual tests on a referral basis from University agencies, including the Student Mental Health Team. The Division also serves as a center for national testing programs which include the American College Tests (ACT), the College Level Examination Program (CLEP), the Graduate Management Admission Test (GMAT), the Graduate Record Examination (GRE), the Law School Admission Test (LSAT), the Medical College Admission Test (MCAT), the General Educational Development Test (GED), and numerous others. Information concerning these programs may be obtained from the Division.

*For students who would like to take more accounting courses, see a Business Education Programs adviser to arrange sequencing.

In addition to testing services, the Division maintains and manages data bases related to the testing programs, such as ACT, the Scholastic Aptitude Test (SAT), the Communications Skills Test (CST), and the GRE. The Division also performs institutional research related to the testing programs and to student performance. Still further, the Division provides consulting services to UNM faculty and staff in the area of measurement and evaluation.

Another responsibility for the Testing Division is the Instructor and Course Evaluation System (ICES), which is used to evaluate teaching effectiveness from the student perspective. ICES is completely computer based, utilizing machine scannable requests for forms, scannable student forms, and computer produced results.

INTERDISCIPLINARY STUDIES AND SPECIAL PROGRAMS

ETHNIC STUDIES

AFRO-AMERICAN STUDIES

Shiame Okunor, Director, Academic Affairs
1819 Roma NE, 277-5644

Johanna (Juba) Clayton, Director, Student Services
1819 Roma NE, 277-5644

FACULTY

Raymond Hamilton, J.D., Harvard University
Iola Harding, Ph.D., University of New Mexico
Robert Harding, J.D., University of Kentucky
Tommy Jewel, J.D., University of New Mexico
Lenton Mairy, Ph.D., University of New Mexico
Elwood McDowell, Rev., M.A., University of New Mexico
Marion Metivier, B.A., Eastern Connecticut State University
Gustav Ntiforo, Ph.D., University of New Mexico
Shiame Okunor, Ph.D., University of New Mexico
Cortez Williams, Ph.D., University of New Mexico

The Academic Affairs division is an interdisciplinary program offering courses independently. Some of the courses are however, cross-listed with other departments. All the courses may be taken as either electives or as substitutes for required courses with prior approval of the students' major department.

The Student Services division of the Afro-American Center program provides academic and personal counseling and advisement. Financial aid, grants, loans, admission assistance, free tutorial assistance, typing services, and scholarship information.

The activities of both the Student Services and the Academic Affairs divisions are augmented by sponsorship of the following university/community projects: Afro-American Center Resource Library, The After School Academy, Youth Summer Program, Student Emergency Loan Fund, and the Black Experience Television Program.

AFRO-AMERICAN STUDIES (AFRO A)

101. Swahili I. (3) Mutunga

Foundation course for all beginning students interested in reading or speaking the language.

{Fall}

102. Swahili II. (3) Mutunga

Foundation course for all beginning students interested in reading or speaking the language.

{Spring}

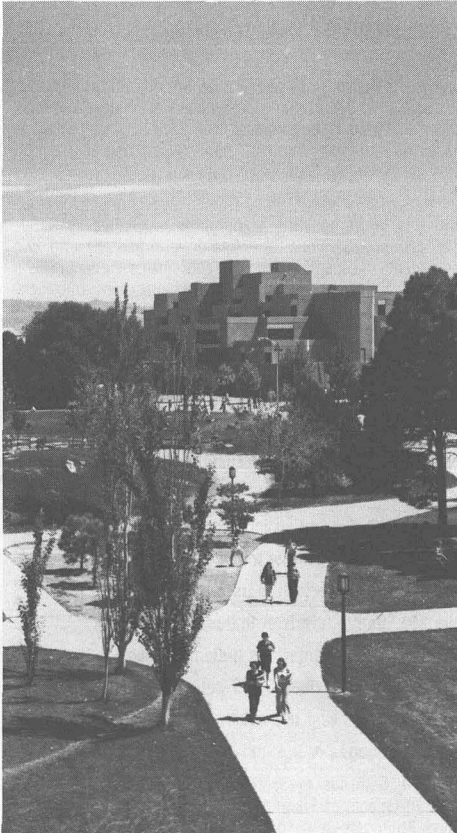
103. Foundation of Afro-American Studies. (3) Okunor

An exploration of the philosophical basis for the creation and the existence of Afro-American Studies program.

{Fall, Spring}

240. Music of Black Americans 16th to 19th Century. (3)

The study of the History, forms and functions of music and its practices among Afro-Americans. (1600 to Mid 1800.)



250. Black Women. (3) Metivier

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}

284. Afro-American History I. (3) I. Harding

A comprehensive survey of the story of Afro-Americans from pre-European days in Africa to the Dynamic 1960's. {Fall}

285. [325.] Afro-American History II. (3) Harding

This course will explore each of the major historical periods, Black leaders of those times and their influence on the social and political advancement of Afro-American from Emancipation through the Civil Rights era. Prerequisite: 284 {Spring}

294. [301.] Institutional Racism. (3) R. Harding

A study of the pervasive nature and the broad effects of race-influenced institutional decisions; the differences in the legal definition of institutional and individual racism.

297. Interdisciplinary Topics. (1, 2, 3)

Special topics course for students with background in specialized areas and Afro-American Studies. {Fall, Spring}

299. Black Leaders in the U.S. (3) R. Harding

A comparative study of major Black leaders and their impact on race relations in the United States. {Spring}

309. Blacks in Politics. (3) Malry

A study of the History and diverse educational and political maturation processes of elected Black officials and the political process function. {Fall}

333. Black Political Theory. (3)

Survey course of the literature and philosophy of the Black Diaspora.

380. [280.] African Literature. (3)

An analytical look at the works of major African writers and their usage of African symbols to portray Africa of the past, present and the future.

387. [285.] Blacks in Latin America. (3) Williams

(Also offered as Hist 387.) A comprehensive analysis of the plight of Black people in Latin America as compared with their experiences in North America, from the 15th to 19th century. {Fall}

390. [290.] Black Theology and Philosophy. (3) McDowell

Introduction to some traditional western theological and philosophical schools of thought as a basis for intensive examination of the works of prominent Black Theologians and Philosophers. {Spring}

391. Problems (1-3) Okunor

{Fall, Spring}

395. [295.] Education and Colonial West Africa. (3) Ntifofo

A study of European Education and its psychological, sociological and cultural impact of traditional African society. {Fall, Spring}

***397. Interdisciplinary Topics. (1, 2, 3)**

Special topics course for students with background in specialized areas and Afro-American Studies. {Fall, Spring}

Related Courses**Ed Fdn *493. Topics. (1-3)**

Comparative Education. African emphasis. {Fall, Spring}

CHICANO STUDIES

Tobias Duran, Coordinator
1815 Roma NE, 277-5020

COORDINATOR:

Tobias Duran, M.A., San Jose College

Chicano Studies is an interdisciplinary program of study. Courses are offered in several departments, including History, Sociology, Political Science, Spanish, American Studies, Music, Anthropology, and Psychology.

Am. St. 241: The Chicano Experience in the United States. (3)

Am. St. 341: History of Conflict in New Mexico. (3)

Hist. 283: La Raza: A History of Mexican-Americans. (3)

Span. 300: Chicano Literature. (3)

Span. 304: Southwest Hispanic Folklore. (3)

Soc. 326: Sociology of New Mexico. (3)

Phil. 115: Introduction to Chicano Thought. (3)

Ed. Fdn 383: Education of the Mexican American: Trends, Issues, Problems. (3)

NATIVE AMERICAN STUDIES

COORDINATOR: Ted Jojola, Director
1812 Las Lomas NE

Courses in Native American Studies are offered through various academic departments. Instructors are Native American and other experts in the particular field. Consult current schedule of classes for latest offerings. Presently, no degree program in Native American Studies is available.

The Native American Studies Center also sponsors various programs throughout the academic year. Staffed by Native American professionals, the Center is organized into two components. Academic Programs coordinates curriculum and research activities. Student Services provides outreach, counseling, and tutoring for Native American student organizations, serves as a gathering place for students, and receives and disseminates information pertaining to scholarships, grants, and employment.

Amer St 221. Southwest Indian Communities. (3)

Amer St 321. Indian in a Multicultural Setting. (3)

Amer St 322. Five Civilized Tribes. (3)

Amer St 326. The Indian in American Popular Culture. (3)

Anth 237. Indians of New Mexico. (3)

Anth 305. The American Indian: North America. (3)

Anth 306. South American Indians. (3)

Anth 315. Current American Indian Problems. (3)

Anth 333. Ritual Symbols and Behavior. (3)

Anth 338. Southwest Indians II: Modern. (3)

Anth 371. Images of the Indian in American Culture. (3)

CRP 470. Seminar. (1-3, maximum of 6 hours)†
Cultural Aspects of Planning
Native American Land Topics

CRP 570. Seminar. (1-3)

Native American Land Topics.
Cultural Aspects of Planning.

Econ 340. American Indian Economic Development. (3)**Econ 439. Topics in American Indian Economic Development. (1-6)****Engl 211. Topics in Literature. (3)**

Indian Autobiographies

Engl 397. Regional Literature. (3)

Native American Literature: Traditional

Native American Literature: Modern and Contemporary.

Hist 369. American Indian History. (3)**Hist 574. Seminar in American Indian History. (3)****Navajo 101. Elementary Navajo. (3)**

(Non-native speakers only)

Navajo 102. Elementary Navajo. (3)

(Native speakers only)

Navajo 201. Intermediate Navajo. (3)**Navajo 497. Undergraduate Problems. (1, to a maximum of 6)****Navajo 551. Graduate Problems. (1-6, per semester)****Pub Ad 585. Tribal Administration. (3)****Women St 233. American Indian Women. (3)**

GENERAL HONORS

Robert O. Evans, Director
Humanities Bldg. 118, 277-4211

FACULTY:

William C. Baurecht, Ph.D., University of New Mexico

Robert O. Evans, Ph.D., University of Florida

Jean F. Hedberg, Ph.D., University of New Mexico

General Honors courses are offered in the General Honors and Undergraduate Seminar Programs. These courses are described in this catalog under the heading "Honors Work and Graduation with Honors."

Credit in these courses can normally be counted toward general graduation requirements in undergraduate degree-granting colleges and, in some instances, toward 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 (GEN ST)

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. 316.

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}

121-122. Freshman General Honors Seminar. (3, 3)‡

Broad, general reading and class discussion for freshman honors students. Instructors and topics will vary from semester to semester. {Fall, Spring}

199. Concurrent Enrollment Seminar. (1-3)‡

Since this course will be operated on an Independent Study basis, that is, with a content that will vary from semester to semester in terms of the needs and interests of the APS student, there is no permanent outline. Content interdisciplinary, covering such areas as history, philosophy, and literature. The course will not duplicate any departmental offering.

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}

219. General Honors Special Seminar. (1-3)

A special seminar, open to all students, in selecting topics, especially various experimental subjects to be decided by the Honors Program faculty with permission from the Honors Council.

221-222. Sophomore General Honors Seminar. (3, 3)‡

Broad, general reading and class discussion for sophomore honors students. Instructors and topics will vary from semester to semester. {Fall, Spring}

299. Individual Study. (1-3)‡‡**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. (3, 3)‡‡

(Not to be counted as part of 300 or above requirement for graduation with Honors except with permission of Director.)

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 semesters. Required for graduation, except when waived by Director. {Fall, Spring}

THE UNDERGRADUATE SEMINAR PROGRAM (USP)

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 18 students per class. Grading on A/CR/NC or CR/NC only system. (Maybe included in total hour requirement for graduation with Honors, but may not be substituted for 300 level or above requirement, except with permission of Director.)

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.

‡May be repeated for credit.

‡‡May be repeated for credit with permission of program director

RESERVE OFFICER TRAINING CORPS

Air Force ROTC

Robert G. Andrews, Lt. Col., Commanding Officer
Aerospace Studies
Aerospace Studies Bldg., 277-4502

The mission of Air Force ROTC is to provide professional preparation for future Air Force Officers. The excitement of Air Force flying, science and state of the art technology comes together in the aerospace studies curriculum. The Air Force ROTC approach to education encourages inquiry, analysis, critical thinking, imagination, judgment and individual participation, on the part of each student.

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 leadership laboratory. Students in their junior year receive 1 1/2 hours of flight orientation in civilian aircraft. Those students qualified for pilot training receive 13 hours of flying training as part of the Flight Instruction Program (FIP). FIP students (AS 402) must pass the FAA private pilot written exam to successfully complete the course.

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), student must meet Air Force ROTC qualification standards and requirements. All Air Force ROTC 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 requirements 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 meet Air Force ROTC qualification standards and requirements. 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. Participants receive approximately \$700 for the six-week summer training period and \$500 for the four-week summer training period (in addition to ten 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 preprofessional 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 during their sophomore year. Specifics may be obtained by contacting the Air Force ROTC staff members at 1901 Las Lomas NE. An \$8 activity fee will be solicited 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 150 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 leadership laboratory.

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 leadership laboratory. 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.

LEADERSHIP LABORATORY. Leadership laboratory provides a variety of practical leadership experiences for the cadets by rotating positions and task responsibilities among cadets. These experiences take place within the cadet squadron, led and managed by cadets.

Department of Aerospace Studies

FIRST YEAR

First Semester

AF ASP 150 The Air Force Today 1

Second Semester

AF ASP 151 The Air Force Today 1

SECOND YEAR

First Semester

AF ASP 200 Dev of Air Power 1

Second Semester

AF ASP 201 Dev of Air Power 1

THIRD YEAR

First Semester

AF ASP 300 Air Force Mgmt Ldrshp 3

Second Semester

AF ASP 301 Air Force Mgmt Ldrshp 3

FOURTH YEAR

First Semester

AF ASP 400 Natl Sec Forces in Contemp Amer Soc 3

AF ASP 402 Flight Inst Program 3

Second Semester

AF ASP 401 Natl Sec Forces in Contemp Amer Soc 3

COURSES OF INSTRUCTION

PROFESSORS:

Robert G. Andrews, Lt. Col, USAF, MJ, North Texas State University
 William C. Curtis, Major, USAF, MS, University of North Dakota
 John P. Murphy, Captain, USAF, MBA, University of Montana

AEROSPACE STUDIES (AF ASP)

010L. Leadership Laboratory. (0)

Meets weekly for one hour. Provides students with progressively challenging leadership and management experiences within the cadet corps, designed to develop each student's potential for assuming the responsibilities of an Air Force officer. Enrollment in the laboratory is required.

150-151. The Air Force Today. (1, 1)

Deals with the Air Force in the contemporary world through a study of the total force structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces. {150—Fall, 151—Spring}

200-201. Development of Air Power. (1, 1)

The study of air power from balloons and dirigibles through the space age; a historical review of air power employment in military and non-military operations in support of national objectives; and a look at the evolution of air power concepts and doctrine. {200—Fall, 201—Spring}

300-301. Air Force Management Leadership. (3, 3)

Emphasizes the individual as a manager in an Air Force milieu. The individual motivational and behavioral processes, leadership, communication, and group dynamics are covered to provide a foundation for the development of the junior officer's professional skills as an Air Force officer. {300—Fall, 301—Spring}

400-401. National Security Forces in Contemporary American Society. (3, 3)

(Also offered as Pol. Sci. 245 and 246.) A full year course conceptually focused on the Armed Forces as an integral element of society, with an emphasis on the environmental context in which U.S. defense policy is formulated and implemented. {400—Fall, 401—Spring}

402. Flight Instruction Program. (3)

Principles of flight, federal aviation regulations, weight and balance, preflight inspection, aviation weather, navigation, radio communication, emergency procedures, 25 hours air-borne instruction. Students must pass the F.A.A. private pilot written exam and a basic flying proficiency evaluation to successfully complete the program.

Prerequisite: qualified AFROTC senior students. {Fall}

Naval ROTC

Jimmy W. Davis, Capt. Commanding Officer
 Naval ROTC
 Naval Science Bldg. 130, 277-3744

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 two-year scholarship program, the four-year college program, or the two-year college program. All four programs lead to service as a commissioned officer in the Navy or Marine Corps.

Applications for the NROTC four-year scholarship program must be made to the Navy by December 1 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 NROTC two-year scholarship program must be made to the Navy by March 31 for entry into the program in June. Applicants must be college sophomores and selection is based on the student's college academic performance.

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 through March 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 per month for a maximum of 40 months. Students in the NROTC college program receive naval science textbooks and uniforms for the entire time they are in the program and \$100 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 Blvd. NE, Albuquerque, New Mexico 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 Professor 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.

Department of Naval Science

FIRST YEAR

First Semester

Nav Sc 100 Prin and Con of Naval Sci	1
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Second Semester

Nav Sc 105 Naval Ships Sys I	3
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SECOND YEAR

First Semester

Nav Sc 201 Naval Ships Sys II	3
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Second Semester

Hist 320 St/U.S. Naval History	3
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THIRD YEAR

First Semester

Nav Sc 303 Navigation and Naval Operations	3
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Second Semester

Nav Sc 304 Navigation and Naval Operations	3
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FOURTH YEAR

First Semester

Nav Sc 407 Principles of Naval Leadership and Management	3
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Second Semester

Three-hour elective	3
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Marine Corps subjects, given below, are substituted by Marine Corps applicants during the junior and senior years:

THIRD YEAR	
First Semester	
Nav Sc 331 Evolution of Warfare	3
Second Semester	
Three-hour elective	3
FOURTH YEAR	
First Semester	
Nav Sc 431 Amphibious Warfare	3
Second Semester	
Three-hour elective	3

All NROTC students attend two hours of naval science drill/laboratory per week in the appropriate section of Nav Sci 010 Naval Professional Laboratory.

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

Captain Jimmy W. Davis, USN, M.S., Auger University
 Commander George M. Lloyd, USN, M.B.A., Highlands University
 Major Robert A. Aikman, USMC, M.Ed., University of San Diego
 Lieutenant Giuseppe Donadio, USN, B.A., University of Rochester
 Lieutenant Catherine E. Hine, USN, B.A., Eastern New Mexico University

NAVAL SCIENCE (NAV SCI)

010. Naval Professional Laboratory. (0) Staff
 Drills and information for NROTC students. (30 hours each semester) {Fall, Spring}

100. Principles and Concepts of Naval Science. (1) Aikman
 Introduction to the naval service, customs, traditions, courtesies, and naval officers communities. {Fall}

105. Naval Ships Systems I. (3) Staff
 Introduction to naval engineering systems concepts, and practices. Topics include ship design, compartmentation, ship stability, damage control, fire-fighting, and ship propulsion systems. {Spring}

201. Naval Ships Systems II. (3) Staff
 Principles of naval weapons systems. Topics include sensors and detection systems, computational systems, tracking systems, weapon delivery systems, the fire control problem, and new developments in weapon systems integration. {Fall}

303-304. Navigation and Naval Operations. (3, 3) Donadio
 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) Aikman
 Evolution of the basic principles and techniques of warfare throughout history. Relationship of tactics and strategy and the impact of technological developments in selected conflicts. Emphasis is placed on an understanding of the theoretical principles underlying modern tactics and strategy. {Spring 1983 and alternate years}

407. Principles of Naval Leadership and Management. (3) Hine

Structure and principles of naval leadership and management in which underlying concepts are examined within the context of American military, social, and industrial organization and practice. Emphasis is given to management, leadership, and human goals functions. {Fall}

431. Amphibious Warfare. (3) Aikman
 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. {Spring 1984 and alternate years}

WOMEN STUDIES

Ann Nihlen, Coordinator
 Marron Hall 233, 277-3854

Helen Bannan, Assistant Coordinator for Academic Programming
 Marron Hall 233, 277-3854

WOMEN STUDIES ADVISORY BOARD:

Jane Abrams, Associate Professor (Art)
 Anita Alvarado, Associate Professor (Anthropology)
 Vivian Heyward, Associate Professor (HPER)
 Vera John-Steiner, Professor (Ed. Foundations)
 Charlene McDermott, Professor (Philosophy)
 Ann Nihlen, Assistant Professor (Ed. Foundations)
 Ernestine Paniagua (Ethnic Studies Librarian)
 Anita Pleiffer, Associate Professor (Elem. Ed.)
 Mary Power, Associate Professor (English)
 Janet Roebuck, Professor (History)
 Debra Rosenthal, Assistant Professor (Pol. Sci.)
 Sandra Schwarberg, Assistant Professor (Nursing)
 Jane Slaughter, Assistant Professor (History)
 Elizabeth Stefanics, Assistant Professor (HPER)

Women studies is an interdisciplinary program whose focus is feminism and women. It is concerned with women's contribution in the past, their present situation, their future possibilities. The Women Studies Program offers its own courses in addition to cross-listing courses with other departments. Students interested in Women Studies as a major or minor focus of their programs should contact the Women Studies Program office for advisement on currently available options. Also, certain Women Studies courses may be applicable for group requirement credit in various colleges; check with the Women Studies Program office for details.

The following courses are representative of Women Studies offerings; additional courses on special topics are frequently scheduled. A complete list is available each semester at the Women Studies office.

WOMEN STUDIES (W ST)

181. Seminar for Returning Women Students. (3)
 (Also offered as Ed Fdn 181.) Designed for women entering or returning to school after an interruption. Gives students an opportunity to identify problems associated with re-entry, review academic skills, and begin to define educational needs and issues. {Fall}

182. Reducing Math Anxiety. (2)
 Explores the phenomenon of "math anxiety", and its relation to sex role stereotypes, and presents methods of coping with it. Offers students individualized assessment of math needs and instruction in skills to reduce their anxiety. {Fall, Spring}

200. Introduction to Women Studies. (3)

Focuses on women's status in society—the myths and realities. Examines women's socialization by sex, class, race, and culture; the economics of discrimination, and role of education and family. {Fall, Spring}

231. [232.] La Chicana: Historical. [La Mujer Chicana.] (3)
(Also offered as Am St 231.) Analyzes historically the special sociological and political evolution of La Chicana. {Fall}

233. American Indian Women. (3)

An interdisciplinary course which focuses on the historical, cultural, economic, and political issues which affect the changing roles of the American Indian Woman.
No prerequisite. {Spring}

234. Her Own Voice: Black Women Writers. (3)

An exploration of works written exclusively by black women as well as a multi-disciplinary approach to black women's experiences through their own writings, art, media.
No prerequisite. {Spring}

279. Interdisciplinary Topics. (1-3)‡

Can be repeated for credit three times
Prerequisite: 200 or permission of instructor. {Fall, Spring}

322. [222.] Race, Class and the Feminist Movement. (3)

A detailed study of how the institutions of racism, class and sexism have affected the growth of the feminist movement.
Prerequisite: 200; suggested background, one of the following: 231, 233, 234, 324. {Fall}

324. Contemporary Feminist Theory. (3)

An investigation of selected feminist theories from the past three decades. Learning the skills of analysis and applying these skills to theory will be stressed.
Prerequisite: 200 or permission of instructor. {Spring}

331. Third World Women. (3)‡

A survey of women in various Third World regions in turn: Asia, Africa, Latin America, the Middle East. Titles of individual sections will vary as regions vary. {Fall}

335. Heterosexism and the Oppression of Women. (3)

Descriptive and theoretical focus on the role of heterosexual and homosexual women in the community and within the women's movement.
Prerequisite: 200 or permission of instructor. {Fall}

339. Women Abuse. (3)

A comprehensive study of the phenomena of abuse, both subtle and overt, against women. Included will be sexual assault, medical malpractice, forced sterilization, domestic violence, as well as other kinds of social and cultural abuse.

353. Women and Creativity. (3)‡

A study of the creative process linked to the artist's position in society. A rotation course which will deal successively with women artists in the visual arts, literature, crafts and with the creative process itself.
Prerequisite: 200 or permission of instructor.

357. Media-Arts and Women. (3)

(Also offered as Art Ed 357.) Will present overview of women in art and media; will survey history; will serve as a workshop for developing skills; will interpret how the media influences status of women.
Prerequisite: 200.

379. Interdisciplinary Topics. (1-3)‡

Can be repeated for credit three times.
Prerequisites: 200 or permission of instructor. {Fall, Spring}

386. Women in Sports. (3)

(Also offered as PE 386.) An historical and sociological study of women and sports in American culture and an examination of the recent changes in women's athletics.

392. Senior Seminar. (3)

An advanced course for seniors in Women Studies, emphasizing synthesis and development of research skills.
Prerequisites: 200, senior standing and permission of instructor. {Spring}

460. Legality of Class Based Discrimination: History of the 14th Amendment. (3)

Investigation of the progress our society has made towards developing a principle of equality which prevents unequal treatment of people under the law.
Prerequisite: Pol Sc 300.

479. Interdisciplinary Topics. (1-3)

Can be repeated for credit three times.
Prerequisites: 200 and permission of instructor. {Fall, Spring}

487. Sexism in Education. (3)

(Also offered as Ed Fdn 487.) Focuses on historical and sociological analysis of discrimination as well as its psychological effects on children and adults. Includes the development of sex roles, the effects of curricula materials and Title IX.

Prerequisites: 200, Ed Fdn 290 or Permission of Instructor.

499. Undergraduate Problem. (1-3)‡‡

Student is expected to present a topic for study. Can be repeated for credit three times.

Prerequisites: Permission of instructor required before registering. {Fall, Spring}

Related Courses:**Afro Am St 250. Black Women. (3)**

Amer St 231. Women's Experience in the United States. (3)‡

Amer St 301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)‡
Pioneer Women's Experience.

Amer St 331. Classics of Feminism in the United States. (3)

Amer St 332. Women and Nature. (3)‡

***Amer St 501. Interdepartmental Seminar in the Culture of the United States. (3)‡**
Interdisciplinary Feminist Research.

***Anth 341. Biosocial Bases of Sex Roles. (3)**

Biol 402. Special Topics in Biology. (1-3)
Women in Science and Engineering

***Coun 593. Topics (1-3)**

Econ 239. Economics of Feminism. (3)

Ed Fdn 384. Women and Self-Education. (3)

Ed Fdn 486, *586. Psychological Development of Women. (3)

***Ed Fdn 593. Topics. (1-3)**
History of Women in Education.

Engl 211. Topics in Literature. (3)‡
Women in Literature.
Woman as Hero.
Minority Women Poets.

Engl 360. Individual Authors. (3)‡
Virginia Woolf.
Women Writers of the South.
The Brontës.
Willa Cather.

Engl 459. Irish Literature. (3)
Image of Irish Women in Literature.

Engl 470. Contemporary Literature. (3)‡
Contemporary Women Poets.

***Engl 488. Special Topics. (3)**
Images of Victorian Women.

***Engl 511. Special Topics: History of Ideas, Literary Movements, etc. (3)**
Twentieth-Century Women Writers.
Women in Literature.

***Hist 315. History of Women from Ancient Times to the Enlightenment. (3)**

***Hist 316. Women in the Modern World. (3)**

Hist 320. Studies in History. (1-3)
Women in the West.
Women, War and Revolution.

***Hist 330. History of the Women's Rights Movement. (3)**

***Hist 554. Seminar and Studies in Far Eastern History. (3)**

H Ec 293. Topics. (1-3)‡
Maternal and Infant Nutrition.

H Ec 493. Topics (1-3)‡
Maternal and Infant Nutrition.

Nurs 307. Problems in Nursing: Selected Topics. (3)
Women and Health Care.

***Pol Sci 300. Political Topics. (3)‡**
Women and the Law—Public Sphere.
Women and the Law—Private Sphere.
Women and Politics.

Pol Sci 420. Political Violence. (3)
Sex and Politics.

***Pol Sci 521 Research Seminar in Comparative Government and Politics. (3)**
Sex and Politics.

Soc 308. Sociology of Sex Roles. (3)

***Soc 507. Sociological Theory: Selected Topics. (3)**
Women and Development.

DIVISION OF CONTINUING EDUCATION AND COMMUNITY SERVICES

Rupert Trujillo, Dean
Division of Continuing Education & Community Services
806 Yale

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. For additional information see section on non-degree status under the Admission and Registration section of this catalog.

Credit Programs

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 Dean, Division of Continuing Education and Community Services, The University of New Mexico, Albuquerque, New Mexico 87131.

Resident Extension. Any of the regular University courses may be offered for resident credit in Bernalillo County, subject to appropriate approval. Persons interested in offering a course for resident credit should contact the Dean, Division of Continuing Education and Community Services, The University of New Mexico, Albuquerque, New Mexico 87131.

Independent Study Courses. A number of regular undergraduate courses are available by correspondence. The courses are developed and graded by qualified University personnel. Credit 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").

The bulletin listing Independent Study courses is available through the Dean of Continuing Education and Community Services.

Non-credit Programs

The Community College. Through the Community College the Division offers a variety of non-credit courses designed for men and women interested in learning in an informal and non-competitive environment. Registration is open to all adults (18 years and older) regardless of educational background. In some cases, classes are open to younger persons. In all but a few courses, there are no examinations, transcripts, credit or grades, although certificates of completion are issued upon request.

The catalog listing non-credit courses offered each semester may be obtained from the Division of Continuing Education and Community Services, The University of New Mexico, Albuquerque, New Mexico 87131.

Conferences, Institutes and Special Related Courses. All conferences, institutes and special related courses connected with the University of New Mexico are coordinated through the Division of Continuing Education and Community Services. Groups interested in Division services should contact

the Dean of the Division of Continuing Education and Community Services, The University of New Mexico, Albuquerque, New Mexico 87131.

University Facilities

Any scheduling of space, other than for the intended purpose or normal use, in Johnson Gym and other facilities not specifically scheduled by another entity of the University must be done by the Dean of Continuing Education and Community Services or his designee.

Branch Campuses; Centers for Graduate Studies

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 three branch colleges and two residence centers.

Most 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 appropriate center.

The Gallup Branch

Opening on September 16, 1968, with offices and classrooms in Gallup High School, The University of New Mexico-Gallup Campus has grown into an impressive college, sitting on over 80 acres of pinon-wooded hills. The campus currently consists of Lions Community Services Center, Gurley Hall, Calvin O. Hall College Center, and Career Education Building, and a Physical Education Complex.

On September 14, 1982, the voters of McKinley County authorized the issuing of four million dollars worth of obligation bonds for the construction of additional facilities at the Campus. It is anticipated that the state legislature will authorize additional monies for construction in addition to the bonds. The campus will be undergoing expansion during the next five years.

The University of New Mexico Gallup Branch Campus is committed to the philosophy that post-secondary educational opportunities should be provided to all individuals regardless of age, sex, race, religious affiliation, or handicap. We believe that this education should meet the individual's needs, abilities and desires to achieve.

Educational opportunities are essential in a community involved in an accelerated energy revolution and rapid social change. The Gallup campus has no greater purpose than that of making higher education available to all. From this philosophical base emerge the following goals of the Gallup Campus:

- To provide the first two years of a baccalaureate education
- To provide certification and licensing for special programs
- To provide career education
- To provide general studies

- To provide community education
- To provide public service activities
- To provide student support services
- To provide a preparatory and developmental program of instruction
- To provide a learning environment

The College offers academic courses transferable not only to the University of New Mexico, but also to other institutions. The Gallup Branch Campus offers nineteen different degree and certificate programs in a variety of academic and technical fields. A student may earn an Associate of Arts degree in five fields, an Associate of Science degree in Nursing, and an Associate of Applied Science degree in thirteen different areas. The degree program that a student may select differs depending on individual career goals. The Associate of Applied Science degree and the various certificate programs are designed for those students planning on employment immediately following the awarding of the appropriate degree or the completion of the appropriate course of study.

The College also operates an Adult Basic Education Center which provides instruction in preparation for the GED test. In addition, the College serves as a test center for the ACT and the GRE exams and other departmental tests as needed.

Students interested in any of the programs offered by the Gallup Branch Campus should carefully check the Gallup Campus General Catalog for specific degree or certificate requirements, or write to the Office of Admissions, University of New Mexico, Gallup Campus, 200 College Road, Gallup, New Mexico 87301.

Valencia County Branch

The University of New Mexico Valencia County Branch was established in the summer of 1981. The Branch replaces and expands UNM's Eastern Valencia County Satellite Center of 1978 and Eastern Valencia County Resident Center of 1979.

The Branch offers daytime, late afternoon and evening classes in academic, technical/vocational, and community service programs to recent high school graduates and working adults in the Valencia County area. Approved transfer credits earned at the Branch may be transferred to UNM or some other college or university and applied toward a baccalaureate degree. In addition, several programs leading to associate degrees and certificates for both full-time and part-time students are available. The Branch also provides instruction leading to the Graduate Equivalency Diploma (GED).

At present the Branch occupies 30,000 square feet of laboratory, shop and administrative space in the Valley Community Plaza east of Belen. Over 100 acres of land have been donated on which to build a permanent facility.

Information regarding enrollment at the Branch may be obtained from the Registrar of the Branch, 351 Rio Communities Blvd., Belen, New Mexico 87002, or from the Office of the Associate Provost for Community Education.

The Los Alamos Branch Campus

The University of New Mexico-Los Alamos Branch Campus began offering freshman and sophomore level courses in August, 1980. Its programs are summarized in its Mission Statement, which reads:

The University of New Mexico-Los Alamos is committed to providing the highest quality education for its students. Drawing upon its greatest asset, the human and physical resources of Los Alamos, its programs shall be threefold:

1. Two-year academic transfer programs
2. A wide ranging program of community education responsive to the needs of the region.

3. Associate degree programs with emphasis on those technical areas that have a nationally demonstrated demand and that use the distinctive Los Alamos expertise.

The University of New Mexico-Los Alamos is committed to providing these programs to all students of the region, and it pledges itself to provide the services, including developmental, necessary to help these students achieve their goals.

Furthermore, the University of New Mexico-Los Alamos will seek active cooperation with all neighboring educational programs and institutions, confident that such cooperation is in the best interest of the student and region.

The University of New Mexico Los Alamos thus has three types of educational programs as defined in the mission statement. These educational programs, like those of any community college, constitute the heart of the institution.

1. Academic transfer programs for credit provide the first two years of high quality university education. UNM Los Alamos is authorized to offer any freshman or sophomore course which appears in the UNM catalog and for which an appropriate instructor and facilities can be obtained. In addition, UNM Los Alamos may design courses that respond to the distinctive needs of Los Alamos, either independently or in cooperation with an appropriate main campus department. These courses all carry full UNM residence credit as though they were taken on the main campus in Albuquerque. Thus students enrolled in academic transfer courses may complete most and in many cases all of the first two years of their UNM courses at UNM Los Alamos, before continuing their studies at UNM or other institutions. Four Associate Degrees are offered in this transfer category, viz., in Pre-Engineering, Computing Science, Business Administration/Management, and Liberal Arts.
2. Technical programs are also offered for academic credit. An Associate Degree in Electronics Technology with a Laser Option is currently offered. Other potential programs to be developed in this category include a program in Hazardous Materials Handling, a Basic Laboratory Skills program, and programs in Chemical and Mechanical Technology.
3. The Continuing Education and Community Service Component is extremely wide-ranging and innovative and is dedicated to providing a variety of non-credit courses, workshops, and presentations.

The Los Alamos Branch relies entirely upon part-time faculty recruited from the Los Alamos area, and presently occupies facilities in the former Mesa School, which is located across Diamond Drive from the Los Alamos High School. These present facilities will be remodelled during the 1982-83 academic year and three new buildings will be constructed. These will consist of a service module, a technical module that will accommodate an electronics and a sophisticated technical programs laboratory, and a third module that will consist of a computer room and terminal room together with a general science laboratory.

Center for Graduate Studies at Los Alamos

The University of New Mexico and the Los Alamos National Laboratory (LANL), operated by the University of California-Berkeley, cooperate in the advanced training of graduate students specializing in chemistry, engineering, mathematics, and physics, as well as an MBA in the Anderson School of Management. Selected medical science courses and several multidisciplinary courses are also offered (presently in the areas of energy, environment, geology, opto-electronics, etc.). Under appropriate 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 Chairperson of the department concerned at the University. Also see the Graduate Programs Bulletin, p. 13.

Center for Graduate Studies at Santa Fe

The UNM Center for Graduate Studies at Santa Fe offers resident course work leading to a master's degree in public administration, counselor education, secondary and adult teacher education, and special education as well as graduate level course work in the fields of management and business administration, civil engineering, speech communication, sociology, history, political science, educational administration, elementary education and related fields such as educational foundations. For further details, see the UMM Graduate Programs Bulletin, pp. 13-14.

Telecommunications

The development of various telecommunications activities also serves to complement and further extend off-campus educational opportunities. The University of New Mexico has been instrumental in coordinating a statewide telecommunications network/consortium through its Telemedia Activities Services Center (Project TASC). Through this network of participating universities and institutions, New Mexicans who are currently unable to attend on campus colleges will be able to earn college credit through telemediated courses brought to their communities.

This means that off-campus learning will be of particular interest to the homebound, and residents of rural areas. A telemediated means of off-campus learning is expected to begin in 1984-1985 and will utilize available satellite, microwave and teleconference technology to reach prospective students.

GRADUATE PROGRAMS

Dean Charlene A. McDermott
Office of Graduate Studies
Humanities 107, 277-2334

GRADUATE WORK leading to the master's degree is offered in the following fields: American studies, anthropology, architecture, art, biology, chemistry, communicative disorders, community and regional planning, comparative literature, economics, education (administration, art, counselor, elementary, foundations, health, home economics, physical, recreation, secondary and adult teacher, special), engineering (chemical, civil, computer science, electrical and computer, mechanical, nuclear), English, French, geography, geology, German studies, history, language sciences, Latin-American studies, management, mathematics, medical sciences, music, music education, nursing, philosophy, physics, political science, Portuguese, psychology, public administration, sociology, Spanish, speech communication, theatre arts. Also, the Master of Fine Arts degree is offered.

The Doctor of Philosophy is offered in the following fields: American studies, anthropology, art history, biology, business and administrative sciences, chemistry, computer science, economics, education, engineering, English, geology, history, Ibero-American studies, mathematics, medical sciences, philosophy, physics, political science, psychology, romance languages, and sociology.

In education, the degree of Doctor of Education is also offered.

Applicants should contact the graduate unit concerned for information on these particular programs.

Admission, Fellowships, Traineeships, and Assistantships

Graduates of any accredited college or university may apply for admission to graduate study. Communications regarding admissions should be addressed to the Office of Graduate Studies or to the graduate unit concerned.

A formal application is required of all students, including graduates of the University of New Mexico. Application forms may be obtained by writing to the Office of Graduate Studies. The Graduate Bulletin may be obtained at a cost of \$3.00 from the UNM Bookstore, remittance to accompany order. 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 all application forms, transcripts, and the \$15.00 application fee on file in the Office of Graduate Studies **at least by** the deadlines listed in departmental sections of the Graduate Bulletin. Also, the student should check with the department concerned regarding additional admission requirements.

Although each application is reviewed individually, in general an 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. No student is assured of admission until she or he has received an official offer of admission from the Dean of Graduate Studies.

Assistantships are available for some well-qualified, degree-seeking graduate students. See departmental sections of the Graduate Bulletin for financial and application deadlines.

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 or her 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 Bulletin;
5. Obtains **in advance** the approval of the major graduate unit and the Dean of Graduate Studies.

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 Dean of Graduate Studies, take such courses for undergraduate credit. Petition Forms are available in the Graduate Office, Humanities 107.

Graduate Credit and Extension or Correspondence Courses

A maximum of twelve 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. (See *Policy on extension and non-degree credit*, *Graduate Programs Bulletin*.)

The University accepts no correspondence credit towards its advanced degrees.

Off-Campus Residence Centers

The University offers graduate credit for work taken at the University of New Mexico Centers for Graduate Studies at Los Alamos and Santa Fe. For information concerning these centers, see p. 314.

Information. For further information consult the Graduate Bulletin, the Office of Graduate Studies, or the graduate unit concerned.

KEY TO SYMBOLS USED IN COURSE DESCRIPTIONS

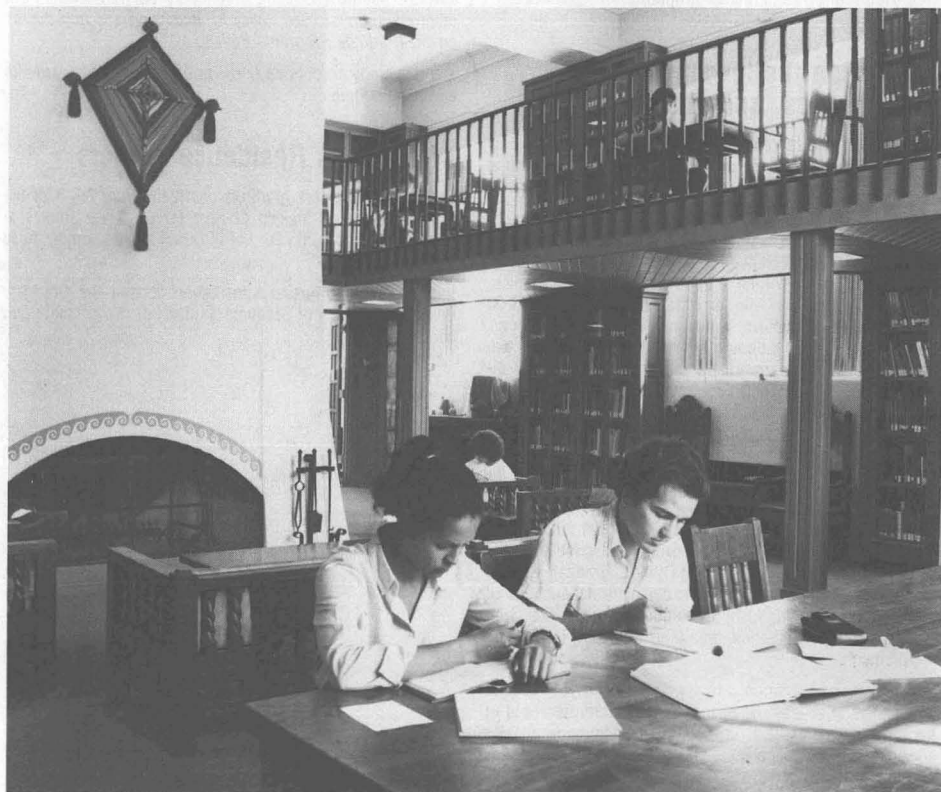
COURSES ARE NUMBERED from 001 through 799. Courses from 001 to 099 may or may not carry credit but are not applicable toward a baccalaureate degree. The number 100 is reserved for courses designed to develop university skills for students whose preparation has been inadequate in the fields of English, mathematics, and reading comprehension. The courses numbered from 101-199, 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 a graduate program only, the School of Law, or the School of Medicine. See *Graduate Program Bulletin* for description of courses numbered 500 and above.

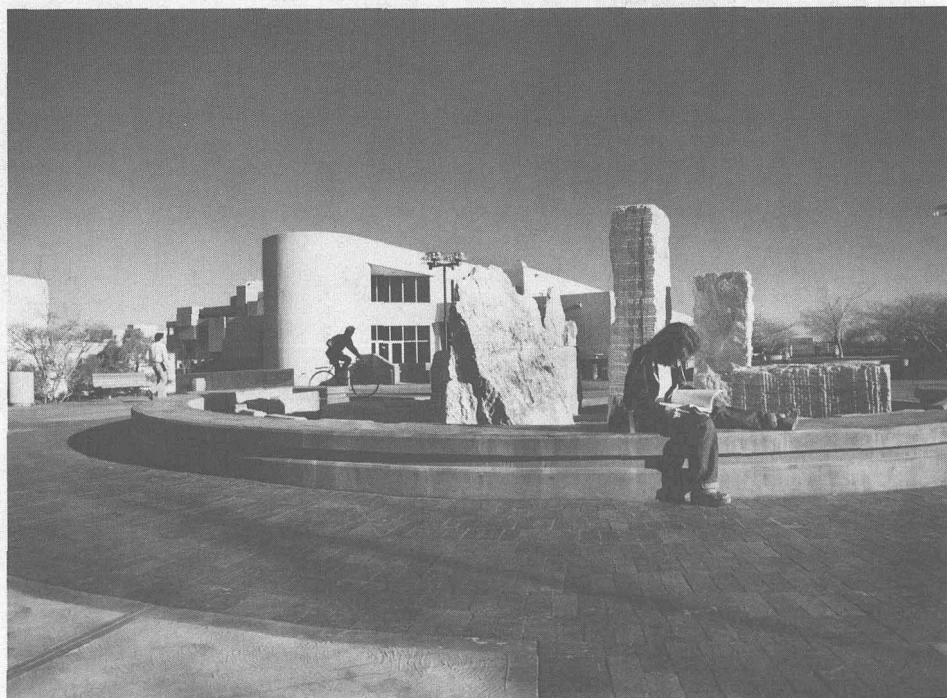
Symbols used in course descriptions:

- * —course allowed for graduate credit to students enrolled in a graduate program. Normally, a graduate student enrolled in a starred course numbered below 500 is required to do extra work in the course.
- ** —available for graduate credit except for graduate majors in the department.
- † —may be repeated for credit with permission of department chairperson (or dean).
- †† —may be repeated for credit with permission of department chairperson (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.)
- 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.
- () —semester hours' credit; credit hours separated by a hyphen (1-3) indicates variable credit in the course.
- [] —former course number or title.
- { } —session in which course is expected to be offered (except for law and medicine, where registration is conducted by the School). Session indicated for the 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 chairperson.

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.**



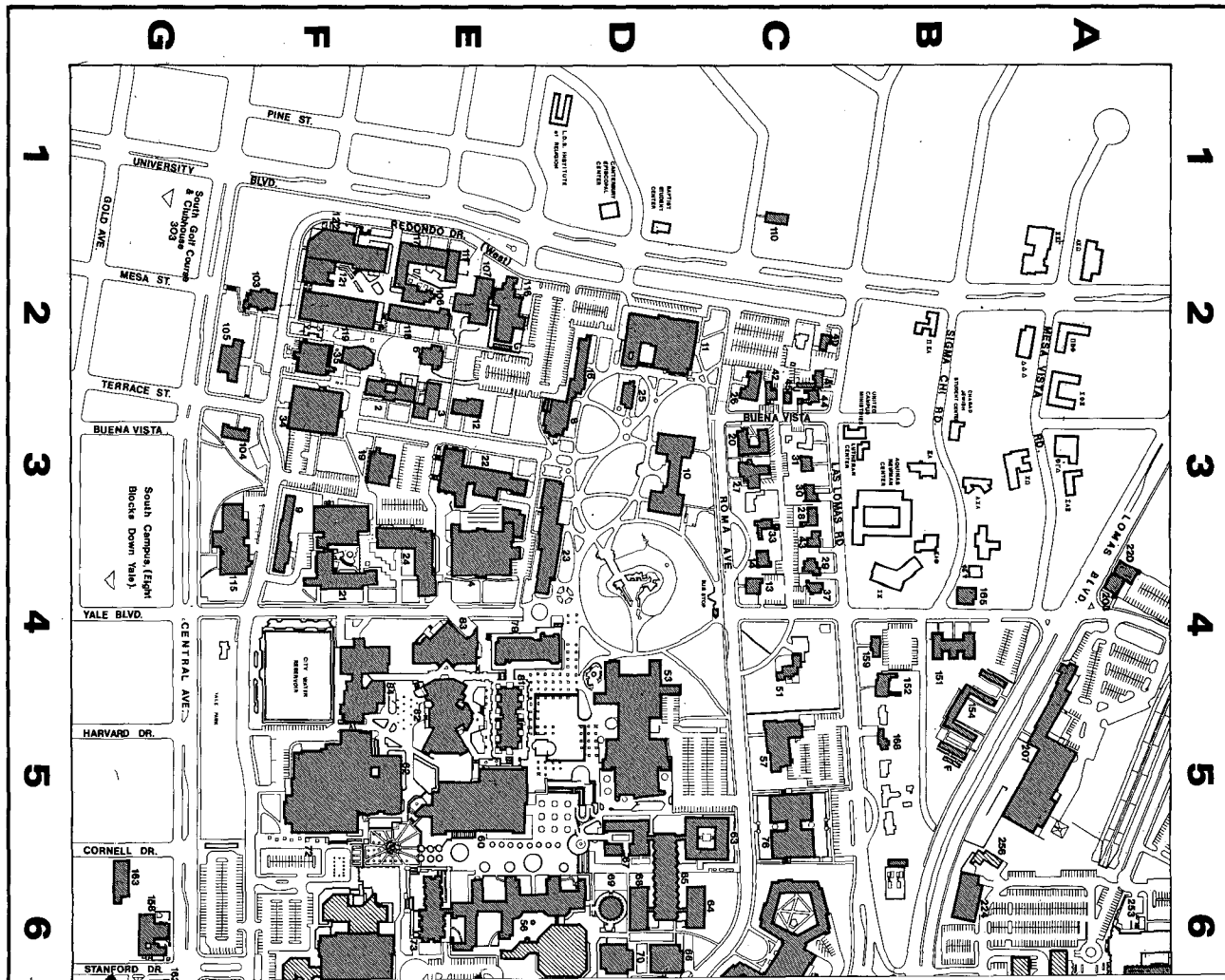


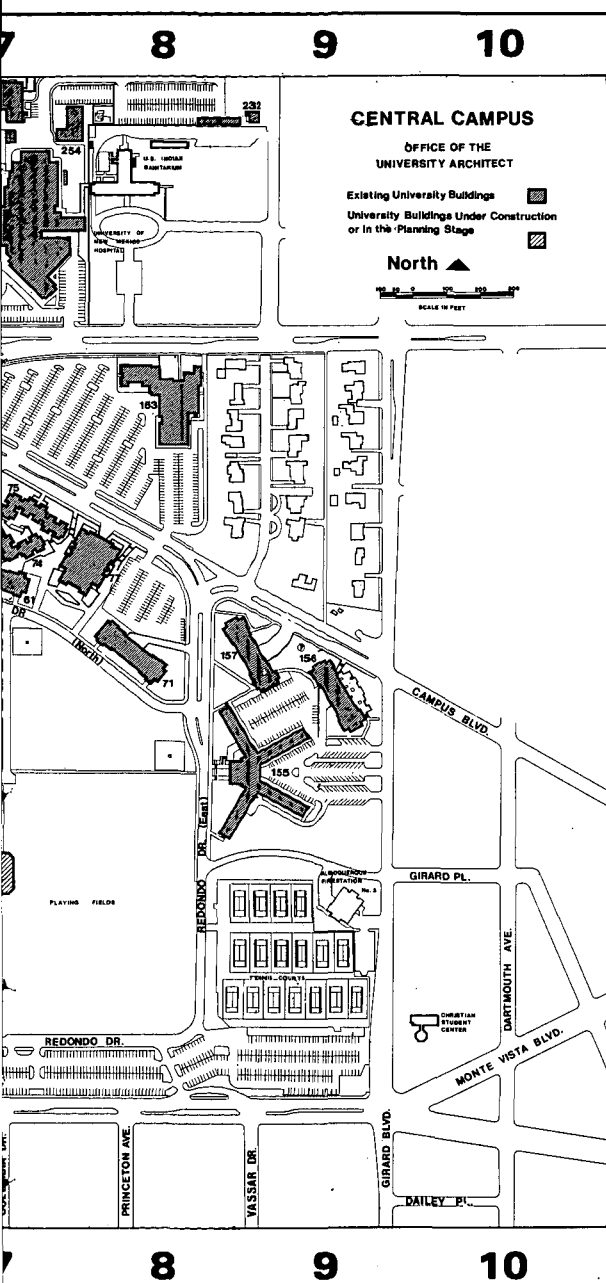
Central Campus Legend of Buildings

(Numerical Listing)

(The first number listed matches map numbering, the letter-number combinations designates location by map coordinates.)

2. Art Department Crafts Annex E-3
3. Parsons Hall E-3
4. Carlisle Gym E-4
6. Lecture Hall E-2
8. Bandelier East D-3
9. Marron Hall F-3
10. Administration (Scholes Hall) D-3
11. Anthropology & Maxwell Museum D-2
12. Anthropology Annex E-3
13. Police and Parking Services (1821 Roma NE) C-4
14. Afro-American Studies C-4
16. Bandelier West D-2
19. Biology Annex E-3
20. Speech Communication C-3
21. Biology (Castetter Hall) F-4
22. Chemistry (Clark Hall) E-3
23. Mitchell Hall (Classrooms) D-3
24. Geology (Northrop Hall) E-4
25. Alumni Memorial Chapel D-3
26. Personnel (1717 Roma NE) C-3
27. Faculty Club (1805 Roma NE) C-3
28. Native-American Studies C-3
29. Photo/Cine Services C-4
30. International Center C-3
31. Public Information C-3
33. Chicano Student Services F-4
34. Psychology F-3
35. Regener Hall (Physics) F-2
37. Women's Center C-4
40. 1700 Las Lomas NE E-2
41. Credit Union C-3
42. Purchasing (609 Buena Vista NE) C-3
43. 1816 Las Lomas NE C-3
44. 1716 Las Lomas NE C-3
45. 613 Buena Vista NE C-3
51. President's Home C-4
53. Zimmerman Library D-5
56. Mesa Vista Hall (Departmental Offices) E-6
57. 1915 Roma NE C-5
58. McKenna Hall (Dormitory) C-6
59. Johnson Gymnasium F-5
60. New Mexico Union C-7
61. Santa Clara Hall (Dormitory) F-5
62. Fine Arts Center C-5
63. Education Office Building C-6
64. Industrial Arts D-6
65. Education Administration D-6
66. Home Economics D-5
67. Education Classroom Building D-6
68. Art Education D-6
69. Kiva D-6
70. Manzanita Center (Educational Laboratory) D-6
71. Santa Ana Hall (Dormitory) D-8
72. Popejoy Hall F-5
73. Student Health Center—University College E-6
74. Laguna Hall (Dormitory) C-7
75. DeVargas Hall (Dormitory) C-7
76. Anderson School of Management C-5
77. La Posada (Dining Hall) C-6
78. Ortega Hall (offices and classrooms) D-4
81. Humanities Building D-5
82. Woodward Lecture Hall E-5
83. Bookstore E-4
84. Art F-4
103. Hodgkin Hall F-2





Central Campus Legend of Buildings
(Alphabetical Listing)

(The parenthetical number matches map numbering, the letter-number combination designates location by map coordinates.)

Administration (Scholes Hall) (10)	D-3
Aerospace Studies (159)	B-4
Afro-American Studies (14)	C-4
Alumni Memorial Chapel (25)	D-3
Alvarado Hall (Dormitory) (157)	D-8
Anthropology (11)	D-2
Anthropology Annex (12)	E-3
Architecture & Planning (158)	G-6
Art (84)	F-4
Art Annex (105)	F-2
Art Department Crafts Annex (2)	E-3
Art Education (68)	D-6
Bandelier East (8)	D-3
Biology (Castetter Hall) (21)	F-4
Biology Annex (19)	E-3
Bookstore (83)	E-4
Carlisle Gym (4)	E-4
Chemical & Nuclear Engineering (111)	E-2
Chemistry (Clark Hall) (22)	E-3
Chicano Student Services (33)	C-4
Civil Engineering (Wagner Hall) (117)	E-2
Civil Engineering Research Laboratory (106)	E-2
Computing Center (153)	B-8
Continuing Education & Community Services (203)	A-4
Credit Union (41)	C-3
Coronado Hall (Dormitory) (155)	E-8
DeVargas Hall (Dormitory) (75)	C-7
Education Administration (65)	D-6
Education Classroom Building (67)	D-5
Education Office Building (63)	C-5
Electrical & Computer Engineer. (Tapy Hall) (118)	E-2
Engineering Annex (107)	E-2
Faculty Club (1805 Roma NE) (27)	C-3
Farris Engineering Center (119)	F-2
Fine Arts Center (62)	F-5
Ford Utilities Center (116)	E-2
Geology (Northrop Hall) (24)	E-4
Hodgkin Hall (103)	E-2
Hokona Hall (Dormitory) (58)	C-6
Home Economics (66)	D-6
Humanities Building (81)	D-5
Industrial Arts (64)	C-6
International Center (30)	C-3
Johnson Gymnasium (59)	F-6
Jonson Art Gallery (152)	B-4
Journalism (115)	F-3
Kiva (69)	D-6
Laguna Hall (Dormitory) (74)	C-7
La Posada (Dining Hall) (77)	C-8
Latin American Institute (165)	B-4
Lecture Hall (6)	E-2
Library, Zimmerman (53)	D-5
Management, Anderson School of (76)	C-5
Manzanita Center (Educational Laboratory) (70)	D-6
Marron Hall (9)	F-3
Maxwell Museum (11)	D-2
Mechanical Engineering (122)	F-2
Mesa Vista Hall (Departmental Offices) (56)	E-6
Mitchell Hall (Classrooms) (23)	D-3
Native-American Studies (28)	C-3
Naval Science (151)	B-4
New Mexico Union (60)	E-5
Nuclear Engineering Laboratory (121)	F-2
Ofiate Hall (156)	D-9
Ortega Hall (offices and classrooms) (79)	D-4
Parsons Hall (3)	E-3
Personnel (1717 Roma NE) (26)	C-3
Photo/Cine Services (29)	C-4
Physics-Astronomy (207)	A-5
Police and Parking Services (1821 Roma NE) (13)	C-4
Popejoy Hall (72)	F-5
President's Home (51)	C-4
Psychology (34)	F-3
Public Information (31)	C-3
Purchasing (609 Buena Vista NE) (42)	C-3
Regener Hall (Physics) (35)	F-2
Registration Center (Bandelier-East) (8)	D-3
Santa Ana Hall (Dormitory) (71)	D-8
Santa Clara Hall (Dormitory) (61)	C-7
Sara Reynolds Hall (104)	F-3
Speech Communication (20)	C-3
Student Health Center—University College (73)	E-6
Tamarind Institute (163)	G-6
Women's Center (37)	C-4
Woodward Lecture Hall (82)	E-5
613 Buena Vista NE (45)	C-3
2500 Central SE (162)	G-6
1700 Las Lomas NE (40)	C-2
1716 Las Lomas NE (44)	C-3
1816 Las Lomas NE (43)	C-3
1919 Las Lomas NE (168)	B-5
1920 Lomas NE (154)	B-5
1805 Roma NE (27)	C-3
1915 Roma NE (57)	C-5
801 Yale NE (165)	B-4

107. Civil Engineering Research Laboratory	E-2
107. Engineering Annex	E-2
115. Aerospace Studies	F-3
116. Social Sciences	F-3
118. Ford Utilities Center	E-2
117. Civil Engineering (Wagner Hall)	E-2
118. Electrical & Computer Engineering (Tapy Hall)	E-2
119. Farris Engineering Center	E-2
121. Nuclear Engineering Laboratory	F-2
122. Mechanical Engineering	F-2
151. Naval Science	B-4
152. Johnson Gallery	B-4
153. Computing Center	B-8
154. 1920 Lomas NE	B-5
155. Coronado Hall (Dormitory)	E-8
156. Ofiate Hall	D-9
157. Alvarado Hall (Dormitory)	D-9
158. Architecture & Planning	G-6
159. Aerospace Studies	B-4
162. 2500 Central SE	G-6
163. Tamarind Institute	G-6
165. Latin American Institute	B-4
168. 1915 Las Lomas NE	B-5
203. Continuing Education & Community Services	A-4
207. Physics-Astronomy	A-5

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A

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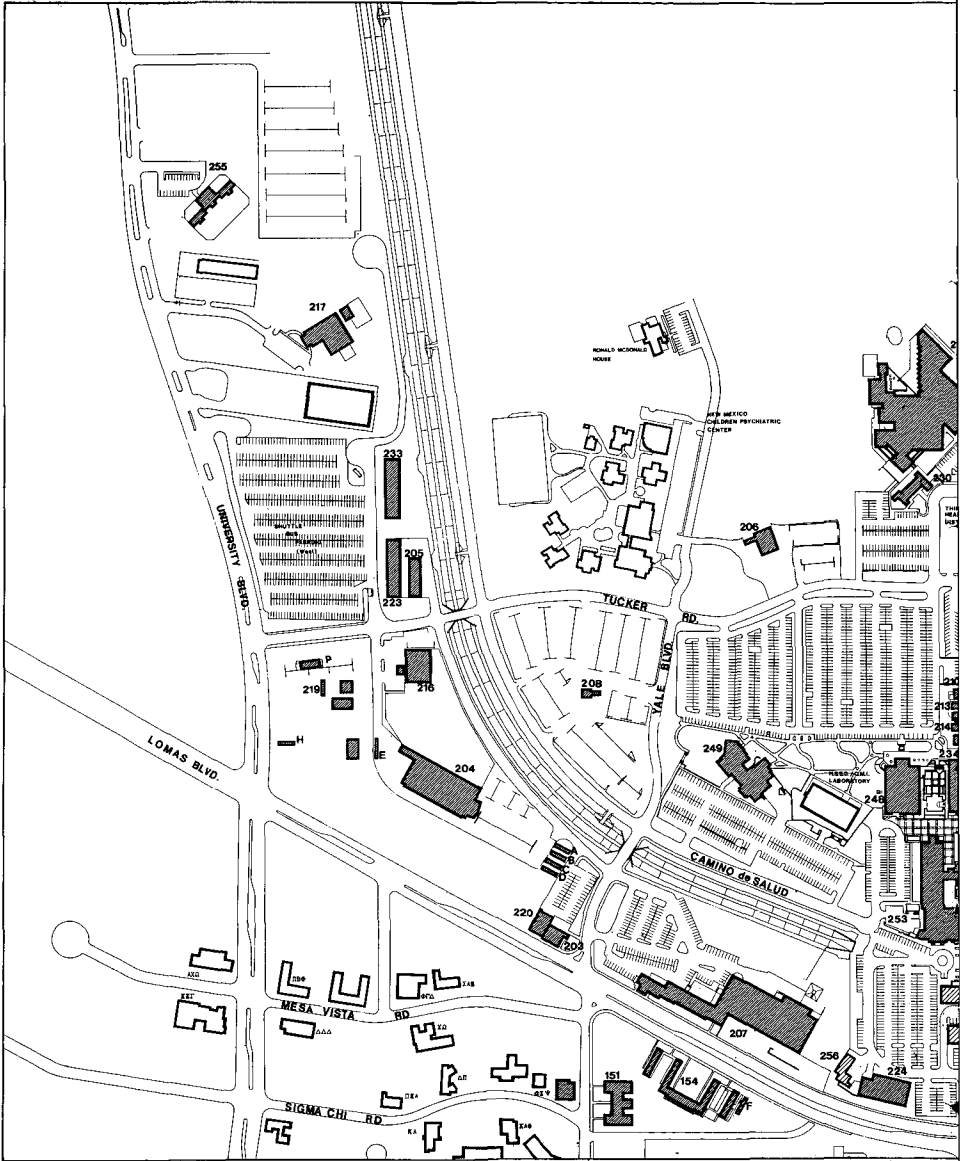
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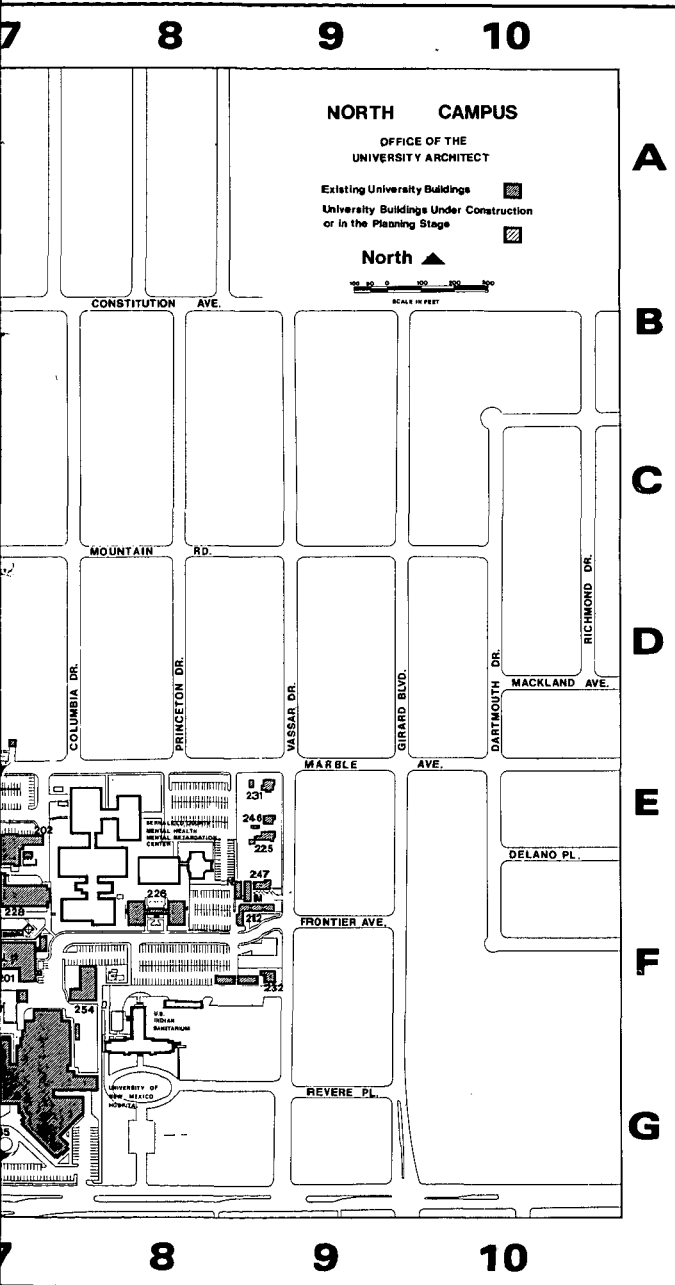
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North Campus Legend of Buildings

(Alphabetical Listing)

(The number listed matches map numbering, the letter-number combination designates location by map coordinates.)

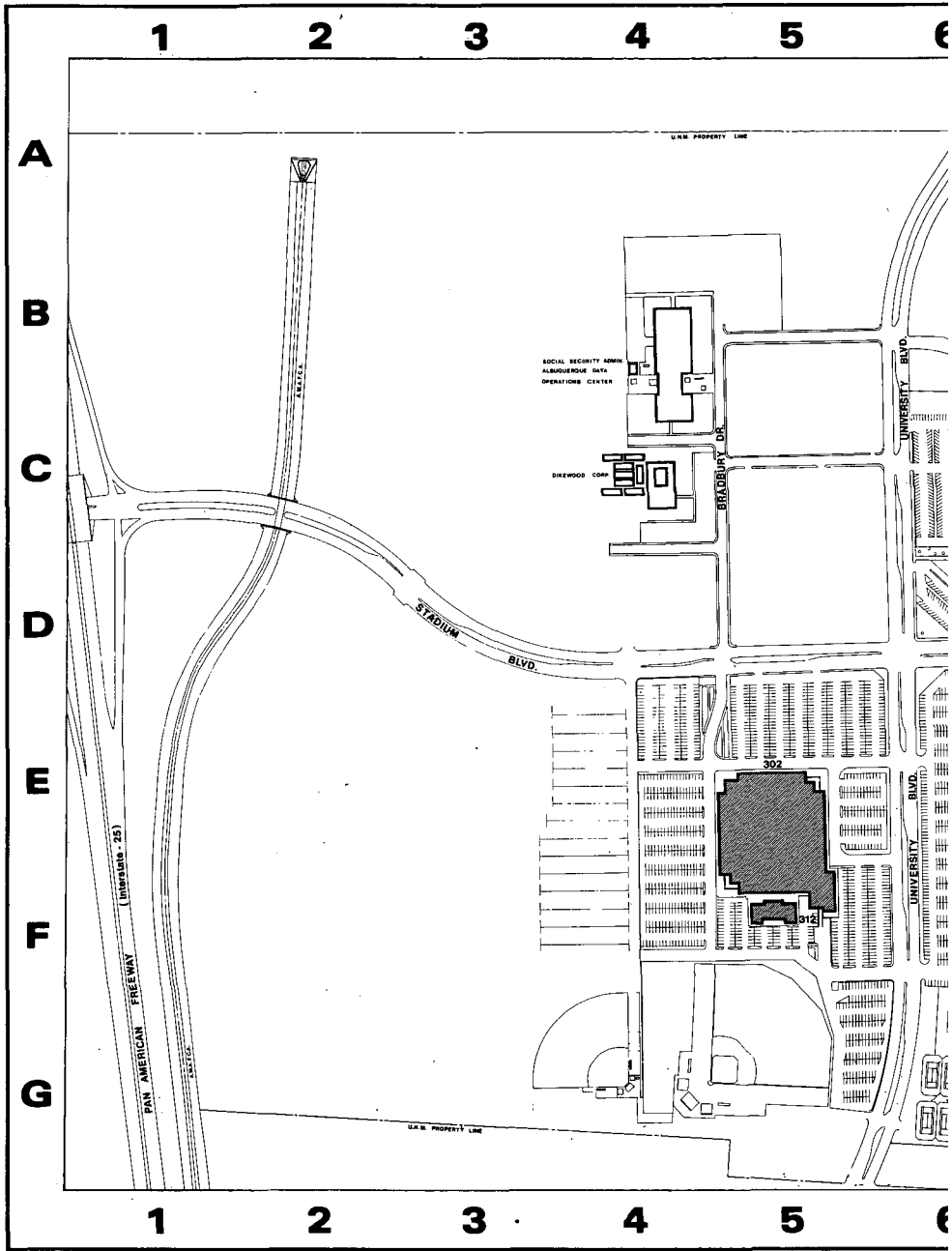
Automotive Building (216)	D-3
Cancer Research and Treatment Center (227)	F-7
Child Care Co-op	B-2
Communicative Disorders Unit and School of Medicine Building 3A (212)	F-8
Continuing Education (203)	F-4
Dental Programs (Novitski Hall) (249)	E-5
Family Practice Center and School of Medicine Building 9 (248)	E-6
Golf Course Club House (206)	D-5
KNME-TV Studio (217)	B-3
Law (Bratton Hall) (218)	C-6
Medical Center Library (234)	E-6
Medicine, School of	
Animal Facilities (213 & 214)	E-6
Basic Medical Sciences Building, School of Medicine Building 1 (211)	F-6
BioMedical Research Building 10 (253)	E-6
School of Medicine Building 2 (201)	F-7
School of Medicine Building 3 (202)	E-7
School of Medicine Buildings 4, 5, 6 (209)	E-6
School of Medicine Building 7 (210)	E-6
Surge Building, School of Medicine Building 8 (226)	F-7
Naval Science (115)	G-4
New Mexico Law Center (230)	C-6
North Campus Chilled Water Plant (224)	G-6
Nursing-Pharmacy (228)	F-7
Observatory (208)	E-4
Physics-Astronomy (207)	G-5
Records Center (233)	D-3
Service Building (204)	E-3
Tele-Communications	G-6
Temporary Storage Building (205)	D-3
Warehouses (223 and 233)	D-3
Temp. Warehouse (205)	D-3
1000 Stanford NE (221)	E-7
1837 Lomas NE (220)	F-4
1920 Lomas NE (154)	G-5
815 Vassar NE (232)	F-8
905 Vassar NE (247)	E-8
917 Vassar NE (225)	E-8
919 Vassar NE (246)	E-8
925 Vassar NE (231)	E-8

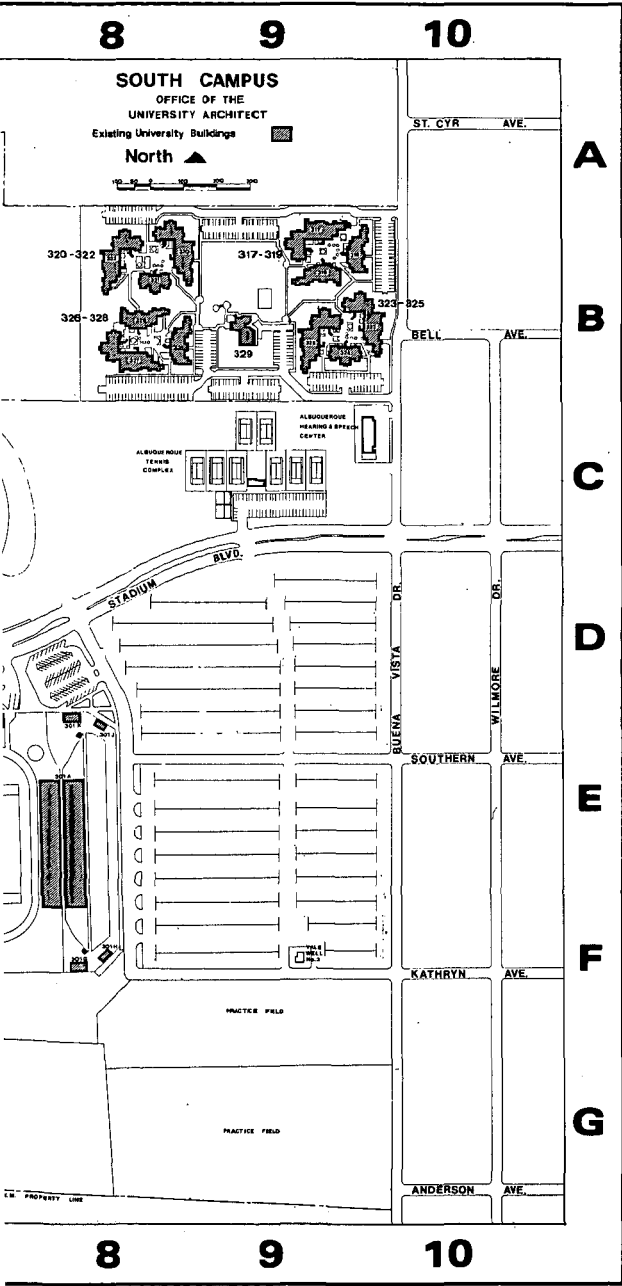
North Campus Legend of Buildings

(Numerical Listing)

(The first number listed matches map numbering, the letter-number combination designates location by map coordinates.)

151. Naval Science	G-4
154. 1920 Lomas Blvd. NE	G-5
201. School of Medicine Building 2	E-7
202. School of Medicine Building 3	E-7
203. Continuing Education	F-4
204. Service Building	E-3
205. Temporary Storage Building	D-3
206. Golf Course Club House	D-5
207. Physics-Astronomy	G-5
208. Observatory	E-4
209. School of Medicine Buildings 4, 5, 6	E-6
210. School of Medicine Building 7	E-6
211. Basic Medical Sciences Building, School of Medicine Building 1	F-6
212. Communicative Disorders Unit and School of Medicine Building 3A	F-8
213, 214. Animal Facilities, School of Medicine	E-6
216. Automotive Building	D-3
217. KNME-TV Studio	B-3
218. Law (Bratton Hall)	C-6
220. 1837 Lomas NE	F-4
221. 1000 Stanford NE	E-7
223. Warehouse	D-3
224. North Campus Chilled Water Plant	G-6
225. 917 Vassar NE	E-8
226. Surge Building, School of Medicine Building 8	F-7
227. Cancer Research and Treatment Center	F-7
228. Nursing-Pharmacy	F-7
230. New Mexico Law Center	C-6
231. 925 Vassar NE	E-8
232. 815 Vassar NE	F-8
233. Records Center	D-3
234. Medical Center Library	E-6
246. 919 Vassar NE	E-8
247. 905 Vassar NE	E-8
248. Family Practice Center and School of Medicine Building 9	E-6
249. Dental Programs (Novitski Hall)	E-5
253. BioMedical Research, School of Medicine Building 10	E-6
255. Child Care Co-op	B-2
256. Tele-Communications	G-6



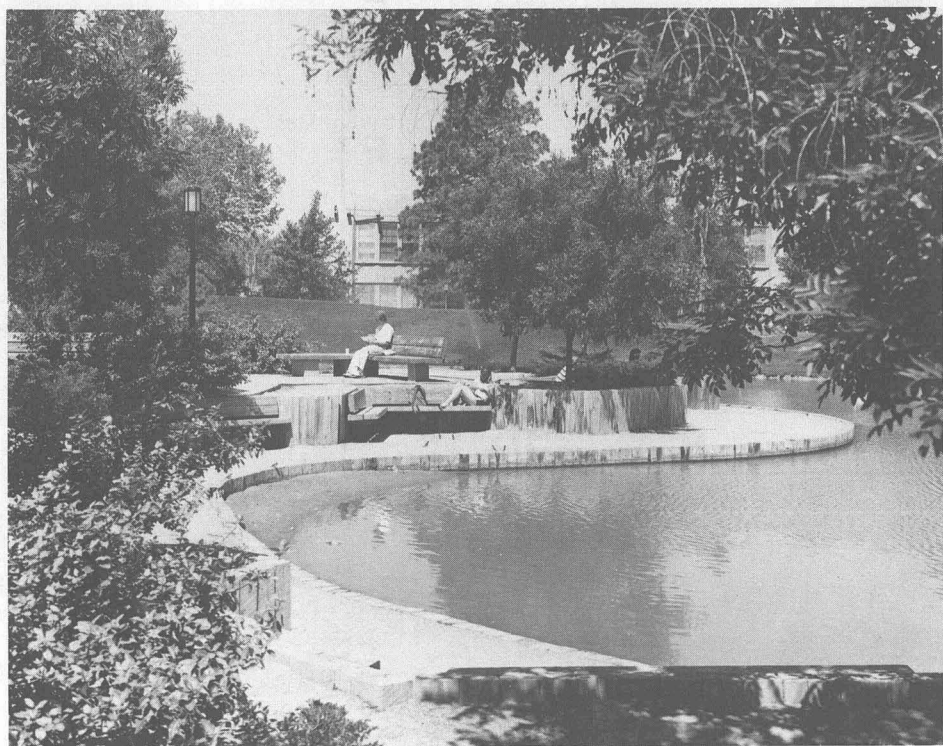


South Campus Legend of Buildings
(Alphabetical Listing)

Athletics Building (307)	F-7
Gymnastics Gymnasium (312)	F-5
Married Student Housing (317-329)	B-9
University Arena (302)	E-5
University Stadium (301)	E-7

South Campus Legend of Buildings
(Numerical Listing)

301. University Stadium	E-7
302. University Arena	E-5
307. Athletics Building	F-7
312. Gymnastics Gymnasium	F-5
317-329. Married Student Housing	B-9



INDEX

- Absences, 44
 Academic Calendar, 4
 Academic Regulations, General, 29
 Access to and Confidentiality of Records, 26
 Accounting, Concentration in, 54; Courses in, 54
 Accreditation, University (general), 10;
 Anderson, 49; Architecture, 11; Chemistry, 10, 81;
 Continuing Education, 10; Education, 10; Engineering,
 10; Journalism, 10; Law, 10; Medicine, 10; Music, 10,
 243; Music Education, 10; Nursing, 10, 288; Pharmacy,
 10, 293
 ACT, **see** American College Tests, 17
 Adapted Physical Education & Corrective Therapy Option,
 169
 Addition of a course, 28
 Administrative officers, 7
 Admission, to the University, 17; general regulations, 18;
 by exam 19; early, 19; freshman, 17; non-degree, 23;
 readmitted, 23; students from other countries, 25;
 transfers, 21; teacher's education program, 160;
 qualitative requirements for, 18; Anderson School of
 Management 48; Architecture, 59; Arts and Sciences,
 64; Dental Assisting, 158; Dental Hygiene, 156;
 Education, 162; Engineering, 206; Fine Arts, 240;
 General College, 19; Graduate, 315; Law, 266;
 Medicine, 269; Nursing, 288; Pharmacy, 295; University
 College, 19; Veterans, 25
 Adult Education Programs, 73
 Advisement, 28
 Afro-American Culture Center, 15
 Afro-American Studies, courses in, 305
 Air Force, ROTC, 308; courses in, 309
 American College Tests, 17
 American Indian Languages, 122
 American Studies, Department of, 67; courses in, 68
 Anderson Schools of Management, Robert O., 47; Degrees
 offered, 47; Admission to, 48; From University College,
 48; From other Institutions, 49; Graduation
 requirements, 50; Concentrations, 47, 50; Courses
 offered, 53; Minor Study, 57
 Anthropology, Department of, 70; courses in, 71
 Apache, Courses in, 122
 Applied Music, 257
 Archaeology **See** Anthropology
 Architecture and Planning, School of, 59; admission, 59;
 courses offered, 61; Degrees offered, 60; Graduation
 requirements, 60
 Art, Department of, 242; Curriculum, 242; Courses in, 248
 Art Education, Department of, 164 ; courses in, 177;
 major and minor, 242
 Art History, courses in, 249
 Art Museum, 14
 Art Studio, courses in, 248
 Arts and Sciences, College of, 64; admission to, 64;
 graduation requirements, 65; transfer from Universities,
 65; major and minor studies, 66; teacher certification,
 66; departments and disciplines, courses, 67; group
 requirements, 65; cooperative education, 66, 75;
 degrees, 66
 Asian Studies, 108 **see also** International Studies
 Associate Degree Programs, degree requirements, 29;
 admission, 34; General College, 263
 Associate of Applied Science in Computer Programming,
 264
 Associate of Applied Science, 212; Electronics Technology,
 220; Laser/Electro-Optic Technology, 220
 Associate of Science in Pre-Engineering, 221, in Dental
 Hygiene, 157
 Astronomy, courses in, 139
 Astrophysics, major & minor, 136
 Athletic coaching, minor in, 168
 Athletic training option, 168
 Attendance, 31, 44
 Audited courses, 31
 Bachelor of Business Administration, 47; Program, 48;
 admission to, 48
 Bachelor of Engineering Options, 217
 Bachelor's degrees, **see also** Degrees, 33
 Bachelor of University Studies (BUS), 303
 Bilingual Education, 166, 175
 Biology, Department of, 76; courses in, 76
 Biomedical Engineering Option; curriculum, 217
 Branch Campuses, 313; Centers for Graduate Studies, 314
 Gallup Branch, 313; Valencia, 313; Los Alamos, 313
 Business Computer Systems, Concentration in, 50
 Business Education, 174; courses offered, 199;
 curriculum, 174; major & minor, 174
 Bureau of Indian Affairs Programs Grants, 43
 Career Planning and Placement, 43
 Catalog Requirements, 29
 CEEB Advanced Placement Program **See**
 College Entrance Examination Board, 20
 Centers for Graduate Studies, 313
 Challenge a course, 33
 Change in address, 26; of college, 26; in enrollment, 28;
 in grades, 30; program of studies, 28; in residence
 status, 27; in grading options, 28; in enrollment, 28
 Chemical Engineering, Department of, courses offered,
 223; curriculum, 208
 Chemistry, Department of, 80; courses in, 81
 Chicano Cultural Center, 15
 Chicano Studies, 306
 Chinese, courses in, 122
 Civil Engineering, Department of, 209;
 curriculum, 210; courses offered, 226
 Class hours, 29
 Classics, major, 123
 CLEP, General scores, 20; General credit, 20; ACT/CLEP
 General credit policies, 20; Subject examinations, 21
 Clinical Science, courses in, 280
 College Entrance Examination Board, Advanced Placement
 Program **see** CEEB
 Colleges & Schools of the University, **see** Architecture and
 Planning, School of, 59; Arts and Sciences, 64; The
 Robert O. Anderson Schools of Management, 47;
 Education, 160; Engineering, 205; Fine Arts, 240;
 General College, 263; Graduate Studies, 315; Law, 266;
 Medicine, 269; Nursing, 288; Pharmacy, 293;
 University, 302;
 Commencement, 35;
 Commercial Skills, courses in, 264
 Communications Skills Test, 65
 Communicative Disorders, Department of, 84; courses in,
 84
 Community College, 312
 Community & Regional Planning, 60; courses in, 63;
 degrees offered, 60
 Comparative Literature, courses in, 86; major in, 86
 Composite teaching area in Elementary Education, 166; in
 Secondary Education, 175
 Computer Center, 13
 Computer Engineering, 214
 Computer facilities, 210; Engineering, 214
 Computer Programming, 266
 Computer Science in Electrical Engineering, 213
 Computers, 13
 Computer Science, Department of; 210; courses in, 220;
 curriculum, 212

- Concentrations in Management, 50
 Concurrent enrollment, 19, 28
 Conferences & Institutes, 312
 Confidentiality of Records, Access to, 26
 Continuing Education and Community Services, Division of, 312; credit & non-credit programs, 312
 Cooperative Education Program, in Arts and Sciences, 66; in Engineering, 208; courses in, 223
 Correspondence Courses, 312
 Counseling and Advisement of Students, 28, 161, 302
 Counselor Education Courses, 179; degrees in, 165
 Course Numbering System, 29
 Credit Hours, 29
 Credits for Teacher Certifications, 24
 Credit/No Credit Grade Option, 31
- Dance, courses in, 261; major, 247
 Dean and Directors, 7
 Degree Requirements, 33; Architecture, 60; Management, 48; Arts & Sciences, 65; Bachelor of University Studies, 304; Dental Programs, 156; Education, 161; Engineering, 207; Fine Arts, 241; Nursing, 280; Pharmacy, 296
 Dental Assisting, 158; courses in, 159; curriculum, 158
 Dental Hygiene, 158; courses in, 158; degrees, 156
 Dental Programs, Division of, 156; Curriculum 157; degrees offered, 156; requirements for Admission, 156; degree requirements, 157
 Dentistry, Pre, 67
 Departmental Honors Program, 36
 Diagnostic Medical Sonography, certificate program, 276
 Dishonesty in academic matters, 27, 31
 Dismissal, disciplinary, 32; **see also** Suspension, 32
 Directions for Correspondence, 2
 Division of Public Administration, courses in, 301
 Dropping a course, 28
- Early Admission, 19
 Economics, Department of, 87; courses in, 88
 Economics-Philosophy, major in, 91
 Education, College of, 160; accreditation, 10; admission to, 162; certification, 160; degrees, 160; graduation requirements, 181; curriculum, 164; professional Education requirements, 161; advisement, 161
 Educational Administration, 165; courses in, 180
 Educational Foundations, 165; courses in, 181
 Electrical and Computer Engineering, Department of, 213; laboratories, 213; courses, 232; curriculum, 213; Honors Program, 213; special 5 year program, 213
 Electronics Technology, 219; associate degree requirements, 220; courses in, 237; curriculum, 220
 Elementary Education, Department of, 165; courses in, 185
 Emergency Medicine Program, courses in, 280
 Employment Student, 42
 Energy and Power Systems option, 218
 Engineering, College of, 205; accreditation, 10; admission to, 206; cooperative education, 207; curriculum, 208; degrees offered, 206; graduation requirements, 207; options, 217; scholastic regulations, 206
 Engineering, courses for non-majors, 222
 English, Department of, 91; courses in, 91
 English-Philosophy, major in, 92, 96
 English Second Language Writing Program, 177
 Enrollment, 26; changes in, 28; limit, 28; **see also** Registration
 Environment, 12
 Equal Educational Opportunity Policy, inside front cover
 Ethnic Centers and Programs, 15
 Ethnic Studies, 305
 European Emphasis Option in Management, 51
 European Studies, 109 **see also** International Studies
- Examinations, regular, 32; admission by, 19; to establish credit (challenge), 33
 Exercise Technologist Option, 170
 Expenses, Student, 37
 Extension courses and independent study, 28, 34, 312
- Facilities, 13
 Family, Community & Emergency Medicine, courses in, 280
 Family Educational Rights and Privacy Act, 26
 Fees, 37; undergraduate, 37; Law and Graduate Studies, 37; Medical School, 38; payment, 40; refunds, 40; Special Course, 38
 Film, courses in, 261
 Financial Aid Policies, 41; Programs, 42; refunds, 40
 Financial Management, concentration in, 51
 Fine Arts, College of, 240; admission to, 240; departmental honors, 241; departments of, 242; graduation requirements, 241; scholastic standards, 241; teacher education, 243 admission from University College, 240; transfer from other colleges, 241; special facilities, 242; general curriculum, 242
 Fine Arts Library, 14
 Fraternities, social, 44; honorary, 44
 French, courses in, 123; major & minor, 123
 French Summer School in Taos, 125
- Gallup Branch Campus, 343
 GED (General Education Development) Exam, 19
 General College, 263; admission to, 19, 263; associate degree programs, 263; University Skills program, 264
 General Honors Program, 35; courses in, 307
 General Information, 9
 General Management, concentration in, 51
 Geography, Department of, 96; courses in, 97
 Geology, Department of, 99; courses in, 100
 Geology Museum, 14
 German, courses in, 125; major in, 125
 German Summer School in Taos, 126
 Grades, 29; changes in, 30; options, 30
 Grading option, change, 28
 Graduate Programs, 315
 Graduation Requirements, 33; with honors, 36
 Grants, 42
 Greek, courses in, 127; major & minor, 127
- Harwood Foundation, 14
 Health Education, 166; courses in, 187; curriculum, 166; major & minor, 166
 Health Insurance, 38
 Health, Physical Education and Recreation, Department of, 166; courses in, 187; curricula, 166
 Historical Sketch, 11
 History, Department of, 102, courses in, 103
 Home Economics, Department of, 171; in Arts and Sciences, 67, 172; courses in, 196; curriculum, 171; Honorary Organizations, 45
 Honors, degree with, 35
 Honors, work, 35; Graduation with, 35
 Housing, 40; housing policy, 40
 Human Resource Management, concentration in, 51
 Human Services, associate of arts, 269; admission, 270; degree requirements, 270; courses in, 281
- Ibero-American Studies, 108
 Incomplete grades of, 30, Removal of, 30
 Independent Study Courses, 28, 34 **See also** Correspondence Courses
 Industrial Education, 175; courses, 200; curriculum, 176
 Information Services, 45
 Institute of Meteoritics, 15

Insurance, Student Group, Health and Accident, 38
 Intensive English Institute, 46, 177
 Interdisciplinary Studies, 305
 International Management, concentration in, 51
 International Programs & Services, Office of, 46
 International Students, 25
 International Studies, 108; Asian Studies, 108; European
 Studies, 107; Russian Studies, 109
 Italian, courses in, 127

Jonson Gallery, 14
 Journalism Department of, 109, courses in, 110

Key to Symbols Used in Course Descriptions, 316

Latin American Option in Management, 51
 Latin American Studies, 111; courses in, 112
 Latin, courses in, 127
 Law, School of, 266; courses in, 267;
 Law Library, 14
 Libraries, 13
 Library/Media Education, courses in, 183
 Linguistics, Department of, 112; courses in, 113, 74
 Loans, Student, 42
 Los Alamos Branch Campus, 313
 Los Alamos Center for Graduate Studies, 314

Management Science, concentration in, 51
 Marketing Management, concentration in, 51
 Married Student Housing, 41
 Master of Business Administration requirements, 47
 Master of Management, 48
 Mathematics and Statistics, Department of, 114, courses
 in 116

Maxwell Museum of Anthropology, 14
 Mechanical Engineering, Department of, 214; financial aid,
 215; courses in, 237; curriculum, 215; laboratories, 215
 Medical Center Library, 14
 Medical Laboratory Sciences, 270; courses in, 281
 Medical Sciences, courses in, 282
 Medical Technology Program, 270; admission to program,
 271; curriculum, 271; courses in, 281
 Medicine, School of, 269; M D program, 269; admission,
 249; Associate of Arts in Human Services, 269; Medical
 Laboratory Sciences, 271; Medical Technology, 270;
 Physical Therapy, 272

Microelectronics Processing Option, 219
 Military credits, 25
 Missions and Goals of the University, 9
 Modern and Classical Languages, Department of, 121;
 freshman placement, 121; language laboratory, 121;
 courses in, 121
 Museums, 14
 Music, Department of, 243; applied, 257; curriculum 244
 Music Education, courses in, 254
 Music Education, courses in, 257; curriculum, 244;
 Bachelor of Music Education Degree, 244; minor, 246

National Student Exchange, 24
 Native American Cultural Center, 15
 Native American Studies, 306
 Natural Science, courses in A&S, 132; in General College,
 266
 Navajo, courses in, 122
 Naval Science, 307; courses in, 310
 Non-credit Programs, 312
 Non-degree status, 23
 Nuclear Engineering, Department of, 216; courses in, 225;
 curriculum, 216; laboratories, 216; computer facilities,
 216
 Nuclear Medicine Technology, 275; courses in, 287;
 certificate program, 275;

Nursing, College of, 288; academic regulations, 289;
 admission, 288; courses offered, 291; curriculum, 290
 graduation requirements, 290
 Nutrition/Dietetics, curriculum, 171

Orientation, 44

Paleocology, courses in, 132; minor in, 132
 Parish, William J., Memorial Library, 14
 Pathfinder, 44
 Payments of Tuition & Fees, 37
 Pharmacy, College of, 293; admission to, 295; courses
 offered, 297; curriculum, 296; graduation requirements,
 296; accreditation, 293; financial aid, 294; scholastic
 regulations, 295
 Philosophy, Department of, 133; courses in, 133;
 Economics-Philosophy, 91; English-Philosophy, 91;
 major & minor, 133
 Physical Education, courses in, 189; curriculum, 167;
 major & minor, 167
 Physical Science, courses in, 143
 Physical Therapy, admission, 273; courses in, 285;
 curriculum, pre-professional, 273; professional, 273
 Physics and Astronomy, Department of, 135; courses in,
 136; major & minor, 136
 Political Science, Department of, 140; courses in, 140
 Popejoy Hall, 15
 Portuguese, courses in, 128
 Probation, 32; General College, 32; University College, 32;
 Degree Granting Colleges, 32;
 Psychology, Department of, 143, courses in, 144
 Public Administration, Division of, 301; courses in, 301

Quechua, courses in, 122

Radiologic Sciences Program, 274; admission to program,
 274; Associate of Science in Radiologic, Technology,
 274; curriculum, 274; courses in, 274
 Radiological Technology, 274; courses in, 286
 Readmitted Students, 23
 Records, 25
 Recreation, courses in, 193; curriculum, 170; major &
 minor, 170
 Refunds, tuition, 39; withdrawal, 39; financial aid refunds,
 40
 Regents of the University, 7
 Registration Procedure, 28
 Registration Fees, 37; graduate, 37; Law, 37; Medical
 School, 37; undergraduate, 37
 Religious Studies, 148; major & minor, 148; Related
 courses, 148
 Repetition of course, 31
 Reservation Procedure, 41; rooms, 41
 Reserve Officer Training Corps, 308
 Residence Centers, 313; Los Alamos Graduate Center,
 314; Santa Fe Graduate Center, 314
 Residence halls, 40
 Residence for Tuition Purposes, 27
 Residence extension, 312
 Retention of Students, 10
 Room and Board, 41
 Russian, courses in, 128; major & minor, 128
 Russian Studies, 109 **See also** International Studies

Santa Fe Center for Graduate Studies, 314
 Schedule of Classes, 28
 Scholarships, 43
 Scholarship Index, 32
 Scholastic Regulations, 32
 School Relations, Office of, 21

Secondary and Adult Teacher Education, Department of, 172; certification requirements, 160; major and minor, 174; courses in, 197

Secretarial Studies, 174, 304; Associate of Arts degree, 160, 304

Social Science, 266

Social Security Educational Benefits, 43

Social Security Number, 25

Sociology, Department of, 149; courses in, 149

Sororities, *see* Student Organization, 44

Southwestern Biology, Museum of, 14

Spanish, courses in, 129; placement, 129; major and minor, 129

Special Course Fees, 38

Special Education, Department of, 177; courses in, 203; minor, 177; requirements for acceptance to program, 177; screening, 177

Speech Communication, Department of, 153; courses in, 153

Student Activities Center, 45

Student Directory, 45

Student Employment, 42

Student Expenses, 37

Student Handbook, 44

Student Housing, 40

Student Information Center, 45

Student Organizations, 45

Student Services, 44

Student Standards and Grievances, 46

Suspension, 32;

Swahili, courses in, 132

Symbols used in course descriptions, 316

Taos Summer School-French, 125; German, 126

Teacher Certification, credits for, 24; in Arts & Sciences, 66; in Education, 160; in Fine Arts, 273

Telecommunications, 314

Testing Division, 304

Theatre Arts, courses in, 258; Department of, 247

"Three-Two" Program, admission to, 52

Tireman Learning Materials Library, 14

Transcripts, 26;

Transferring Students, 21

Travel and Tourism, Management, concentration in, 51

Tuition, 37 *See also* Registration fees

Two Undergraduate Degrees, 34

Two-year Secretarial Program, 304

Undergraduate Seminar Program, 36; courses in, 307

University College, 302; admission requirements, 302;

Bachelor of University Studies, 303; transfer from, 303

University Skills Program, 19; courses in, 266; natural science, 266; social science, 266

Valencia County Branch Campus, 313

Veterans, admission of, 25

Veterans Administration and Educational Benefits, 43

Veterans Affairs, 44

Vocational Education, 176; courses in, 202

Vocational Rehabilitation, 43

Wiche Program, in Pharmacy, 294

William J. Parish Memorial Library, 14

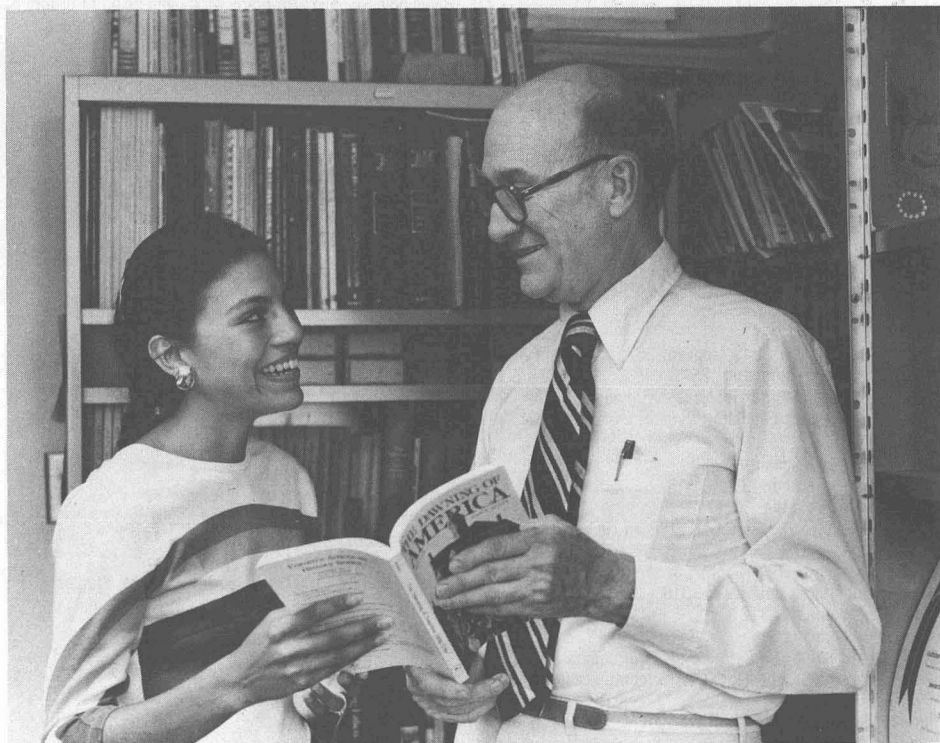
Withdrawal, from a course, 28; from the University, 29

Women Studies, courses in, 310

Work Study Program, 42

Zimmerman Library, 13

Zuni, courses in, 122





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Albuquerque, New Mexico 87131