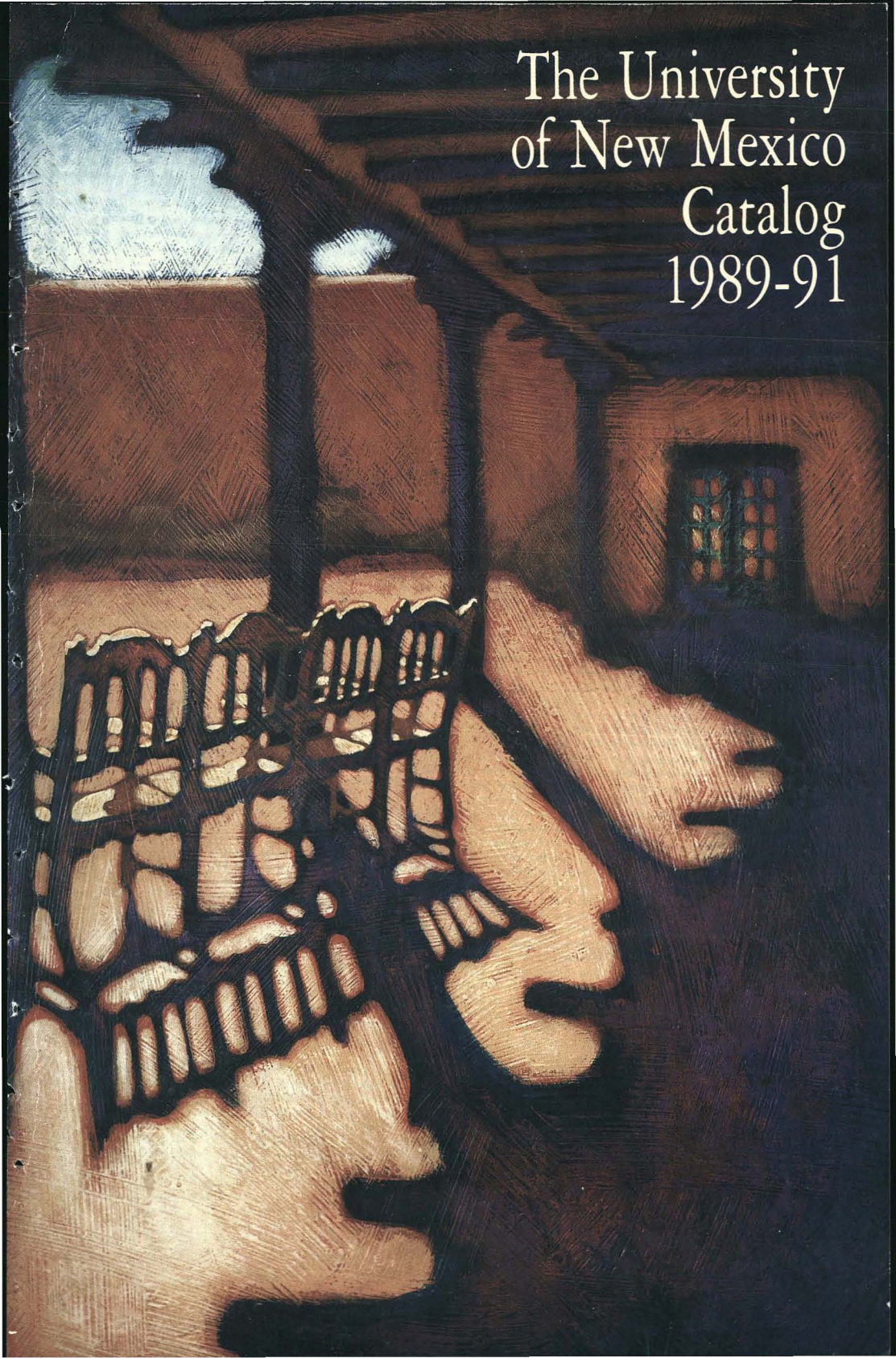
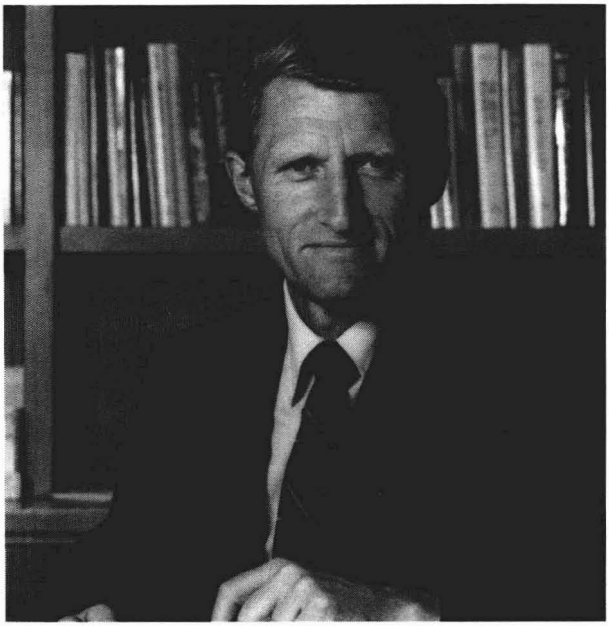
The University of New Mexico Catalog 1989-91





Message from the President

This Centennial Edition of the UNM catalog describes the rich variety of experiences offered at this University. You will find in it an extraordinary variety of degree programs to choose from; many organizations in which you can participate, and many other activities that are the hallmark of a comprehensive University.

A University is a place for exploring new ideas, for learning more about ourselves and our society, and for acquiring professional skills. The University of New Mexico is committed to providing you with the opportunities you need to pursue the goals that you have set for yourself.

As we celebrate our 100th birthday, we can look back and see how our institution has grown in quality and size. Our second century at UNM will begin with a recommitment to our basic values: quality education for undergraduates, graduates and professional students; strength in our cultural uniqueness and diversity; excellent service to students; continued striving for excellence.

We hope you will take the opportunity to experience the richness of our University--we are here to make that experience a great one!

Gerald W. May

The University of New Mexico Catalog

1989-91

Centennial Edition

**** DEDICATED TO ****

The 87,000+ Graduates of UNM who have received degrees during the Institution's first 100 years

The cover is the Official Centennial poster, an acrylic by J. D. Welborn, titled "A Place in the Sun." It depicts the south entry of Scholes Hall, a masterpiece of Pueblo Revival architecture.

The University of New Mexico Centennial:
"A Place in Your Future"

"It is expected that three years of the high school course in English will conform to the following standard . . . . Correct spelling and grammatical accuracy should be rigorously exacted . . . . (The student should pursue) a progressive course in literature (and) should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads."

Students applying to the University of New Mexico in 1916 were required to show satisfactory completion of certain units of high school course material, just as they are today. The 1916 Catalog required entering freshmen to have two units of language, including Greek or Latin, and allowed them to present four units of agriculture, domestic science, commercial subjects, manual training or music.

Fees were $21.00 a semester in 1916-17, including a $10.00 breakage fee, and room and board were estimated at $18.00 a month. The University had "no power to extend credit. "

During its Centennial celebration, the University of New Mexico is taking a look back at its first century and a look forward into the future. History shows us that many of our fundamental principles have remained constant since the first classes -- two teachers and 25 students -- met in 1892.

The University was, is and will be New Mexico's largest and most comprehensive institution of higher education. It is nourished by the centuries-old traditions of "universitas," and it is strengthened by the unique environment and culture of the Southwest.

The Centennial celebration, continuing through 1989, is an affirmation of our special strengths, past, present and future. From parades to symposia, art shows to half-time shows, the Centennial showcases the talents of students and professors and renews our ties to alumni and friends in the community.

The Centennial began with an Academic Convocation -- featuring a procession of students and faculty in cap and gown, the presentation of a ceremonial mace, the premier of a musical composition and a speech by Shirley Chisholm. Next will come the University's hundredth birthday celebration on February 28, 1989, with numerous events scheduled on campus and a special ceremony in the State Capitol. Space Days will bring astronauts, moon rocks and more to campus on April 14 and 15; City and County Government Day will be June 3; the Public Business Symposium will be September 8; Architecture Day September 23; a Hispanic conference October 4-6; and Homecoming, parents' day, high school senior day, a campus open house and the Centennial closing ceremony, all on October 28. These and many more events are planned, along with exhibits, publications and performances.

The Centennial is indeed "a place in your future" for each member of the University community. To take your place in the Centennial, call 277-1989.

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1989-91 ACADEMIC CALENDAR
UNIVERSITY OF NEW MEXICO

1989 Summer Session

Undergraduate Applications and credentials due in the Office of Admissions no later than.....May 26, 1989

Instruction begins.
8-Week Term.....June 12
First 4-Week Term.....June 12
Second 4-Week Term.....July 10

Registration closes; last day to add courses or to change sections.
8-Week Term.....June 16
First 4-Week Term.....June 13
Second 4-Week Term.....July 11

Last day to change grading options.
8-Week Term.....June 23
First 4-Week Term.....June 16
Second 4-Week Term.....July 14

Last day to drop course without a grade.
8 Week Term.....June 30
First 4-Week Term.....June 21
Second 4-Week Term.....July 19

Last day to withdraw without Dean's permission.
8-Week Term.....July 21
First 4-Week Term.....June 28
Second 4-Week Term.....July 26

Independence Day, holiday.....July 4

Session ends.
8-Week Term.....Aug. 4
First 4-Week Term.....July 7
Second 4-Week Term.....Aug. 4

1989 Fall Semester

Undergraduate Applications and credentials due in the Office of Admissions no later than.....July 21, 1989

Instruction begins.....Aug. 21

Registration closes.....Aug. 25

End of Second Week; last day to add courses or change sections.....Sept. 1

Labor Day, holiday.....Sept. 4

End of Fourth Week; last day to change grading options.....Sept. 15

End of Sixth Week; last day to drop a course without a grade.....Sept. 29

Midsemester.....Oct. 13

Fall Break (No classes).....Oct. 12-13

Homecoming Week.....Oct. 23-28

End of twelfth week; last day to withdraw without approval of College Dean.....Nov. 10

Thanksgiving, holiday.....Nov. 23-26

Withdrawal Deadline; last day to withdraw from a course with approval of College Dean.....Dec. 8

Last day of instruction.....Dec. 9

Final examination period.....Dec. 9-16

Last Day for report of removal of Incomplete grade.....Dec. 15

Semester ends.....Dec. 16

1990 Spring Semester

Undergraduate Applications and credentials due in the Office of Admissions no later than.....Dec. 15, 1989

Instruction begins.....Jan. 15

Late Registration closes.....Jan. 19

End of Second Week; last day to add courses or change sections.....Jan. 26

End of Fourth Week; last day to change grading options.....Feb. 9

End of Sixth Week; last day to drop a course without a grade.....Feb. 23

Midsemester.....Mar. 9

Spring Break (No classes).....Mar. 11-18

End of twelfth week; last day to withdraw without approval of College Dean.....Apr. 6

Withdrawal Deadline; last day to withdraw from a course with approval of College Dean.....May 4

Last day of instruction.....May 5

Final examination period.....May 5-12

Last day for report of removal of Incomplete grade.....May 11

Semester Ends.....May 12

Commencement (subject to change).....May 12

1990 Summer Session

Undergraduate Applications and credentials due in the Office of Admissions no later than.....May 25, 1990

Instruction begins.
8-Week Term.....June 11
First 4-Week Term.....June 11
Second 4-Week Term.....July 9

Registration closes; last day to add courses or to change sections.
8-Week Term.....June 15
First 4-Week Term.....June 12
Second 4-Week Term.....July 10

Last day to change grading options.
8-Week Term.....June 22
First 4-Week Term.....June 15
Second 4-Week Term.....July 13

Last day to drop a course without a grade.
8-Week Term.....June 29
First 4-Week Term.....June 20
Second 4-Week Term.....July 18

Last day to withdraw without Dean's permission.
8-Week Term.....July 20
First 4-Week Term.....June 27
Second 4-Week Term.....July 25

Independence Day, holiday.....July 4

Session Ends.
8-Week Term.....Aug. 3
First 4-Week Term.....July 6
Second 4-Week Term.....Aug. 3

1990 Fall Semester

Undergraduate Applications and credentials due in the Office of Admissions no later than.....July 20, 1990

Instruction begins.....Aug. 20

Registration closes.....Aug. 24

End of Second Week; last day to add courses or change sections.....Aug. 31

Labor Day, holiday.....Sept. 3

End of Fourth Week; last day to change grading options.....Sept. 14

End of Sixth Week; last day to drop a course without a grade.....Sept. 28

Midsemester.....Oct. 12

Fall Break (No classes).....Oct. 11-12

Homecoming week.....Oct. 15-20

End of twelfth week; last day to withdraw without approval of College Dean.....Nov. 9

Thanksgiving, holiday.....Nov. 22-25

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

Last day of instruction.....Dec. 8

Final examination period.....Dec. 8-15

Last Day for report of removal of incomplete grade.....Dec. 14

Semester ends.....Dec. 15

1991 Spring Semester

Undergraduate Applications and credentials due in the Office of Admissions no later than.....Dec. 14, 1990

Instruction begins.....Jan. 14

Registration closes.....Jan. 18

End of Second Week; last day to add courses or change sections.....Jan. 25

End of Fourth Week; last day to change grading options.....Feb. 8

End of Sixth Week; last day to drop a course without a grade.....Feb. 22

Midsemester.....Mar. 8

Spring Break (No classes).....Mar. 10-17

End of twelfth week; last day to withdraw without approval of College Dean.....Apr. 5

Withdrawal Deadline; last day to withdraw from a course with approval of College Dean.....May 3

Last day of instruction.....May 4

Final examination period.....May 4-11

Last day for report of removal of incomplete grade.....May 10

Semester ends.....May 11

Commencement (subject to change).....May 11

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Lee B. Zink, Ph.D ..... Associate Vice President Research/Business and Government Relations; Director, Institute/Applied Research Services

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 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 activities stem from and contribute to the University's research, and teaching programs.

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 the University administration;
- taking advantage of the unique opportunities

GENERAL INFORMATION

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, Accreditation Board for Engineering and Technology (ABET), Computer Sciences Accreditation Board, Inc., American Council on Pharmaceutical Education, American Association of Colleges of Pharmacy, American Bar Association, Association of American Law Schools, National Council for Accreditation of Teacher Education, National Association of Schools of Music, American Council on Education for Journalism, National League for Nursing, New Mexico State Board of Nursing, Association of American Medical Colleges, Liaison Committee of the Council on Medical Education of the American Medical Association, Association of American Medical Colleges, AMA's Committee on Allied Health Education and Accreditation (CAHEA), Commission on Accreditation in Education of the American Physical Therapy Association, Joint Review Committee for Respiratory Therapy Education, National Architectural Accrediting Board, American Board of Examiners in Speech Pathology and Audiology, American Assembly of Collegiate Schools of Business, Commission on Dental Accreditation, National Association of Schools of Public Affairs and Administration, American Psychological Association.

HISTORY AND LOCATION

When Americans migrated westward in the nineteenth century, they brought with them many cultural traits that they wished to establish in their new homes. One of these qualities was an abiding faith in the power of public education to guide future generations. From small one-room schoolhouses to ivy-covered university campuses, the American settler believed that publicly financed instruction could surmount obstacles of environment, culture, distance and isolation.

The University of New Mexico owes its existence to that emphasis on the inculcation of knowledge at all levels of society. Nineteenth century New Mexico Territory faced challenges of economic development and incorporation into the union of states. Those who sat in judgment of New Mexico's future, whether on Wall Street or Capitol Hill, considered a viable public school system as a cornerstone of any successful ventures in business or government.

By 1889 two generations of Americans had contemplated methods of developing the potential of their adopted home of New Mexico. One such individual, Bernard Shandon Rodey, won a seat in the territorial legislature that year with the primary goal of creating a system of public higher education. Through the time-honored process of coalition politics, the young Irish lawyer knit together Hispanic and Anglo, northern and southern New Mexico, and urban and rural interests. The result was passage on February 28, 1889, of a bill authorizing formation of the "State University" in Albuquerque, the land-grant college in Las Cruces, and the School of Mines in Socorro.

The latter two institutions had clearly defined missions which had evolved over time in American higher education. The University of New Mexico, as Rodey described it, addressed the more ambiguous tasks of teaching the liberal arts, sciences, and literature. Opening its doors on Albuquerque's east mesa in June 1892, UNM quickly realized that its clearest objective would be the training of teachers for the newly created (1891) territorial public school system.

Like its peers throughout the West, UNM spent much of its early decades seeking recognition from the local citizenry. The elite of Albuquerque sent their children to more prestigious, and more-established, eastern universities. The UNM faculty offered instruction in high school courses, technical training, and education certification. Not until 1919 did the university dispense with its high school curriculum, and only in 1922 did UNM receive accreditation for its college-level work from the North Central Association of Colleges and Secondary Schools.

As with small institutions then and now, UNM's character was shaped to a great extent by the personality of its presidents. The eagerness exhibited by boosters of New Mexico's economy led to the hiring in 1897 of Clarence Herrick, a noted geologist from the University of Chicago. Herrick suffered from respira-

tory problems: a condition that lured many easterners to New Mexico's clear air and high altitude in search of a cure. Herrick emphasized practical training in the sciences, and contributed to improved public health services by garnering a $10,000 bequest from Mrs. Walter Hadley to construct a bacteriology laboratory on campus (the first public health facility in the territory).

Before he resigned in 1901, Herrick suggested as his replacement a former student at Denison University of Ohio, William George Tight. The tall, robust, handsome Tight seemed cut from the same cloth as David Starr Jordan, of Stanford Univesity, the most famous western university president of his day. Tight continued his mentor's work in the sciences, and labored to improve the physical plant of the university. The most enduring touch of President Tight was his decision, based as much on economy as aesthetics, to design a campus master plan focusing on the adobe architecture indigenous to the Indian and Hispanic villages of the Southwest. Architectural historians credit Tight with anticipating the national fascination with adobe, first promoted by the Santa Fe and Taos art colonies, and revered in late twentieth century circles as the "Santa Fe Style."

Despite his success in reorienting campus architecture (among the buildings still extant is Hodgin Hall), Tight faced a volatile political situation in New Mexico as the process of statehood neared. In 1909 Edward D. Gray, a cultured English gentleman farmer, replaced Tight as UNM's chief executive. Possessor of degrees from British universities, Gray had come west for his wife's health. His tenure was stormy and brief (three years), as he strove to integrate traditions of proper English boarding schools at UNM. He did succeed in tutoring several Rhodes scholars, and became the first UNM administrator to suggest curriculum changes that reflected the cultural distinctiveness of New Mexico.

Once Congress had bestowed the gift of statehood in January 1912, the UNM board of regents sought a new president who understood the direction western states should pursue as they exercised the prerogatives of self-government. They found such an individual in David Ross Boyd, the first president of the University of Oklahoma (1892-1908). Boyd had shepherded that institution through its formative years, and after his departure served as field supervisor of Indian schools in the Southwest for the Presbyterian Board of Home Missions.

Boyd inherited a school with less than one hundred students, in a state with fewer than one dozen public high schools. Correspondence between Boyd and former Oklahoma colleagues, like the noted author Vernon Louis Parington, revealed the enormity of the tasks awaiting the fifty-six year old president. Yet Boyd brought to UNM its first clear delineation of academic authority, creating colleges and schools in the various disciplines. Student life also advanced, as fraternities, sororities, honors societies, and athletics all prospered.

Fortunately for UNM, Boyd oversaw the institution through the chaotic years of World War I (1917-19). Male students vanished from campus to enlist in the "Great War," and over 360 students, faculty, and alumni served in uniform. Boyd sought assistance from the brace of federal programs instituted for military service, from the Student Army Training Corps to the Interdepartmental Hygiene Board. Curriculum changes also echoed wartime constraints, as the War Department called for classwork in engineering, drafting, the sciences, and officer training.

Two forces converged at UNM once the armistice was signed in November 1918. Boyd saw the future of the institution as bright, benefitting from exposure to national trends in education. Yet the sudden conclusion to the war, and termination of federal financial support, left UNM and New Mexico to generate revenues within the state. The lawmakers in Santa Fe, as eager as their counterparts in Washington to reduce government spending and stimulate private enterprise, denied Boyd's request to double the size of UNM and prepare for the growth of the 1920's.

In Boyd's stead came David Spence Hill, a student of psychology whose most recent appointment had been at Tulane University in New Orleans. Hill labored to expand upon Boyd's ideas, the most important being the successful application in 1922 for accreditation. The university benefitted in large measure from the nationwide popularity of college-enrollment, with some measure of the "flapper girl" and "racoon-coat" culture descending upon Albuquerque. As had presidents Tight and Gray, Hill also suggested academic programs emphasizing southwestern regionalism, entitling his proposal "The School of Spanish Literature and Life."

The national economic decline of the late 1920's that prompted the Great Depression touched New Mexico, and David Hill, in profound ways. Hill tired of planning campus improvements without adequate financial support, and stepped aside as UNM president in 1927. The UNM regents appointed a thirty-eight year-old associate professor, James Fulton Zimmerman, as acting president, launching UNM and Zimmerman on a seventeen-year journey that made the school a state university in fact as well as name.

A graduate of the prestigious social science program of Columbia University, Zimmerman immediately succumbed to the cultural and environmental power of New Mexico. On campus, he emphasized regional awareness beyond the plans of his predecessors. Through recruitment of students and faculty, cultivation of private and public funding agencies, and an aggressive marketing campaign, Zimmerman broke the skackles of economic stagnation to build a school that increased in enrollment from 450 students in 1927 to 2700 by 1939.

In the early 1930's, Zimmerman had his greatest successes with the programs of the Rockefeller Foundation, and with the individual support of New

Mexico's U.S. Senator Bronson M. Cutting. The Rockefeller family had endowed the prestigious Laboratory of Anthropology in Santa Fe, and UNM appealed to them for similar academic support. In the depths of the Depression the Rockefeller Foundation agreed to sponsor programs at UNM that highlighted the cultural traditions of Hispanic New Mexico, hoping to do for UNM what it has done for black colleges in the American South. Cutting, an independently wealthy health seeker from New York and Harvard University, subsidized scholarships for deserving Hispanic students, and underwrote the first bilingual education training center in the United States: the San Jose Experimental School in south Albuquerque.

These successes created for UNM an identity quickly recognized among academics nationwide. The American Association of Universities accredited the school for graduate training in 1933, and young scholars from prestigious eastern and midwestern universities accepted faculty appointments in anthropology, history, languages, folklore, geology, and education. Among the new employees were Clyde Kluckhohn, later to become one of Harvard University's finest anthropologists, and Leslie Spier, editor of the *American Anthropologist* at Yale University.

Perhaps the most significant endeavor of President Zimmerman was his relationship with the close advisors to President Franklin D. Roosevelt. Through his personal friendship with Rexford Tugwell, Harold Ickes, John Collier, and others, Zimmerman learned of New Deal grant programs that enhanced everything at UNM from student loans and employment to library books to building construction. In the latter case, Zimmerman employed the premier architect of adobe style, John Gaw Meem of Santa Fe. Meem executed plans for eighteen adobe structures from 1933 to 1951, and his design for the Zimmerman Library is often cited as the finest statement of indigenous Southwestern architecture.

Just as President Zimmerman basked in the glory of campus growth, events far away shifted the direction of American higher education. The outbreak of World War II threatened changes much more dramatic than its predecessor. Zimmerman was in the midst of promoting the four-hundredth anniversary of the journey of Francisco Vasquez de Coronado to the Southwest in 1540, which sought to dramatize the role of Hispanics in the life of the nation. The "Coronado Cuarto Centennial" ended abruptly, and military programs took over the UNM physical plant. For the next five years the university struggled like its peers nationwide to process soldiers trained for the mechanized warfare in Europe and Asia.

As the war drew to a close, UNM seemed blessed and cursed by the prospects for peace. Zimmerman died of a heart attack in October of 1944, just weeks before Congress enacted the package of veterans' benefits known as the "GI Bill." Among its provisions was financial support for soldiers returning home that allowed them to acquire college-level training and seek employment in the more sophisticated industrial economy spawned by the war. From a low of 600 full-time students in May 1945, the university absorbed veterans at a rapid pace, reaching a total of 5700 students in the fall of 1949; double the number of UNM's Depression-era peak.

The post-World War II era ushered in a generation of unparalleled growth for the UNM campus. As did many schools after 1945, UNM cast about for an identity that merged prewar conditions with the new age of science, technology, and professional education. The regents turned first to J. Philip Wernette, on the faculty of the Harvard School of Business, for leadership. Wernette, a fluent speaker of Spanish, nevertheless had little preparation in managing a campus in transition. Three years later the regents sought his resignation, and elevated to the president's chair the first New Mexican, and first UNM graduate, Tom L. Popejoy.

A native of the coal mining community of Raton, Tom Popejoy (Class of 1925) had served his alma mater for over two decades as business manager, comptroller, and executive assistant to President Zimmerman. He utilized his knowledge of the New Mexico legislative process to secure adequate funding; a necessity in the postwar era of "Sunbelt growth" for communities like Albuquerque. The student population stabilized around 5000 during the 1950's, and then expanded to 13,000 by the time of his retirement in 1968.

Tom Popejoy is best known for his stewardship of campus professionalization. The schools of law (1948) and of medicine (1964), the only ones in New Mexico, grew under his care, as did the 18,000-seat University Arena, known locally as the "Pit." He learned from his mentor, James Zimmerman, that quality instruction began with good faculty appointments. Popejoy also reached out to the federal scientific laboratories of Los Alamos and Sandia for cooperative research programs that still endure. To honor his memory, in 1971 the university named its performing arts center "Popejoy Hall."

The decade of the 1960's has drawn scholarly attention in recent years as Americans sift through the welter of ideas, events, and personalities that stunned the nation. Institutions of higher learning participated heavily in that process of change, as young people questioned authority, debated national issues of war, justice, and discrimination, and vented their frustration at the intransigence of authority. UNM was no exception to this pattern, and the serenity of the Popejoy era would not continue for his successor, Ferrel Heady.

As director of the public administration program at the University of Michigan, Heady brought to UNM two decades of experience as a scholar and teacher of public policy. His skills met their match early and often in his seven-year administration (1968-1975). The natural fluidity of a liberal-arts oriented campus

tested the patience of all who worked and studied at UNM. Not until the conflict in Vietnam subsided would the university be able to recapture the momentum of progress first noticed in the years after World War II.

Seeking calm became a priority for the UNM board of regents, and political and civic leaders statewide. In 1975 William E. "Bud" Davis accepted the presidency, promising to strengthen relations with the state, and to emphasize the regional characteristics UNM had long championed. Davis had spent his academic career in the interior West, serving as president of Idaho State University before coming to Albuquerque.

President Davis benefitted from the national quest for tranquility in the late 1970's, as UNM began advancing in areas of science, technology, and business. Davis also instituted the "Presidential Scholars" program, which targeted the finest New Mexico high school graduates for enrollment at UNM. Then events in the athletic department clouded the future of the institution; a circumstance all too familiar nationwide among major college athletic programs. Davis undertook steps to rectify the situation, and by the time of his departure in 1982 the university had in place a means of academic advisement and management and drew praise from the National Collegiate Athletic Association.

As UNM moved toward its one hundredth birthday in 1989, the school realized the extent to which the nation, and higher education, had to adjust not only to the changes brought by the preceding generation, but also by the looming presence of the twenty-first century. This meant defining clearer standards for admission and retention of students, responding to the world of the computer, and joining state and private interests in planning for New Mexico's economic development.

The "search for standards" engaged the three chief executives of UNM in the 1980's. John Perovich (UNM, Class of 1948), a protege of President Popejoy, oversaw the transition of the decade from 1982-1984. His successor, Tom Farer (1985-1986), arrived from the faculty of Rutgers University to apply national and international concepts to the university. At decade's end the chair of the presidency belonged to Gerald W. May, former dean of the UNM College of Engineering. May's presence indicated the late twentieth century impetus for technology, or "big science," as a means of ensuring economic and intellectual prosperity for the state and nation.

In the life of an individual, one hundred years is quite significant. For institutions, it means different things. Universities evolve and grow over time, as they respond to forces from without and within their walls. The meaning of UNM's centennial, then, is not so much the detail accumulated from the previous ten decades, but the awareness that higher learning is as valuable as when Bernard Rodey called the university into being. Knowing that the path to the future is illuminated by the past becomes the greatest lesson UNM imparts to its students, and to its state.

Written by: Michael Welsh -
Official UNM Centennial Historian

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

COMPUTER AND INFORMATION RESOURCES AND TECHNOLOGY (CIRT)

2701 Campus Boulevard NE
Help Desk, 277-4848
Administration, 277-8125
Communication Center, 277-4646

Computer and Information Resources and Technology, or CIRT, provides computing services and support for the academic and administrative community at UNM.

To meet the variety of computing needs at UNM, CIRT has several different computing systems. These include two IBM mainframes, several Digital Equipment Corporation (DEC) VAX computers, and a Sequent parallel processor. IBM-compatible microcomputers and Apple Macintosh microcomputers also are supported by CIRT.

User Accounts. Students must be assigned a user number in order to access the larger IBM, DEC or Sequent computer systems. Instructors will provide free computer time by furnishing appropriate user numbers to students enrolled in courses requiring the use of a mainframe system. Computer accounts and users numbers also may be obtained from CIRT's Finance Group, located in the CIRT building.

Computer Networks. The Campus Data Communications Network, or CDCN, permits users to access the computer systems from campus buildings connected to the CDCN, and from off campus through the use of telephone lines. Gateways are supported to allow UNM users to link up to other computer networks in New Mexico, the United States and overseas through the CDCN. The Communication Center, at 277-4646, assists users who need help using the CDCN.

Free terminal and microcomputer use available. Computer users can access the larger computers at CIRT's six public terminal areas-called pods. The pods also contain microcomputers and software, which UNM students, faculty, and staff may use free of charge. Consultants are always on duty in the pods to help users with computing problems. Pods are located in the CIRT Building, the Engineering Annex, Johnson Center, Anderson Schools of Management, the Student Services Center, and the School of Architecture. Hours of operation vary for each pod. All the public pods are equipped with IBM-compatible microcomputers, printers and software. Macintosh microcomputers, laser printers and Apple software are available in all of the pods except the Engineering Annex.

Consulting Services. In addition to the pod consultants, CIRT has senior consultants available for free consultations. These consultants also teach mainframe and microcomputer short courses, and prepare documentation for supported software and systems. For more information about mainframe or microcomputer support services, call CIRT's Help Desk at 277-4848, between 8 a.m. and 5 p.m., Monday through Friday.

Other services provided to the UNM community by CIRT include discounts for purchasing microcomputers, a free Newsletter published seven times a year, software distribution, network design and installation and site management of local resources on a fee for service basis. For more information, contact the Help Desk at 277-4848.

IDEA CENTER

The Instructional Development, Educational Assistance Center (IDEA), located in Woodward Hall, provides technical support and professional services for faculty, staff and students through audio and visual media means. In addition to operating technical equipment to transmit and receive telecommunication transmission for two-way classes sent to remote sites and for teleconferences, the IDEA Center also handles all of the various projectors, cameras, monitors, loudspeaker systems, recorders, and other types of machinery used in presentations held in classrooms, ballrooms, auditoriums or football stadiums. IDEA's Film Library has an ever growing film and videotape collection, ranging in topics from Shakespeare to Physics. The Graphics Department, using computer graphics technology, designs faculty presentations, slides for publication and presentations, posters, displays and exhibits, and seminar materials for many UNM departments. IDEA's Photography Department provides processing for all types of black and white, and color photos and slides, studio and location filming, portraiture, and motion picture production. The Television Production Department supplies professional quality videotaping with accompanying editing and finished product excellence. Because some classes at UNM are videotaped, video cassettes are kept on hand in the Cableroom for anyone who wishes to view them. Besides keeping and storing tapes, this department assigns monitors for viewing, sets up and takes down equipment used for the various classes which are taped, and provides trained enployees for recording purposes. As part of the demand to provide continuing education on new technology, IDEA Center offers workshops on the use of audio and visual techniques in teaching.

INSTRUCTIONAL TELEVISION

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 Office of Instructional

Television. Through this network of participating universities and institutions, New Mexicans who are currently unable to attend on-campus courses 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 industry, home-study students, and residents in rural areas. A telemediated means of off-campus learning began in 1985 and utilizes available satellite, microwave, fiber optic and cable television technology to reach prospective students statewide.

Libraries

The General Library now has 1.3 million cataloged volumes and over 10,700 current scholarly and general interest newspapers, journals, and magazines, with over 3.5 million microforms also available. The General Library includes Zimmerman Library, the Centennial Science and Engineering Library, the Fine Arts Library, the Tireman Learning Materials Library, and the William J. Parish Memorial Library.

Zimmerman Library is located at the north end of Smith Plaza on the central campus, 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 in the humanities and social sciences, 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 John Gaw Meem Area, containing materials dealing with the architecture of the Southwest. The University Archives collects and preserves the records of the University which are deemed to be of permanent value. The Government Publications Department is a Regional Depository for federal publications as well as a depository for State of New Mexico publications, and an official patent depository library for the U. S. Commerce Department's Patent and Trademark Office. The Center for Academic Program Support, located on the third floor of Zimmerman, provides free academic support services to all undergraduates. Individual tutoring, small group workshops, non-credit study skills workshops, and credit courses in learning skills, research strategies, and research paper development are offered. Online bibliographic searches are available in the General Reference Department for a fee. In addition to reference service for subject areas in the social sciences and humanities, the General Reference Department offers special 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 retrieval of books, a limited amount of free photocopying, free online searching, special study areas, and the use of tape recorders, a Braille writer, Visualtek readers, a TTy terminal and Kurzweil Reading Machines, in a special area for that purpose, the Alice S. Clark Room. The Interlibrary Loan Office will borrow materials from other libraries for University students, faculty and staff. Allow several weeks for this process. The General Library also offers comprehensive Document Delivery Service on a fee basis. The Copy Center, located on the lower level, provides paper and microform copying, binding and other services. Self-service photocopy machines are located throughout the building.

The Centennial Science and Engineering Library is located two floors underground in the Electrical and Computer Engineering Building Complex. The library contains the General Library's collections in the areas of science and engineering, including 1,700 current journal subscriptions, 300,000 volumes of books and journals, and 1.5 million microforms. Patents, patent services, and technical reports are also part of the Centennial Science and Engineering Library. The Map and Geographic Information Center, located on Lower Level 2, includes over 140,000 maps, images, aerial photos and other cartographic and geographic resources. A Photocopy Center is located on Lower Level 1. The two levels provide seating for over 800 library users. The Library uses an online catalog to access its collections. Library staff are available for reference services, computerized literature searching, instructional services and selection of materials.

The Fine Arts Library, located on the second floor of the Fine Arts Center, supports the teaching and research programs of the University in the fields of art and art history, music, photography, and architecture. It provides an outstanding collection of over 104,000 items, including books, periodicals, microforms, music scores, exhibition catalogs, and 33,000 sound recordings, as well as several collections of rare and unique works on photography, music and art. It is the only major facility in the state for this material. The Fine Arts Library provides full services, including reference, self-service photocopying, microform and video viewing, extensive listening facilities for audio recordings, and access to special materials.

The Tireman Learning Materials Library is located in the College of Education Administration Building. It contains an extensive collection of book and non-book materials used in classroom instruction in grades kindergarten through twelve. The Library serves the teacher education program in the College of Education. It provides access to the wide variety of instructional materials for examination, evaluation and use by teachers and educators throughout the state, as well as University students and faculty. The Library has over 6,000 non-print media sets and individual items, including kits, games, audio cassette tapes, phonograph records, educational software, slides, filmstrips, mounted pictures, transparencies and study prints. Preview rooms with microcomputers and audiovisual equipment are located in the Library. Tireman Library has over 7,000 books for children and young adults. It

houses an evaluation center for textbooks being considered by the State of New Mexico for adoption for use in public schools. The Anita Osuna Carr bicultural, bilingual collection includes children's literature, classroom materials, kits, phonography records, vertical file materials, and reference books in Spanish, Native American languages, and English. Material in other languages, such Vietnamese and Laotian, is also collected.

The William J. Parish Memorial Library is located to the west of the Graduate School of Management, at 1924 Las Lomas N.E. The Library houses over 120,000 books and periodicals, and 80,000 microforms in the fields of economics, business, and management. The most comprehensive collection of business and economics materials in New Mexico, the Library supports the curriculum of the Anderson School of Management and the Department of Economics, as well as research by members of other University departments and residents of the community. Special collections include the most extensive collection in the state of U.S. corporate annual reports, SEC 10-K reports, and foreign corporate reports. Seating is provided for 370 library users, and reserved carrels are available for graduate students in business and economics. Services include bibliographic instruction, traditional reference services and computerized database searching; access to microcomputers, typewriters, and compact disk databases; self-service copying facilities for paper and microform; and viewing facilities for videotape and 16mm film. For individuals not affiliated with the University, database searching, reference service and document delivery can be provided on a cost recovery basis.

The Medical Center Library on the North Campus contains more than 110,000 volumes, two thousand periodical subscriptions, and 3,000 media 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.

TAMARIND INSTITUTE

Marjorie L. Devon, Director
108 Cornell SE
Albuquerque, New Mexico 87131

Tamarind Institute, founded in June of 1970 as a division of the College of Fine Arts, is a professional center for training, study, and research in the art of lithography. At the institute distinguished artists are provided an opportunity to create original lithographs under conditions that fulfill the highest aesthetic and ethical traditions of the art.

Programs of advanced professional study are available to qualified individuals who seek to enter careers as master printers. Artists and printers at the Institute have full access to the resources of the University, including the Fine Arts Library and the University Art Museum. The library has considerable strength in the history and practice of lithography, and the museum has an extensive collection of original lithographs by major artists of the nineteenth and twentieth centuries. Courses in the history of graphic arts and in the business aspects of workshop operation are offered through the Department of Art and the College of Fine Arts.

The institute publishes an annual journal, *The Tamarind Papers: A Journal of the Fine Print.* Brochures, the Institute's services for artists, its professional printer training programs, and its research publication, films and color slides are available upon request.

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 archeology. 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 located 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 art museums on campus, UNM 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.

Mineral, rock, fossil, and map displays are among the exhibits featured in the **Geology Museum,** located in Northrop Hall. 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.

Fine Arts Center

Popejoy Hall 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 presented 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 Children's 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 validated University I.D. card.

Keller Recital Hall, with its magnificent Holtkamp Organ and its marvelous recording capability, is the main performance site of the Department of Music. With a seating capacity of 330, Keller Hall houses over 150 concerts per year, including student soloists and ensembles, chamber groups, and guest artists. Two annual music events mark the calendar: **The Keller Hall Series,** a distinguished series of chamber music and solo performances by UNM faculty artists, and **The World of Music,** a celebration of international folk music.

Rodey Theatre is a modern 430 seat performance facility for the Department of Theatre Arts. A theatre/dance season of six events is offered each year from the modern and historical theatre repertory and includes dance concerts with choreography embracing the forms of modern, ballet, and flamenco. **Rodey Film Series** presents significant works of film from the world repertoire each semester.

The Experimental Theatre is a 120 seat facility where original and contemporary plays are presented in an intimate setting. New and innovative works staged by faculty and students, as well as presentations of student work in film and video, are the focus of this theatre.

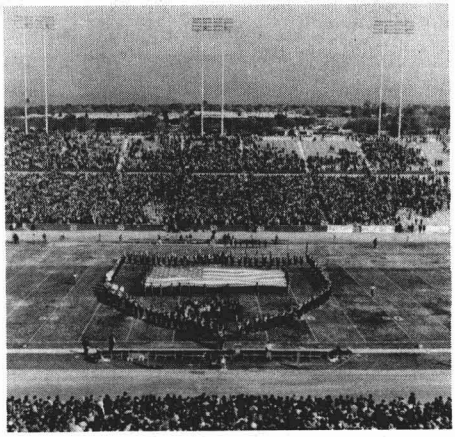
The Fine Arts Center complex also includes the Fine Arts Museum, the Fine Arts Library, the B. Bunting Memorial Slide Library, and facilities supporting programs in Studio Arts, Art History, Photography, Music, Music Education, Theatre, Dance, Film and Television.

Ethnic 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.

African-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 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; Hispanic 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.



THE UNDERGRADUATE PROGRAM

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 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, returning and nontraditional students.

Admission procedures and requirements vary in each of the four categories listed below:

A. Beginning Freshmen (High School graduates).
B. Transfer Students (last attended another institution).
C. Readmit students (students who stopped attending for one or more semesters)
D. Non Degree Students (presently not seeking a degree).

For more information about UNM, contact the Office of School Relations, first floor, Student Services Center, 277-5161 (toll-free from elsewhere in New Mexico, 1-800-CALL UNM).

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 a partial transcript, subject only to your high school graduation.

When to Apply

We strongly encourage you to apply as early as possible. The deadline for receipt of all application materials in the Admissions Office for fall and spring semesters is one month before the first day of classes and for summer two weeks. (See the academic calendar for specific dates.) Students are accepted for admission to most undergraduate colleges of the University for the fall, spring, and summer sessions. If you do not register for the session requested on your application and wish to postpone enrollment to a subsequent semester, you must notify the Admissions Office. Applications and fees are applicable for three

consecutive sessions only. If you do not take advantage of admission and enroll within that period, a new application and fee are required. A number of colleges and specialized programs with limited enrollments have different deadlines and requirements. Applicants for these programs should see the appropriate sections of this catalog for specific deadlines and requirements.

College Entrance Examinations

ACT results (UNM Code 2650) or SAT results (UNM Code 4845) must be filed by freshmen applicants, including transfers with fewer than 26 semester hours of transferable credit. The University recommends that the ACT or SAT 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 the ACT or SAT Testing Center. Scores on transcripts or student copies do not satisfy this requirement.

Admission Requirements

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:

CRITERION I

Completion of the following 13 specific high school college preparatory units (two semesters of classwork equals one year-long unit) with a C average or better:

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

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

3 units of mathematics from the following list; 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),

2 units of social science (one of which must be U.S. History).

*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 fluency 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.

CRITERION II

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 freshman class. This standard may be revised upward over the next two years.

ACT Composite in Combination With *High School Class Rank*

13-16	Top 25% of Class
17-21	Top 50% of Class
22-25	Top 75% of Class
26 or higher	No Rank Requirement

OR

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

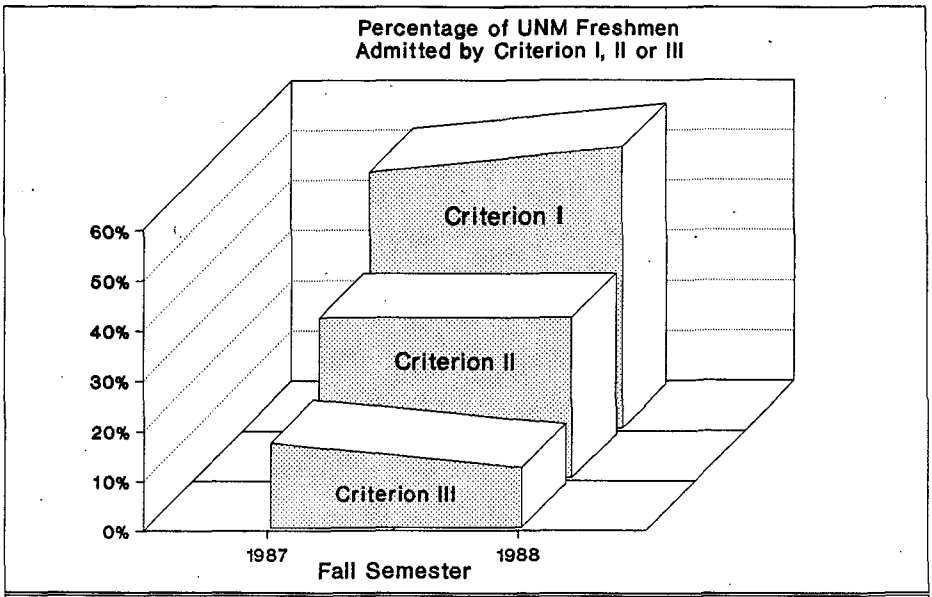
660-770	Top 25% or Class
780-930	Top 50% of Class
940-1080	Top 75% of Class
1090 or higher	No Rank Requirement

CRITERION III

A limited "Special Admissions" category. Talented students, including many adults, with special or unusual backgrounds (who do not meet criteria I or II above) may make individual petitions for admission. Such petitions should include an

autobiographical statement and two letters of recommendation. Petitions will be reviewed by a subcommittee of the Committee on Admissions and Registration.

The Special Admissions subcommittee is chaired by the Director of Admissions and its membership consists of faculty, staff, and students drawn from the full committee.



The average beginning freshman at UNM is in the top 30% of his or her high school class, has a grade point average of 3.0 (B) and an ACT composite score of 21. The average UNM freshman has also followed a strong college preparatory program in high school, exceeding the minimum number of academic untis required for admission.

Introductory Studies Courses. Even though a student is qualified for admission to the University under Criteria I, II, or III, he or she may be required to take one or more courses. These courses are designed to strengthen a student's preparation for university-level work in areas of demonstrated weakness. Required enrollment in Introductory Studies courses is based upon established minimum standards of performance on individual tests on the ACT or SAT. 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 automatically are enrolled in University College when they enter the University. When they have satisfactorily completed a minimum of 26 semester hours and have met all prerequisites of the college they wish to enter, they may transfer to one of the degree-granting programs of the University.

OTHER ADMISSION OPPORTUNITIES

Early Admission Option

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 or SAT satisfactory to the University. In most cases a personal interview with the Dean of Admissions is required before a decision is made.

Concurrent Enrollment Option

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 should not be confused with Early Admission.

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

1. The student must be a high school senior with an expected graduation date within one calendar year.
2. The student must have the certification and unconditional recommendation of the high school prior to participation.
3. The high school must furnish the Office of Admissions with an official high school transcript.
4. Minimum quantitative requirement (one or more of the requirements listed below):
   a. Class rank in top 25% **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 an SAT total score of 1000.
5. A student planning to take English 101 must have a minimum score of 17 on the English portion of the ACT.
6. A student planning to enroll in any math course numbered above Math 120 must take the UNM Math Placement Test and present the results to the Admissions Office.

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. Students admitted on GED scores must also present ACT or SAT 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 the equivalent.

Associate Degree Programs

Although associate degree programs may have special admission requirements, applicants for most of these programs, except the Associate of Science and Associate of Applied Science degrees at the UNM branch campuses, must first meet the general admissions requirements for a bachelor degree program. 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:

Advanced Placement Exam	Score	Equivalent UNM course	Cr. Granted (sem. hrs.)
Art Hi	3	dept. review	-
	4	Art Hi 101 & 150	6
	5	Art Hi 101 & 150	6
Art St	3	dept. review	-
	4	dept. review	-
	5	dept. review	-
Biol	3	Biol 121L & 122L	8
	4	Biol 121L & 122L	8
	5	Biol 121L & 122L	8
Calc AB	3	Math 162	4
	4	Math 162	4
	5	Math 162	4
Calc BC	3	Math 162 & 163	8
	4	Math 162 & 163	8
	5	Math 162 & 163	8
Chem	3	Chem 121L & 122L	8
	4	Chem 131L & 132L	9
	5	Chem 131L & 132L	9
CS A	5	CS 155 dept review	-
CS AB	4	CS 155	4
	5	CS 155	4
	5	CS 253 dept review	-
Macro	4	Econ 200	3
Econ	5	Econ 200	3
Micro	4	Econ 201	3
Econ	5	Econ 201	3
Engl Lang	3	Engl 101 & 102	6
& Comp	4	Engl 101 & 102	6
	5	Engl 101 & 102	6
Engl Lit	3	Engl 101 & 102	6
& Comp	4	Engl 101 & 102	6
	5	Engl 101 & 102	6
Amer Gov/	4	Pol Sci 200	3
Politics	5	Pol Sci 200	3
Compar Gov/	4	Pol Sci 220	3
Politics	5	Pol Sci 220	3
Amer Hist	3	dept. review	-
	4	Hist 161 & 162	6
	5	Hist 161 & 162	6
Euro Hist	3	dept. review	-
	4	Hist 101 & 102	6
	5	Hist 101 & 102	6
Fren Lang	3	Fren 101,102,201,202	12
	4	Fren 101,102,201,202,301	15
	5	Fren 101,102,201,202,301, 302	18
Fren Lit	3	Fren 101,102,201,202	12
	4	Fren 101,102,201,202,351	15
	5	Fren 101,102,201,202,351, 352	18
Germ Lang	3	Germ 101, 102	6
	4	Germ 101, 102	6
	5	Germ 101, 102	6
Latin	3	Latin 101, 102	6
	4	Latin 101,102,201,202	12
	5	Latin 101,102,201,202	12
Span Lang	3	Span 101, 102	6
	4	Span 101,102,201,202	12
	5	Span 101,102,201,202	12
Span Lit	4	Span 351, 357	6
	5	Span 351,352,357	9
Physcs B	3	dept. review	-
	4	Physcs 151,153L	4
	5	Physcs 151,153L	4
Physcs C	3	dept. review	-
	4	Physcs 160,163L	4
	5	Physcs 160,163L	4

COLLEGE LEVEL EXAMINATION PROGRAM

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 three CLEP General Examinations on which a score of 500 or better is earned in: social science, natural science and humanities. The mathematics exam allows six semester hours for a score of 575, and the English exam allows three semester hours specifically for English 101 with a score of 610. Students interested in taking the CLEP General Examinations are urged to do so before entering the University.

CLEP General Credit Policy.

Policies vary for application of 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 27 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 Sciences requirement or for additional hours outside the major requirements. The Bachelor of University Studies Program accepts the full 27 hours toward the 128 required for graduation. In the other colleges of the University, the number of hours earned through CLEP 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 27 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 the University of New Mexico also grants credit for CLEP Subject Examinations as administered by the College Entrance Examination Board. (Credit will not be granted for subject examinations not listed below.)

CLEP Subject Exam	Score	Equivalent UNM Course	Cr. Granted (sem. hrs.)
Gen Biology	45	Biol 110,111	6
Gen Chem	52	Chem 121L,122L	8
Intro Macroecon	55	Econ 200	3
Intro Microecon	55	Econ 201	3
*Freshman Engl	51**	Engl 101	3
*Coll Comp	57**	Engl 102	3
*Anal and Interp of Lit	55**	Engl 150	3
*English Lit	50**	Engl 294,295	6
*Amer Lit	50**	Engl 296	3
Western Civ I	50	Hist 101	3
Western Civ II	50	Hist 102	3
Intro to Mgt	50	Mgt 113	3
Intro to Acct	50	Mgt 202	3
Intro to Mkt	50	Mgt 222	3
Coll Alg	56	Math 121	3
Trig	61	Math 123	2
*Calc w/Elem Func	60**	Math 162	4
Coll Fren	40	Fren 101	3
	45	Fren 101,102	6
Coll Germ	44	Germ 101,102	6
Coll Span	40	Span 101	3
	45	Span 101,102	6
	54	Span 101,102,201,202	12
Amer Govt	55	Pol Sc 200	3
Gen Psych	55	Psych 101, 102	6
*Educ Psych	50**	Psych 210	3
Hum Growth & Dev	52	Psych 220	3
Intro to Soc	52	Soc 101	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 forwarded:

   •Official scores on the American College Test (ACT) or the Scholastic Aptitude Test (SAT) sent directly from ACT Records, P.O. Box 451, Iowa City, Iowa, 52243; or from SAT, Admissions Testing Program, College Entrance Examination Board, Box 592-A, Princeton, New Jersey, 08541.
   •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.

* Includes an essay/problem set graded by the respective UNM department.

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

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 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 or SAT results (when applicable) in the Admissions Office is one month before the first day of classes for the Fall and Spring semesters and two weeks 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. If you do not register for the session requested on your application and wish to postpone enrollment to a subsequent semester, you must notify the Admissions Office. Applications and fees are applicable for three consecutive sessions only. If you do not take advantage of admission and enroll within that period, a new application and fee are required. A number of colleges and specialized programs with limited enrollment have different deadlines. Applicants for such programs should see the appropriate sections of this catalog for specific deadlines and requirements.

Requirements for Admission

Freshmen 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 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.

Previous Grades and Suspension

The minimum qualitative requirement for University admission is a grade average of C in all transferable college work attempted. In fractionated grading systems, pluses and minuses will be dropped. 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. In cases of an unspecified suspension period, UNM's one year suspension term will apply. 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 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. UNM does not, however, accept remedial or technical course work.

Applicants from recognized collegiate institutions not fully accredited must have the equivalent of a 2.5 UNM grade point average 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 located. 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 GPA 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. Dogmatic religion classes are not acceptable.

UNM operates on a semester credit basis. Therefore, classes from quarter system institutions will be recalculated to semester hours.

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

How to Apply

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

1. Complete and return an application for readmission. An application fee is not required.
2. If you attended another institution while away from UNM or have taken college level correspondence or extension courses, 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 semester 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. Applications will not be processed until all the required items are on file with the Admissions Office.
3. Students who have been suspended or dismissed as the result of disciplinary problems shall not be readmitted to the University without a required interview with the Dean of Students Office. The University reserves the right to refuse any student readmission on the basis of his or her student history, either academic or disciplinary.

When to Apply

We strongly encourage you to reapply as early as possible. Deadlines for readmission vary according to your previous academic status or the College you wish to enter. Contact the Office of Admissions for specific dates. If you do not register for the session requested on your application and wish to postpone enrollment to a subsequent semester, you must notify the Admissions Office. Applications are applicable for three consecutive sessions only. If you do not take advantage of admission and enroll within that period, a new application is required.

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 re-enroll in 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

How to Apply

Complete and return a non-degree admission application and a $10.00 non-refundable application fee.

When to Apply

Students are encouraged to submit their applications as early as possible. Applications are accepted until the last day of registration for the semester you wish to enter. If you do not register for the session requested on your application and wish to postpone enrollment to a subsequent semester, you must notify the Admissions Office. Applications and fees are applicable for three consecutive sessions only. If you do not take advantage of admission by enrolling within that period, a new application and fee are required.

Non-degree status is for applicants who wish to enroll for undergraduate University courses without entering degree 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 application with the UNM Admissions Office.

Non-degree students (or those eligible for non-degree admission) may take advantage of the UNM non-degree satellite registration center located at Continuing Education, 1634 University N.E. During peak registration periods, students may submit non-degree admission applications at the time of registration.

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.

NOTE: Students in Non-Degree are not eligible to receive financial aid.

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 degree status in an undergraduate college at UNM and who has not completed a degree.
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 degree status.
6. A student planning to receive student financial aid.

NOTE: Veterans planning to attend the University under one of the public laws governing veterans' educational benefits and who are seeking admission 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 after admission or enrollment at UNM are found to be ineligible for academic or other reasons to return to the last institution attended and 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 to an undergraduate program when the student has been accepted to degree status by meeting UNM's entrance requirements and those of the student's degree-granting college. Non-degree students applying for degree 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 degree 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, receive no credit.

Normally a non-degree student may not enroll for more than 7 semester hours during a regular session without special permission. **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 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 degree status. The senior residence requirement cannot be met by enrolling in non-degree status. This can 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. Under specific provisions a maximum of 12 hours of graduate credit may be granted for non-degree work. (See *Graduate Programs Bulletin.*)

Teacher Licensure

Students wishing to complete initial license as a teacher must make regular application for admission to the College of Education through the Office of Admissions.

Teachers who are already licensed may take coursework for the renewal of their license or coursework to add endorsements while enrolled in non-degree status.

For additional information, contact the Advisement Center, College of Education, before enrollment.

National Student Exchange Program

NSE offers UNM students an opportunity for educational travel and study at eighty participating colleges and universities across the United States. NSE permits students to broaden their academic, social, and cultural awareness by temporarily leaving the familiar atmosphere of home town and home campus.

Participants must be full-time students with a minimum cumulative grade point average of a 2.50 and must have completed two semesters prior to exchange.

NSE students pay full-time tuition to the University of New Mexico before leaving for their host school. Most UNM financial aid will apply for tuition. Expenses for room and board, transportation to and from the host campus, and incidentals are the responsibility of the exchange student.

Information may be obtained from the NSE Office, Mesa Vista Hall, Room 1035, Telephone 277-9036.

New Mexico/WICHE

Western Interstate Commission for Higher Education

Since in 1951, New Mexico has sponsored students across state lines to receive professional education.The thirteen western states have provided this service under terms of the Western Regional Education Compact, which has been adopted by the legislatures of all thirteen member states, and has been administered by the Western Interstate Commission for Higher Education.

New Mexico participates in fourteen of the sixteen disciplines offered through WICHE Professional Student Exchange. Certified New Mexico residents are eligible for funding support at WICHE-participating institutions in the fields of dentistry, veterinary medicine, occupational therapy, optometry, osteopathy, podiatry, graduate library studies, public health and forestry. In addition, New Mexico receives WICHE students from the other compacting states in the fields of medicine, physical therapy, law, pharmacy and architecture.

New Mexico/WICHE also sponsors a Western Regional Graduate Program. This program has 95 master and doctoral programs from 35 institutions in 13 states and are designated Western Regional Graduate Programs. Programs are selected on the basis of quality and limited availability. Participating states agree to waive the nonresident tuition differential for students who are granted admission to these programs.

The WESTERN UNDERGRADUATE EXCHANGE (WUE) allows undergraduate students greater access to educational programs within the West at reduced tuition.

All New Mexico/WICHE Programs are administered through the University of New Mexico under the guidance of the Commission on Higher Education.
For additional information please call or write:

Certifying Office for New Mexico
The University of New Mexico
Mesa Vista 1035
Albuquerque, New Mexico 87131
(505)277-9036

International Students

The University admits 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 Test (ACT) or Scholastic Aptitude Test (SAT) scores, if applicable.
- 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 test is administered. In other areas the student may arrange to take the American Language Georgetown University Test (ALIGU) by contacting the nearest U.S. Consulate Office.
- A certified bank statement showing ability to meet financial responsibilities while in the United States.
- A $25.00 application fee.

To facilitate the admission procedure, the applicant should gather all credentials and send them in the same envelope to International Admissions. TOEFL, ACT and SAT 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 International Admissions.

Students transferring from within the United States must have completed a minimum of 26 transferable semester hours with a grade point average of 2.75 from each and every school 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

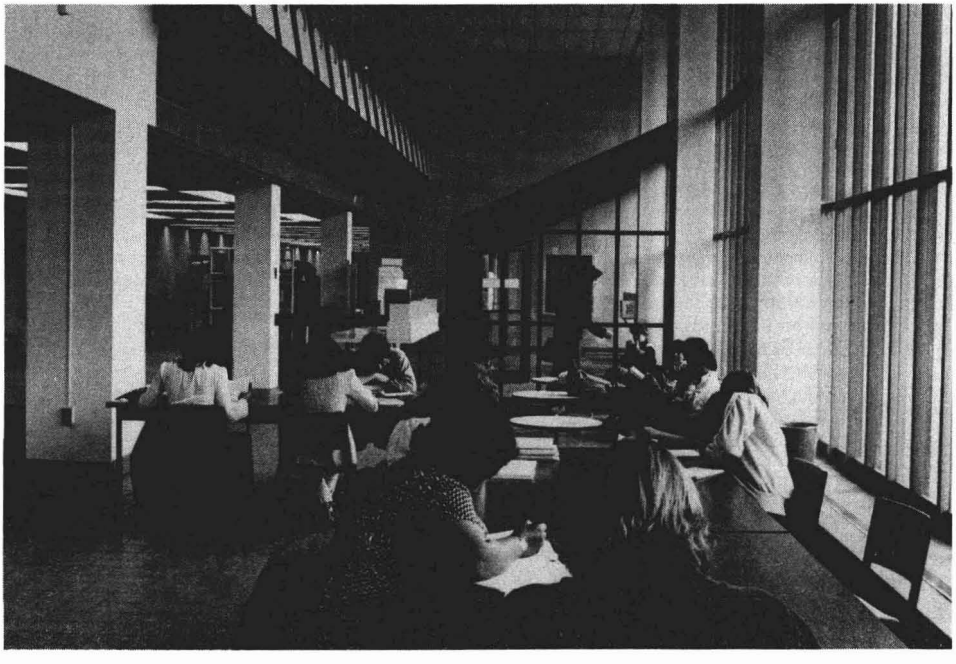
There are primarily five veterans educational programs in existance today. For persons with service between February 1, 1955 and December 31, 1976, such assistance is available under the GI Bill. Veterans and service persons who entered the military on or after January 1, 1977, may receive educational assistance under a contributory plan. Individuals entering on active duty, from July 1, 1985 through June 30, 1988 may receive benefits under a new program of educational assistance. Active reservists are eligible for benefits by applying through their reserve unit and this office. There is a Vocational Rehabilitation program for those who qualify through the Veterans Administration.

In seeking admission to UNM, veterans 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 Student Services Center, Room 263. This also is the office in which 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 student veteran 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 degree-seeking status or after completing 12 semester hours at UNM. 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 refers to 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 comes from the Board of Regents and was adopted on 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 Act the following policies apply:

1. Currently enrolled students, or any who have previously attended UNM, may inspect their educational records upon submitting an 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 with a legitimate educational interest. 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. With the exception of disclosures to academic personnel, a record is kept of disclosures of personally identifiable information for which the student has not given written consent.
7. Information about the Rights and Privacy ACT is available in the Records Office on the UNM campus, and gives details concerning the student's rights and privileges under the Act.

Transcripts

The Records Office issues both official and unofficial copies of student academic records. A student may request an official transcript of his or her academic record and it will be issued in accordance to the student's wishes subject to transcript policies. A fee is required for all official transcripts.

Transcript Holds

No official student transcript 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. A change in college after the third week of the semester is effective for the next semester. At the time of graduation, students must be enrolled in the UNM college from which they receive their degree.

Change of Name

Students who need to process a change of name for their academic records must bring appropriate documentation (at least two types of identification showing the new name) to the Records Office. Examples of such documentation are: marriage certificate, birth certificate, or court order for legal name change. Name changes will be processed only for currently enrolled students.

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.

RESIDENCY

Summary of Regulations for New Mexico Residency for Tuition Purposes

A student who enters and remains in this state principally to obtain an education is presumed to continue to reside outside this state and such presumption continues in effect until rebutted by clear and convincing evidence of bona fide residence. A student determined to be financially dependent on a parent or guardian also assumes the residency of that parent or guardian. The "burden of proof" is on the student. The student must secure and file the petition with the appropriate documents of evidence in the manner described herein. *All documents submitted for this purpose will be kept confidential.*

To become a legal resident of New Mexico, four basic requirements must be completed by the student. Each person must meet the requirements individually.

A. THE TWELVE MONTH CONSECUTIVE PRESENCE REQUIREMENT. A student must physically reside in the state for twelve consecutive months immediately preceding the term for which the student submits a petition. **NOTE:** *A student cannot begin to complete the twelve month requirement until his or 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 to establish residency apart from his/her parents or guardian.

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 ACTS REQUIREMENT. New Mexico requires 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 persons and their dependents who provide appropriate evidence of moving into New Mexico to work full-time, practice a profession or conduct a business full-time shall not be required to complete the twelve month durational requirement.

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

According to UNM's tuition policy:

Students enrolling for *six hours or less* during a regular semester will be charged resident tuition rates regardless of residency classification.

Students enrolling for the summer session will be charged resident tuition rates only regardless of residency classification.

A brochure explaining all requirements for establishing New Mexico residency and residency petitions are available from the Office of Admission and Records, Student Services Center. Residency petitions will be accepted until the third friday of each Fall and Spring semester and during the summer in Room 261, Student Services Center. For more information please call 277-2125.

REGISTRATION

General Information

Advisement

All freshmen and new transfer students are required to consult an advisor 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 at the University are also urged to take advantage of this service.

Schedule of Classes

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

Registration Procedures

Details of the registration procedures 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 at UNM 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 during a regular semester.

Enrollment Certification

The University of New Mexico is frequently requested to certify a student's enrollment status as to full-time, half-time, etc. The attached guidelines are used primarily to verify enrollment for the purpose of financial aid eligibility and loan deferments. Students withdrawing after the 6th week of classes will be subject to grades of W/P (withdrawal passing) or W/F (withdrawal failing). The grade W/F is included in the total course load for purpose of *enrollment verification.* W/P is not included in the total course load for purpose of *enrollment verification.* Courses taken in Audit status or Extension or Correspondence status are also *not* included in total course load, for purposes of enrollment verification.

Course Load Guidelines

Undergraduates

1. Academic Year
   a. Full-time: 12 or more credit hours.
   b. Half-time: 6-11 credit hours.
   c. Part-time: 5 or fewer credit hours.

2. Summer Session
   a. Full-time: 6 or more credit hours.
   b. Half-time: 3-5 credit hours.
   c. Part-time: 2 or less credit hours.

Graduates

1. Academic Year
   a. Full-time: 9 or more credit hours.
      9 or more of 699
      6 credit hours and an assistantship.
   b. Half-time: 5 or more credit hours.
   c. *Part-time: 4 or fewer credit hours.*

2. Summer session
   a. Full-time: 6 or more credit hours.
      6 or more of 699.
      3 credit hours and an assistantship.
   b. Part-time: 2 credit 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. The following refer to full semester courses; (see also the *Academic Calendar*).

ADD. Students may add courses or change sections only through the second week of the semester.

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

WITHDRAWAL. A student may withdraw from a course after the "Drop" deadline until the end of the twelfth week of the semester. Course withdrawals are subject to grades of W/P or W/F to be determined by the instructor at the time of the withdrawal. The W/F will be computed as a failing grade in the student's grade point average. After the twelfth week, course withdrawals will only by accepted with approval from the dean or director of the student's college. No withdrawals will be accepted after the last day of instruction of the semester.

CHANGE IN GRADING OPTION. No change *in grading option (including audit, credit* option, letter grade or graduate credit option) in any course may be made after the fourth week of the semester.

Grading option is indicated at the time of registration. Any change in grading option must be processed at the Registration Center within specified deadline.

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.

PLEASE NOTE: **Faculty are not responsible for dropping students who do not attend.**

Summer Session and Short Courses. Deadlines for processing drops, adds, withdrawals, and grade options for summer and short courses vary according to the length of the course. Consult the Schedule of Classes for specific dates.

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 of the withdrawal.
- University withdrawals initiated after the sixth week of classes 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.

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. 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 the grade point average.
- 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.
- T-suffix indicates a technical, vocational or special course only applicable for baccalaureate credit upon petition 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.

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 grade point average. 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 the grade point average.

NC — No Credit. Not computed in the grade point average. At the graduate level NC is also used to report unsatisfactory completion of master's thesis or doctoral dissertation. *Certain workshops and courses* may be offered under CR and NC as defined above, only with the approval of the Committee.

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 an audit grade option.

WP — Withdrawal Passing. All approved course withdrawals after the sixth week of classes are subject to the grade of W/P, 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 W/F, if failing the course at the time of withdrawal. The grade of W/F will be calculated as a failing grade in the student's grade point average.

WNC — Withdrawal, No Credit. Not computed in the grade point average. W/NC indicates officially withdrew with unsatisfactory (D or F) performance in CR/NC option enrollment or course approved for CR/NC.

Fractionated Grades

Effective with the Fall 1988 Semester, grades with pluses (+) and minuses (-) were authorized. Following are the allowable grades and associated grade points:

A	=	4.00
A-	=	3.67
B+	=	3.33
B	=	3.00
B-	=	2.67
C+	=	2.33
C	=	2.00
C-	=	1.67
D+	=	1.33
D	=	1.00
D-	=	.67
F	=	0

NOTE: A+ and F+ are not valid grades. Graduate students may not receive C-, or D grades.

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. 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).
3. 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.
4. A maximum of 24 credit hours graded CR/NC will be allowed toward a baccalaureate degree.
5. 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.
6. 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 Couns 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) Correspondence courses.
   (e) *Courses the student is repeating after first* having taken the course under the regular grading systems.
   (f) Introductory Studies courses (100 level).

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 course 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 and is not included in the student's total course load for purposes of enrollment certification.
2. Instructor permission will be required prior to registering in a course for audit. 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 grade point average. 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 grade point average.

Removal of Incomplete (I) Grade

The grade of "I" is given only when circumstances beyond the student's control have prevented completion of the coursework within the official dates of a session.

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

If the student is required by the instructor to repeat the class in order to remove the incomplete the student must register for the course on an audit basis.

Incomplete grades must be removed by the published ending date of the next semester in residence or within the next four (4) semesters if the student does not reenroll in residence. An incomplete may be removed even though a student is not enrolled in residence. Students are responsible for making arrangements with the instructor for removal of an incomplete. An incomplete will be changed to a grade by completing the work prescribed by the instructor. Incomplete grades not removed in accordance with these policies will be converted automatically to F (failure).

Follow these steps to remove an Incomplete:

1. Obtain a permit to remove the incomplete from your College Deans' Office. Graduate students obtain the permit card from the Graduate Dean's Office. Non-degree students obtain the permit card from the Continuing Education Dean's Office.
2. Pay a two ($2) dollar fee to the Cashier's Office.
3. Give the permit card to the instructor and make arrangements with the instructor to complete the work for the course. The instructor completes the permit card and returns it to the Records Office where the official entry is made on the student record.

Change of Grade

The instructor of a course has the responsibility for any grade reported. 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 departmental chairperson if submitted beyond 30 days after a grade was initially assigned. 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.

Academic Record Disputes

1. A student seeking retroactive withdrawal, enrollment, or disenrollment; or extension of time for removal of an incomplete grade, or a grade option change; or for further academic record changes involving exceptions to the rules governing registration and academic records which are set forth in the University Catalog may submit petitions to the Records Office.
2. The petition shall state the nature of the request, and shall specify the semester involved, the course and section number, the student's name, I.D. number, mailing address and telephone number. The petition should state the reason for granting the request, and shall include documentation of extenuating circumstances, such as medical, family, or employment needs. The petition shall be typed and signed.
3. Upon receipt of student's petition, the instructor(s) involved will be contacted for a statment concerning the request.
4. The petition (along with instructor comments) will be forwarded to the Grade Petition Committee for a review and decision.
5. Students will be notified in writing of the outcome of the Petition.
6. If the petition is denied, students may wish to appeal the decision. For more specific information on the appeal process students may contact the Records Office.

Academic Renewal Policy

Academic Renewal applies to undergraduate degree-seeking students who have been readmitted to UNM after an absence of 5 years or more. The procedure allows a currently enrolled student to request his/her academic record be reviewed for the purpose of evaluating previously earned credits and recalculating the student's grade point average from the point of readmission.

Students may obtain petition forms from the Records Office, Room 251, Student Services Center. If all criteria are satisfied, the petition will be approved and the academic record noted. The following guidelines apply:

Academic Renewal Guidelines

1. Academic Renewal may be applied only once and is not reversible.
2. An absence of five or more years must have elapsed between readmission and the last enrollment at UNM. (NOTE: Readmission to the university and acceptance in a degree program must occur prior to Academic Renewal.)
3. The student must be currently enrolled in a degree-seeking status. Additionally, college entrance requirements such as minimum hours and grade point average (gpa) must still be met after the effect of Academic Renewal. (NOTE: Academic Renewal will not be applied if total earned credits should fall below the minimum for entrance to the student's academic unit.)
4. At least 12 credit hours, but no more than 36 credit hours, must be completed in good standing (2.00 gpa or better) since readmission before Academic Renewal can be applied. (NOTE: Probationary status is determined by the degree- granting unit and is not automatically changed by Academic Renewal.)
5. All graduation requirements must be satisfied after Academic Renewal, i.e., minimun earned credit, residence credit requirement, cumulative grade point average, etc. (NOTE: Credit earned prior to Academic Renewal will not count toward satisfying the residence credit requirements.)
6. All courses taken prior to Academic Renewal will remain unaltered on the record. An appropriate notation will be added to the record to indicate Academic Renewal. From prior courses, those with a grade of C or better (or CR) will be carried forward as earned credits only. Acceptability of these credits towards a degree will be determined by the degree-granting unit.
7. Courses with a grade of D or below taken prior to Academic Renewal will be noted and will not count for earned credits or for satisfying any graduation requirements.
8. Academic Renewal, when applied, will be effective as of the date of the readmission following the five-year absence.
9. The cumulative grade point average after academic renewal will be calculated on the basis of courses taken since the readmission following the five-year absence.

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 W/F, upon recommendation of the instructor. Instructor 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 maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet these standards.

Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; and nondisclosure or misrepresentsation in filling out applications or other university records.

Scholastic Regulations

Grade Point Average. A student's academic standing is referred to in terms of a grade point average 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 W/P, CR, NC, or I are excluded in calculating the grade point average.

The grade point average and earned hours from non-baccalaureate level students, i.e., unclassified, non-degree, associate degree, will include all course work taken at any level at the University of New Mexico. Upon the student's acceptance into a bac-

calaureate level program, including University College, all non baccalaureate level courses (suffix "T") will be excluded from the calculation of earned hours and grade point average.

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. Effective for all new and readmitted students beginning Fall 1988, the minimum grade point average to remain in good academic standing in the University College is 1.70 through the semester or summer session in which the student has equaled or exceeded the limit of 30 hours attempted.* Thereafter, the minimum grade point average required shall be 2.00. Students are placed on academic probation at the end of any semester or summer session in the University College if their grade point average falls below the applicable minimum indicated above.

*Attempted hours for purposes of University College eligibility includes all hours of credit attempted at this or any other institution of higher learning. See also definition of University College eligibility hours on page 24 of current catalog.

Degree-Granting Colleges and Non-Degree Status. Students in degree-granting colleges or in non-degree status may be placed on academic probation at the end of any semester or summer session in which they have failed to meet the minimum grade point average required to remain in good academic standing. This minimum grade point average is usually 2.00 but may be higher depending on the college. Students are encouraged to familiarize themselves with the academic regulations of their specific school or 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 grade point average. No students, however, are subject to suspension or dismissal because of their grade point average until the end of the semester or summer session in which the cumulative number of hours attempted exceeds 16.

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

Suspension Period. 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.

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.

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 (or have earned a WP/WF grade) 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 by examination.

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 student's record.

Examination to establish credit can be taken only during 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. Effective Fall 1987, only a grade of CR will be recorded for credit by examination. If the student does not earn a grade of CR, a second examination for that course will not be permitted. 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

Graduation from the University of New Mexico is not automatic. Application for candidacy for graduation is required. Each college may have differing deadlines for degree application. Therefore, students anticipating graduation should make arrangements well in advance with their college.

Candidates for 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. Students must be admitted to the UNM College from which the degree is awarded at the time of graduation.
2. A **minimum** of 128 semester hours of earned credit is required.
3. 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.
4. The student must have a minimum cumulative grade point average of 2.0.
5. The student must demonstrate a minimum competence in English writing by passing Engl 102 with a "c" or better or attaining a suitable score on an authorized proficiency test prior to graduation.
6. A maximum of 24 semester hours of CR/NC credit grading option courses may be applied toward a bachelor's degree.
7. 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.
8. 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. A senior transfer student may satisfy this requirement with the approval of the major department with at least one fourth of the total minimum hours required for the major. Most colleges will not accept Introductory Studies courses or T-courses to satisfy any of these requirements.
9. Students must contact their College office prior to their last semester in order to initiate and complete the graduation process.

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

Associate Degrees

Candidates for associate degrees offered by any of UNM's colleges or branches must meet the following 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 grade point average of at least 2.0.
5. Introductory Studies 100 courses may not be used to satisfy any of the above requirements.

6. 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.
7. For associate of professional studies/associate of applied science degrees, the program must also include the following:
   (d) At least 12 semester hours in other courses offered either by the degree-granting college or by other UNM colleges.

Second Undergraduate Degree

The student seeking a second bachelor's degree must meet admission critera 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 student 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.

Second Associate 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 *Grade Point Average*). Courses taken from other institutions must correspond to those offered at UNM.

Any graduating senior not in residence who expects to substitute 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 from which they are seeking a degree, provided they complete the graduation requirements within a continuous six-year period. If students interrupt attendance or transfer from one degree-granting college to another within the University, he/she must graduate under the degree requirements of 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 THEM.

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, fall or spring semester are invited to attend.

Honors Work/Graduation With Honors

Students may graduate with General Honors, 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).

Departmental Honors Program

A Departmental Honors program is available to qualified students in many departments of the University. Interested students should contact 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 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 is not determined solely on performance in standard courses or grade-point averages in either the field of specialization or 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. Tuition on hours in excess of 18 are not refundable after semester begins.**

Registration Fees (rates in effect 1989-90)

Undergraduate

	Semester Hours	Resident Fees	Non Resident Fees
(Includes Non-Degree)	1	$ 57.50	$ 57.50
Part-time Enrollment	2	115.00	115.00
(6 hours and under:	3	172.50	172.50
$57.50 per semester hour,	4	230.00	230.00
all students)	5	287.50	287.50
	6	345.00	345.00
Enrollment from 7 to 11 hours	7	402.50	1417.50
(Residents @ $57.50/hour)	8	460.00	1620.00
(Nonresidents @ $202.50/hour)	9	517.50	1822.50
	10	575.00	2025.00
	11	632.50	2227.50
Full-time enrollment	12-18	686.00	2430.00
Non-Refundable Surcharge	19	743.50	2632.50
Per hour in excess of 18	20	801.00	2835.00
(Resident @ $57.50/hour)			
(Nonresidents @ $202.50/hour)			

**Excess hours are not refundable after semester classes begin.

Graduate

	Semester Hours	Resident Fees	Non Resident Fees
	1	$ 63.00	$ 63.00
Part-time Enrollment	2	126.00	126.00
(6 hours and under	3	189.00	189.00
$63.00 per semester hour,	4	252.00	252.00
all students)	5	315.00	315.00
	6	378.00	378.00

Graduate, continued

	Semester Hours	Resident Fees	Non Resident Fees
Enrollment from 7 to 11 hours	7	$ 441.00	$ 1459.50
(Residents @ $63.00/hour)	8	504.00	1668.00
(Nonresidents @ $208.50/hour)	9	567.00	1876.50
	10	630.00	2085.00
	11	693.00	2293.50
Full-time enrollment	12-18	738.00	2488.00
Non-Refundable Surcharge	19	801.00	2696.50
Per hour in excess of 18	20	864.00	2905.00
(Residents @ $63.00/hour)			
(Non-Residents @ $208.50/hour)			

+Plus $18.00 GSA Fee
**Excess hours are not refundable after semester classes begin.

Law School

	Semester Hours	Resident Fees	Non Resident Fees
	1	$ 69.85	$ 69.85
Part-time Enrollment	2	139.70	139.70
(6 hours and under, $69.85	3	209.55	209.55
per semester hour, all students)	4	279.40	279.40
	5	349.25	349.25
	6	419.10	419.10
Enrollment from 7 to 11 hours	7	488.95	1648.50
(Residents @ $69.85/hour)	8	558.80	1884.00
(Nonresidents @ $235.50/hour)	9	628.65	2119.50
	10	698.50	2355.00
	11	768.35	2590.50
Full-time enrollment	12-18	824.20	2812.00
Non-Refundable Surcharge	19	894.05	3047.50
Per hour in excess of 18	20	963.90	3283.00
(Resident @ $69.85/hour)			
(Nonresidents @ $235.50/hour)			

+Plus $18.00 GSA Fee
**Excess hours 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 $150.00 (plus $18.00 GSA fee) for each semester or summer session of 699 enrollment, regardless of the number of credit hours of 699 or whether the student is resident or nonresident. SUBJECT TO CHANGE.

Medical School

	Per Year Residents	Per Year Nonresidents
Tuition and Fees	$ 2750.00	$ 7700.00
+ Plus $18.00 GSA Fee		

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. Please check with the Student Health Center for current rates.

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

Special Course Fees

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 specific courses during Fall, Spring, and Summer sessions.

American Studies
Architecture
Army
Art Education
Art Studio
Biology
Chemistry
Communication
Counselor Education
Curriculum & Instruction in Multicultural Teacher Education
Dance
Educational Media and Library Science
English Creative Writing
ESL Writing Programs
Family Studies
Film
Fine Arts Departments
Geography
Health Promotion & Leisure Programs
Industrial Education
Journalism
Music Education
Nursing Lab
Nutrition
Pharmacy
Special Education
Technological and Occupational Education
Televised Courses
Theater Arts

2. *Special Course Fees and the GSA Fee are refunded using the same refund schedule as tuition. See the* Tuition Refund Policy.

3. A charge is assessed to students taking Applied Music classes who do not enroll and perform in an apprpriate major ensemble. Contact the Music Department for details. Charges: $75.00 for one semester credit hour and $150.00 for two or more credit hours.

Fees--(Subject to Change)

Charges for Special Services

1. Admission: (Non-refundable)	
a. Air Force ROTC activity Fee (per semester)	$ 10.00
b. Application Fee (UNM)	15.00
c. Graduation School Application	25.00
d. Engineering Co-op Fee	20.00
e. Law Student's dues of N. M. Bar Association (per year)	13.00
f. Post Masters Certificate Program	50.00
2. Administration Charges (Non-refundable)	
a. Dishonored Check	7.00
b. Check Verification Fee	
In State	.50
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

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[1] Additional $18.00 Graduate Student Fee will be assessed in Fall and Spring semesters.
* Note: These listings are not comprehensive. See Schedule of Classes.

3. Testing Fees

a. Residual ACT Testing	$ 18.00
b. Miller Analogies	27.00
c. College Preparation Testing	13.00
d. Graduate School Foreign Language Test	10.00

4. Deposits

a. Chemistry Laboratory Breakage Deposit Card	20.00
b. Pharmacy Laboratory Purchase Card	20.00

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.

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

Tuition and Course Fee Refunds

Effective 1988/1989, Tuition and Course Fees will be refunded in accordance with the following schedule.

Course duration greater than eight weeks:
Withdrawal or drop in hours:
Prior to first day of class and through
Friday of second week of classes 100%
Third week of classes 40%
Fourth week of classes 20%

Course duration greater than four weeks up to and including eight weeks:
Withdrawal or drop in hours:
First week of classes 100%
Second week of classes 40%

4 Week (or less) Courses
Withdrawal or drop in hours:
First day of classes 100%

All refunds are based on the date of drop or withdrawal. All refunds may be obtained at the Cashier's Office.

To receive a tuition refund, students must go to the Registration Center, complete the drop procedures for their course(s) and then proceed to the Cashier's Office.

Student Accounts

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

Tuition and Fee Payment

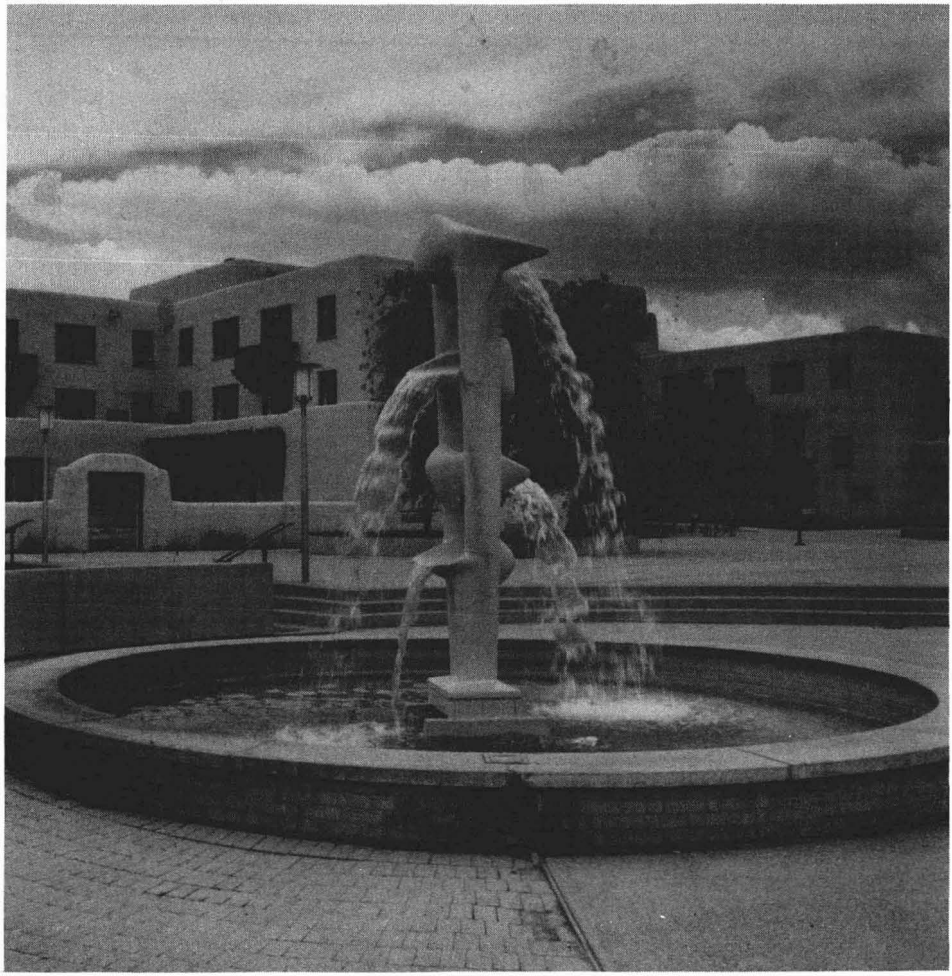
Checks or money orders should be made payable to the University of New Mexico: they should be mailed to: The Cashier, The University of New Mexico, Albuquerque, NM 87131. Do not mail cash. All payments must be accompanied by the students name and Social Security number.

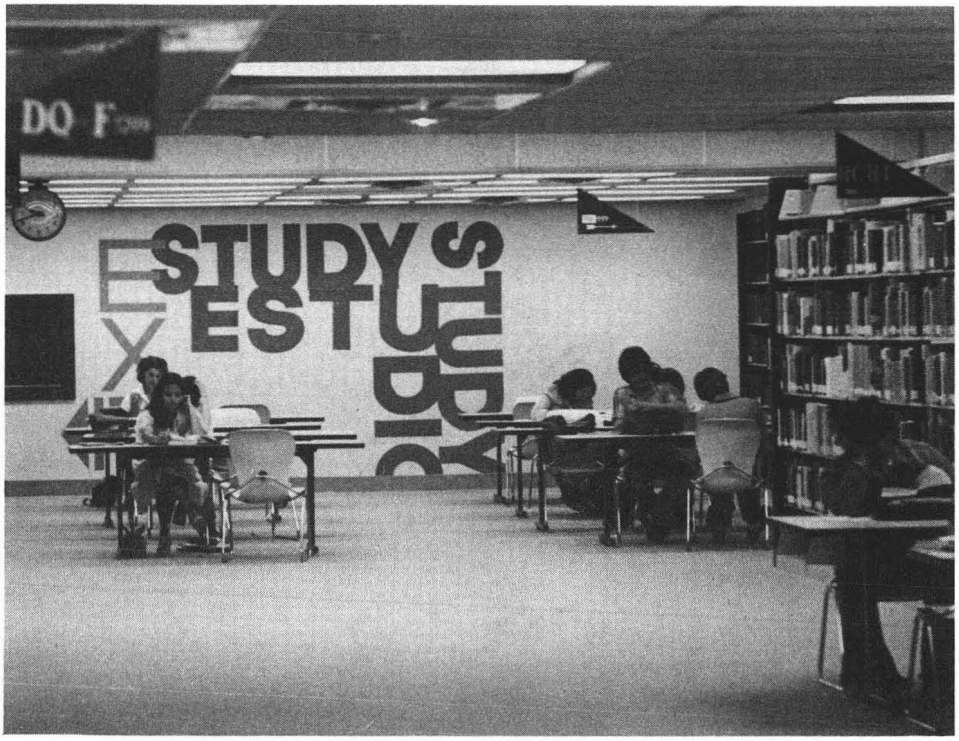
Financial Aid Refunds and Repayment

Because student financial aid must be used 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:

Amount to be repaid = 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.

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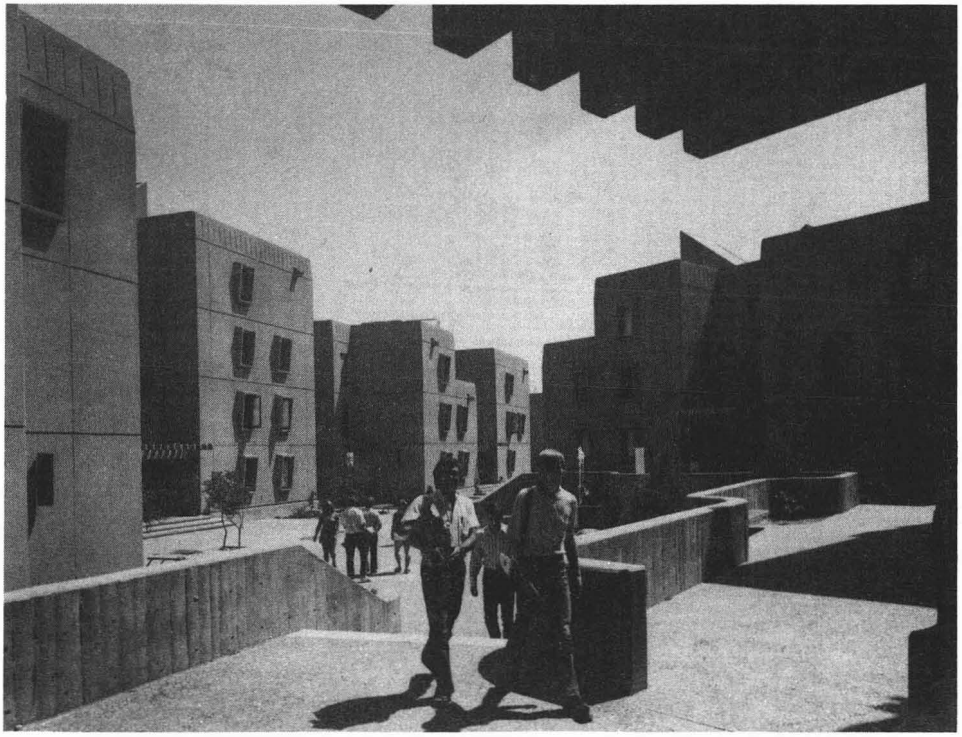


STUDENT HOUSING

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-Hall 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.

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 $50 deposit. All students in the residence halls are required to take their meals at the University dining hall, La Posada. Special diets are not provided.

Room and Board Fees

The 1988-89 rates for room and board range from $2,462 to $2,664 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 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. Application for housing is a separate process from the admission application to the University. Housing applications may be obtained by writing to: Housing Collections and Reservations Office, The University of New Mexico, La Posada Hall 201, Albuquerque, NM 87131, Tel. (505) 277-2606.

Student Family Housing

Facilities

The University operates 200 student family apartments constructed just south of the main campus. One, two and three bedroom units, unfurnished, are available.

Housing Policy

To be eligible for student family 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 student family housing. Apartment residents may remain in student family 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 1988-89 monthly rental rates range from $307 to $391, 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: Student Family 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 1988-89 school year, more than 60 percent received some form of financial aid.

The Office of Student Financial Aid 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 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) student's prior year income 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 citizen or an eligible non 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.**

You may use your Financial Aid Award to defer tuition with the Student Accounting/Cashiers's Office until actual distribution of funds. Do not assume that the Financial Aid Office will automatically clear your tuition. It is your responsibility to obtain a Cashier's clearance to complete the registration process.

To receive financial aid, you must be enrolled in a degree granting college.

Satisfactory Academic Progress

Following the intial 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 successfully complete a minimum of 80 percent of the credit hours attempted while maintaining a minimum cumulative GPA of:

Attempted Credit Hours	Minimum GPA
6-47	1.7
48-160	2.0

A student may not exceed 160 attempted undergraduate credit hours.

Transfer Students

All students who have attended other institutions, must provide Financial Aid Transcripts from **all** previous schools before the application for aid can be processed. Forms are available in the Student Financial Aid Office.

Financial Aid Programs

Following is a brief summary of the financial assistance programs administered by the Office of Student Financial Aid. To receive financial aid students must be enrolled in a degree granting college. For more complete information about these programs, including eligibility requirements, contact: The Office of Student Financial Aid, Mesa Vista Hall North. 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*
  These federal grants, ranging from $100 to $2,200, 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 $100 to $1,000. 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 $1,000, 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

- *Off campus employment.*
  Part time jobs available off campus are listed with the Office of Student Financial Aid.

Loans

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

- *Perkins Loan. (formerly National Direct Student Loan)*
  This is a long term, low interest loan program for students meeting the need requirement.
- *New Mexico Student Loan (a type of GSL).*
  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 parents to help pay educational expenses.
- *Supplemental Loans for Students (SLS).*
  Long term low interest loans made available to eligible graduate, professional and independent undergraduate students.
- *Stafford Loans (formerly 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 $100.00 and payable within 90 days or the end of the semester are available to qualified students through the Office of Student Financial Aid.

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 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 $1500 are awarded annually to 200 New Mexico high school seniors who have demonstrated exceptional leadership and academic ability.
- *Excel scholarships.*
  Academic scholarships valued at $1200 per year are awarded to entering freshmen students ranging in the top 10 percent of their high school graduating classes.
- *Amigo Scholarships.*
  (Out of state *freshmen* only).
  This scholarship entitles outstanding out-of-state freshmen to a cash award of $100 per semester plus waiver of nonresident tuition rates, for a total effective scholarship value of approximately $3,300 per year. In order to qualify for the Amigo scholarship, the freshman student must:
  1. have a cumulative grade point average (GPA) of 3.5 or higher (on a 4.0 scale) and an ACT composite score of 23 or the SAT equivalent (940);

     or

  2. have a cumulative grade point average of 3.0 or higher (on a 4.0 scale) and an ACT composite score of 26 or the SAT equivalent (1060).

  The scholarship may be renewed annually for up to four years provided the student meets requirements of 30 semester hours each academic year with a GPA of at least 3.0. A student who fails to meet the requirements necessary to renew the scholarship also forfeits the privilege of resident tuition.
- *Amigo Scholarships.*
  (For non-resident *transfers* only).
  This scholarship entitles outstanding out-of-state freshmen to a cash award of $100 per semester plus waiver of nonresident tuition rates, for a total effective scholarship value of approximately $3,300 per year. The criteria for receiving the scholarship require that a transfer student meet the following conditions:
  1. have a high school GPA of 3.5 or higher (on a 4.0 scale) and an ACT composite score of 23 or the SAT equivalent (940);

     or

     have a cumulative GPA of 3.0 or higher (on a 4.0 scale) and an ACT composite score of 26 or the SAT equivalent (1060).
  2. In addition to meeting one of the conditions above, the student must also have a transfer college GPA of 3.25 or higher (on a 4.0 scale).

  The scholarship may be renewed annually for up to four years provided the student meets requirements of 30 semester hours each academic year with a GPA of at least 3.0. A student who fails to meet the requirements necessary to renew the scholarship also forfeits the privilege of resident tuition.
- *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. 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, pharmacy or medical program, additional student financial assistance programs exist. Contact the Office of Student Financial Aid for details about these.

Bureau of Indian Affairs (BIA)

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. The funds are available through the student's BIA area office or tribal scholarship office.

Veterans Administration Educational Benefits

This program assists 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 Counseling and Placement

The Career Counseling and Placement office works with all UNM students and alumni in achieving their career and employment goals, providing counseling and testing for undecided career seekers and career changes.

Professional counselors are available to help students explore their interests, needs, and life objectives and to develop possible vocational and academic choices. Students are also referred to other University services, such as academic advisement, financial aid, mental health facilities, cooperative education programs, etc. In addition to counseling, interest and personality inventories may be used to help students discover where they might fit in the world of work. Counseling is by appointment or short sessions on a daily walk-in basis.

The office maintains close contact with all colleges and departments within the University. It acts as a general clearinghouse for employees 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 achievement, employment experience, professional activities, and letters of reference. 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 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 interviewing.

Career Counseling and Placement is located on the second floor of the Student Services Center. All career services provided to students and prospective employers at minimal cost.

Cooperative Education

As an additional service provided by Career Planning & Placement, students can gain employment experience in their major or career field through Cooperative Education. Full-time semesters of academic study are alternated with full-time employment. Sometimes full academic study is combined with half-time employment. Co-op employment is available for undergraduate and graduate students in the Anderson Schools of Management, the College of Arts & Sciences, the School of Architecture and Planning, the Division of Public Administration, the College of Fine Arts, University Studies and some departments in the College of Education. For information, contact Students Services, Room 227, 277-6568. Co-op opportunities are also available for students in the College of Engineering (Farris Engineering Center 345A, 277-2605).

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 Office of Admissions and Records, 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. Advisement counseling is available 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 Student Services Center, Room 263.

STUDENT SERVICES

Finding Out About UNM

The Office of School Relations, Room 180, Student Services Center, 277-5161 (toll free in New Mexico 1-800-CALL UNM (225-5866); or toll free out of New Mexico 1-800-DIAL UNM (342-5866)), provides general information about the University. This information includes degree and course offerings, admission requirements and procedures, expenses and financial aid process, registration, housing, and special services and programs.

With one week's notice, the Office of School Relations can arrange a campus tour, advisement, and accommodations through the host/hostess program. This provides the opportunity for prospective students to stay on campus with a current UNM student who will share information about UNM.

Dean of Students Office

In addition to overseeing residence hall operations, Student Development and the Student Activities Center, the Dean of Students Office serves many academic as well as extracurricular needs of University students. Their Orientation Program helps new students adjust to campus life. The Dean of Students Office encourages student participation in the University community, gives special recognition of outstanding students and supports student organizations. Their other programs are designed to help students cope with any difficulties, academic or extracurricular, students may encounter in the course of their college career. Deans are always available for general, personal and academic counseling on a drop in basis.

One-On-One

One-on-One program provides freshmen with a faculty member, staff or administrator to serve as a resource person for the student. This mentor-style program assists new students in making the transition into the University. Freshmen meet with the faculty, staff or administrator at least once a month. Additional information and program materials are available in the **Dean of Students Office.**

Orientation

Orientation is also designed to assist new students in making a successful transition into the University, the **Dean of Students Office** provides orientation programs prior to the spring and fall sessions. They include information sessions, on UNM services, campus tours, academic advisement, registration and strategies for coping with college. Orientation is an ideal time to begin exploring your new environment. Although orientation is not mandatory, it is strongly encouraged. There is a high correlation between orientation attendance and staying in college.

General University Publications and Services

UNM Pathfinder

The **UNM Pathfinder** is the most comprehensive handbook of student services at UNM. It is published annually by the Student Activities Center, located on the first 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, Dean of Students Office, Registration Center, and from the Student Information Center in the New Mexico Union, 277-4606.

UNM Directory

A directory listing each student's name, local and home address, telephone number and academic classification as well as staff and faculty listings, is published by the Public Affairs Office. These directories are free to students at the Student Activities Center in the New Mexico Union Building. A validated student ID is required to obtain a directory. Students can request that their listing be deleted from the directory by completing a form at the Registration Center.

Other Useful Publications

The following publications are available at the Student Information Center and the Student Activities Center, both are located on the first floor of the New Mexico Union Building.

- *Monthly Activity Calendars*
- *Life Skills Workshop Calendars*--listing support groups, workshops on physical and mental health topics, special lectures relating to family and life issues, recreation and leisure schedules andmore.
- *Dial Access Brochure*--listing over 200 tape recorded messages, accessible 24 hours a day with a touch tone telephone. Includes information on all colleges and schools at UNM, as well as tuition and fee information, tutoring, financial aid, campus activities, career services, counseling, mental and physical health, housing and parking.
- *Campus Guide to Chartered Student Organizations*-- published annually as an insert to the Daily Lobo campus newspaper. This lists all student organizations officially chartered at the University of New Mexico.
- *UNM Campus Map*
- *Summer Calendar*
- *Student Organization Handbook*-- Provides regulations and guidelines to chartered student organizations, and helps with fund raising, leadership and organization tools.

Telephone Information Services

Dial Access, 277-3425, is a 24 hour a day telephone information service with over 200 recorded messages. Accessible with a touch tone telephone, the system covers all colleges and schools at UNM, policies and procedures for registration and fees, many tapes on tutoring, financial aid, campus activities, career services, counseling, mental and physical health, housing and parking. Brochures are available at the Student Activites Center.

Persons wishing to reach the University information operator should dial "0" from on-campus phones or 277-0111 from off-campus. The operator may give numbers for University offices and officials from 8:00 a.m. to 5:00 p.m. weekdays.

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 Building. 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, etc. They also provide maps and referrals to other campus offices. All the publications listed above are also available at the information center.

Student Organizations

There are over 200 chartered, active student organizations at UNM. The Student Activities Center assists student organizations in the chartering process as well as rechartering student organizations each fall. They also publish the Campus Guide to Chartered Student Organizations each year which lists all chartered student organizations on campus. Student organizations include: ethnic/cultural, fraternities, sororities, graduate, honorary, military, political, professional/departmental, religious, residence hall, service, special interest, and sports/recreation organizations.

Honorary organizations

At UNM these include: Blue Key National Honor Society, 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 Sigma Alpha, Pi Tau Sigma, Presidential Scholars Club, Psi Chi, Sigma Gamma Epsilon, Spurs, the UNM Honorary Council, and Tau Beta Pi. A number of honoraries are advised by the Dean of Students Office. Additionally, the Undergraduate and Graduate Student Governments, ten national fraternities, six national sororities and campus spirit groups are advised and assisted by the Dean of Students Office and the Student Activities Center.

The Campus Guide to Chartered Student Organizations, in which the above organizations appear, is published yearly as a supplement to the Daily Lobo campus newspaper and extra copies are available year round at Student Activities Center.

Other Programs

The Dean of Students Office also maintains a listing of off-campus houses and apartments available for rent to students. The Dean of Students Office, Student Development and the Student Activities Center coordinate the annual Parent's Day Program, the Alcohol Awareness Program and the Student Recognition Banquet. More information about orientation, advisement, off-campus housing and the other programs may be obtained by calling 277-3361 or dropping by the Dean of Students Office, Student Services Center, Room 280.

Notification of Absences

Absences. Absences due to illness or to authorized University activity such as field trips, athletic trips, etc. are to be reported by the student to his/her instructor(s) and to the Dean of Students Office. If a student is unable to contact his/her instructor(s) the student should leave a message at the instructor's department. The reporting of absences does not relieve the student of responsibility for missed assignments, exams, etc. The student is to take the initiative in arranging to make up missed work.

Verification of a student's report of absence will be provided on request and in accordance with the following general procedures.

Short-Term Absence (1-4 days). When notified *in advance* of an absence of 1-4 days, the Dean of Students Office will prepare an absence notice which the student may pick up and personally deliver to his/her instructor(s). On absences of 1-4 days

reported to the Dean of Students Office *after* the fact, an absence notice may be picked up by the student after consultation with a dean, if such consultation provides a basis for issuing a notice. The student must consult directly with his/her instructor(s) about such absences.

Extended Absence (5 days or longer). The Dean of Students Office will send absence notices to instructor(s) on absences of 5 days or longer when notification of the absence is received prior to or at the onset of the absence. If notified *after* the absence, the absence notice will be prepared, but the student must hand carry the notice to his/her instructor(s). Verification of extended absences is required (such as a doctor's note, hospital billing, etc.).

Exceptions. On request, members of the Dean of Students staff will review specific absence situations to determine if exceptions to the established absence procedures are warranted.

Report absences to the Dean of Students Office (second floor, Student Services Center, Room 280, 277-3361).

Students Standards and Grievance Committee

The UNM Student Standards and Grievance Procedure is intended to provide procedures for the resolution of disputes between students and faculty or staff of the University, as well as procedures for handling student disciplinary matters. Any questions about these procedures should be directed to the Office of the Dean of Students. The complete procedure is published in the UNM Pathfinder.

Leisure Services

UNM students have access to outstanding recreational opportunities through Leisure Services. The program is designed to serve the entire University community by promoting relaxation, proper use of time, achievement, and mental and physical health. To participate, you need to present your UNM ID card to the attendant at the West Main Entrance of Johnson Center to gain access to the facilities. The facilities and programs available include:

Outdoor Shop-- Renting camping and backpacking equipment--tents, skis, rafts, backpacks, and much more at very reasonable rates. The shop also rents other recreational equipment such as bicycles, rollerskates, volleyball sets, golf clubs, softball equipment and horseshoes.

Sports Equipment Checkout-- Students have free use of footballs, softballs, volleyballs, tennis racquets, etc, with a valid UNM ID.

Getaway Adventure Program-- Fostering skills and opportunities to "get away" by offering activities and clinics such as cross-country skiing, camping and fishing, whitewater rafting and rock climbing.

Special Populations-- For disabled students allowing them to participate in swimming, tennis, basketball, archery, table tennis and other recreational activities that might otherwise be unavailable to them.

Team Activities-- Coordinating men, women and "co-rec" competition in such sports as basketball, cross-country, flag football, skiing, slow pitch, soccer, swimming, track, volleyball and wrestling.

Individual and Dual Activities-- In such sports as archery, badminton, billiards, bowling, diving, fencing, handball, Karate, racquetball, table tennis and tennis.

Instructional Sports-- A variety of classes offered to promote health and fitness. Classes offered include aerobic dance, water aerobics and aerobic walking.

Special Events-- A variety of experiences yearly, in the past they have included; fun runs, Operation Santa Claus, childrens run for Easter Seals, New Mexico Senior Olympics and the Summer Olympic Games for the Blind.

Facilities-- Available to students are three gymnasiums, eighteen tennis courts, three swimming pools, wrestling-combative area, weight room, handball and racquetball courts and numerous playing fields.

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 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 Friends of International Students program, administered by OIPS, matches international students with local residents, providing an opportunity

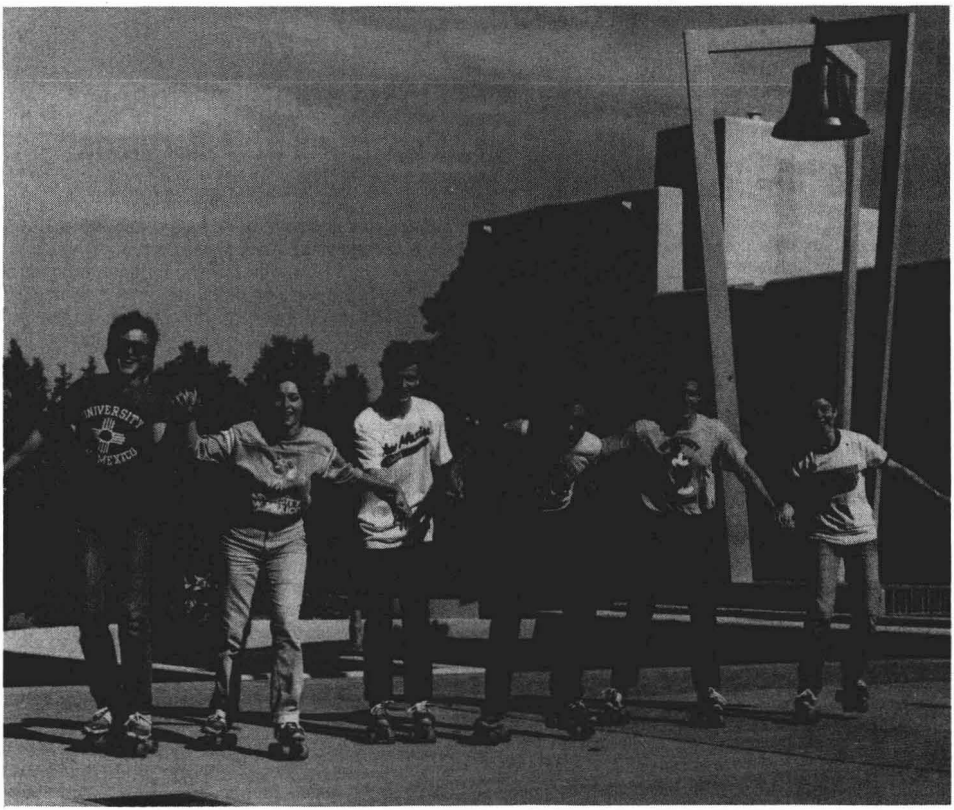
for the students to get to know Americans on a social basis and to learn more about American culture and customs. OIPS administers the UNM Center for English Language and American Culture (formerly the Intensive English Institute) a twenty hour per week program of study designed primarily to develop the English proficiency of non-native speakers who intend to enter into university study. The Center 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.

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 Program scholarships are advised and interviewed on campus at OIPS. The Office also administers a number of student exchange programs. UNM students may apply to change places for an academic year with students from universities in the United Kingdom, Mexico, Spain, Canada, France, Japan and Germany. OIPS directs UNM summer sessions in Mexico and Europe. Courses are taught by UNM faculty members on site and are open to undergraduate and graduate students from UNM and other universities.

OIPS works 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 advanced undergraduates 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 of an international nature. 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 office of International Programs & Services is located in Mesa Vista 2111, Phone number 277-4032.



UNM Degree Programs

Majors and Concentrations

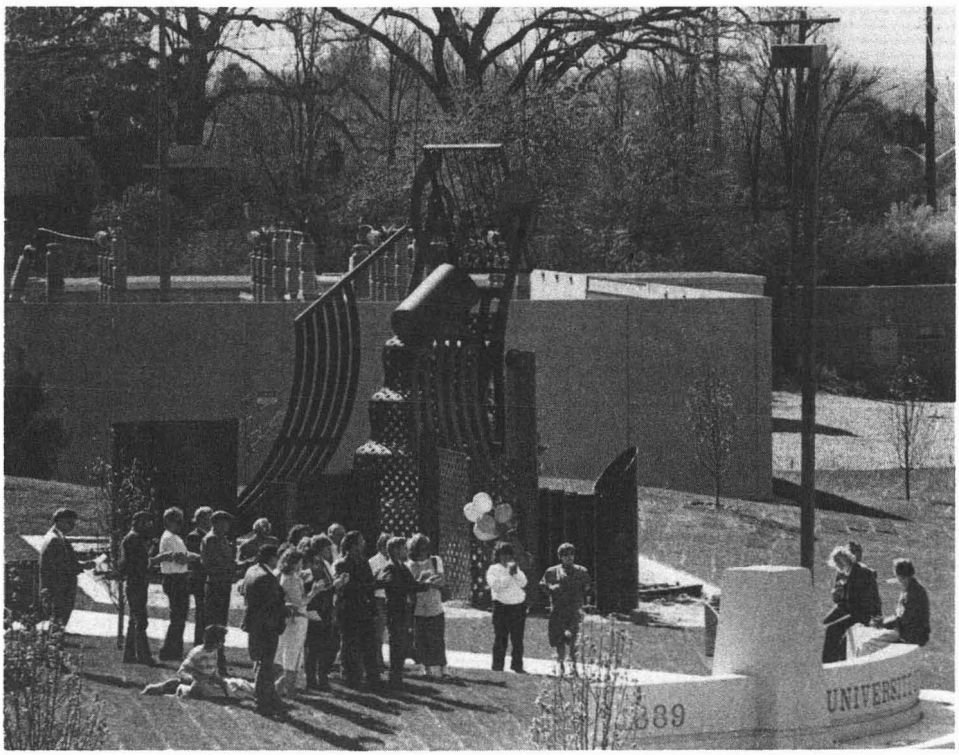
Accounting
American Studies
Anthropology
Architecture
Art
Art Education
Art History
Art Studio
Astrophysics
Athletic Training
Biochemistry
Biology
Business Computer Systems
Chemical Engineering
Chemistry
Civil Engineering
Classics
Communications
Communicative Disorders
Comparative Literature
Computer Engineering
Computer Science
Creative Writing
Criminal Justice
Dance
Dental Hygiene
Economics
Economics-Philosophy
Electrical Engineering
English
English-Philosophy
Environmental Design
Exercise Technology
Family Studies
Family Studies Education
Financial Management
French
General Management
Geography
Geology
German
History
Human Resource Management
International Management
Journalism
Latin American Studies
Linguistics
Management Science
Marketing Management
Mathematics
Mechanical Engineering
Medical Technology
Music
Music Education
Music History
Nuclear Engineering
Nursing
Pharmacy
Philosophy
Physics
Physical Therapy
Political Science
Portuguese
Production & Operations Management
Psychology
Religious Studies
Russian Studies
Sign Language Interpreting
Sociology
Spanish
Special Education
Theatre Arts
Travel & Tourism Management
University Studies

Associate Programs

Business Technology
Computer Programming
Dental Hygiene
Elementary Education
Human Services Worker
Pre-Engineering
Radiological Technology
Respiratory Therapy
Special Education Paraprofessional Training

Certificate Programs

Dental Assisting
Diagnostic Medical Sonography
Emergency Medical Technician
Nuclear Medicine Technology
Radiation Therapy Technology


UNIVERSIT

THE ROBERT O. ANDERSON SCHOOLS OF MANAGEMENT

Edwin H. Caplan, Interim Dean
Robert O. Anderson Schools of Management
Room 2028, 277-6471

Rodrigo Lievano, Associate Dean
Anderson School 2110, 277-6471

Suleiman Kassicieh, Associate Dean.
Anderson School 2028, 277-6471

The pursuit of excellence in management education is too often narrowly directed toward mastery of specific and limited techniques. Today's managers, however, confronted with far reaching economic, technological and social change, need to be increasingly aware of the complex demands these changes make on more traditional approaches to management. We believe that in order to meet these challenges, excellence in professional management education must be redefined so as to encourage individual intellectual and moral development in a broad social context. The Robert O. Anderson Schools of Management are therefore developing student-centered programs which stress individual and professional growth. The Schools are committed to high standards of performance and quality programs in management education. An outstanding faculty with distinguished academic credentials, research, and managerial experience ensures these high standards in programs and performance.

The needs of today's managers and those students who will assume positions of organizational leadership in the next quarter century represent a formidable challenge to professional management education. We fully aspire to join those schools of management which, by focusing their efforts on the development of responsive and innovative leadership, are at the same time establishing totally new criteria for academic excellence.

Undergraduate Degrees Offered

At the undergraduate level, the Robert O. Anderson Schools of Management offer the Bachelor of Business Administration.

Graduate Degrees Offered

Graduate degrees include the Masters of Business Administration, Master of Accounting, Master of Management, Dual Degree Programs and the Post-Master's Certificate Program. Please see the 1988-89 Anderson Schools Bulletin for information on graduate programs.

Admission Requirements

The minimum requirements for transfer into the Anderson School from University College, degree granting colleges, associate degree programs, non-degree status and other institutions are:

1. A minimum Scholarship Index of 2.0 (UNM cumulative).
2. Satisfactory competence in written communication as evidenced by completing UNM's English 102 with a grade of C or better or by achieving a standard score of 25 or higher on the English portion of the ACT of a score of 552 or higher on the verbal SAT. Transfer students who have completed one year of college level English Composition may contact the UNM Admissions Office for determination of English 102 equivalency.

COLLEGES, SCHOOLS AND DIVISIONS

Symbols - See page 379

3. A minimum grade of C in each course listed under the "Specific Requirements" shown in the Pre-Admission Coursework. NOTE: Because of space limitations, fulfillment of the minimum grade requirements DOES NOT GUARANTEE admission to the Anderson Schools. For several years, a 2.4 UNM 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 BBA Advisement Center at the School to discuss eligibiligy for an alternative admission criterion.
4. COMPLETION OF ALL PRE-ADMISSION C OURSEWORK LISTED IN THE BBA CURRICULUM SECTION OF THIS BULLETIN.

Students who do not meet all of the admission requirements may wish to seek admission to another college or program within the University to which they are admissible. Such students may be able to complete pre-admission coursework within these programs and apply to the Anderson Schools at at later date.

Students who have completed work at other accredited institutions, please refer to the "Transfer Policies" p.59

Application for Admission

Application for admission to the Anderson Schools 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.

Students should follow application instructions available at the B.B.A. Advisement Center. Application Procedures should be completed by

April 15 for Summer admission
July 15 for Fall admission
November 15 for Spring admission

Graduation Requirements

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

1. Completion of all pre-admission requirements

2. Competion of a minimum of 129 hours (excluding Physical Education activity courses, Management courses for non-majors, Math 120 and Introductory Studies courses, University College courses, Business Education/Secretarial Science courses, Business Technology courses) with a scholastic index of at least 2.00 on all coursework 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 and acceptable toward the BBA degree) with a scholarship index of at least 2.00 on all such hours attempted. This Management /Economics grade point average is defined in the Scholastic Regulations section.

4. Transfer students from other Universities must take a minimum of 25 hours in economics and management courses while enrolled at the Anderson School. Other residence requirements may apply for concentrations.

5. Course requirements

Pre admission coursework	62 hours
Anderson Schools Core	40 hours ##
Upper Division Humanities	3 hours *
Concentration and other electives (At least 12 hours must be in management courses.)	24 hours
Total degree requirements	129 hours

Please also see the University minimum degree requirements under "General Academic Regulations" in this Bulletin.

Application for Degree

During the first semester of their senior year or the semester prior to their final semester of enrollment, students must file an application for the BBA degree with the BBA Advisement Center at the Anderson School. Instructions sheets are available at the Advisement Center. A graduation summary will then be prepared and a copy supplied to the student. No student will be included on the list of candidates for graduation unless an application for degree has been approved.

The BBA Curriculum

Pre-Admission Coursework

Completion of the following course requirements must be accomplished before admission to the BBA Program. This coursework constitutes the first 62 semester hours of the 129 semester hour BBA degree.

General Education Electives	
Humanities: English (excluding English 101 and 102); Communication 130L or 132; Modern Languages; Philosophy; Fine Arts (including Art History, Art Studio, Music, Theatre Arts, Dance, Film),Religious Studies	9 hours
Social Sciences: Anthropology, Geography, History, Political Science	9 hours
Laboratory science: Biology, Chemistry, Geology, Physics (including Astronomy)	4 hours
Specific Requirements	
These courses are prerequisites to all 300 and 400 level courses. These prerequisites cannot be taken on a credit/no credit basis.	
English 102** or the equivalent	3 hours
Math 121** and 180 or the equivalent	6 hours
Economics 200, 201	6 hours
Behavioral Sciences--either Psychology 102	

##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 an accounting elective for Mgt 343, 348, 444, 445, for this requirement. It is highly recommended that students concentrating in international management or travel and tourism management meet this requirement by selecting electives from the interdisiplinary listing of courses under each of these respective concentrations.

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

and a 200 or higher level Psychology course or Sociology 101 and a 200 level or higher Sociology course	6 hours
Mgt 290 and 291 Statistics and Lab	4 hours
Computer Science 150 or the equivalent	3 hours
Mgt 202 Principles of Financial Accounting**	3 hours

Electives

The following courses do not count as electives: Management courses for non-majors including Mgt 101, 102, 201, 211, 222, 230, through 239, 270, 271, 284, 358, 359, 361, Math 120, Introductory Skills courses, University College courses, Business Education courses, Business Technology courses, Physical Education Activity courses — 9 hours

TOTAL — 62 hours

Suggested Scheduling of Pre-Admission Coursework during First Two Years

FIRST YEAR

First Semester

Math 121 College Algebra	3
Laboratory Science	4
Humanities elective	3
Social Science elective	3
Elective (can include Engl 101 required by English placement)	3
	16

Second Semester

Math 180 Elem of Calculus I	3
Econ 200 Princ & Problems	3
Soc 101 or Psych 102	3
Engl 102 Analytic Writing	3
Humanities Elective	3
	15

SECOND YEAR

First Semester

C S 150 Comp for Bus Students	3
Econ 201 Principles of Economics	3
Soc or Psych (200 level or above)	3
Humanities Elective	3
Elective	3
	15

Second Semester

Mgt 290 Stat Methodology	3
Mgt 291 Business Stat Lab	1
Mgt 202 Intro to Accounting	3
Social Sciences Electives	6
Elective	3
	16

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

Upper-Division Management Core

After admission to the BBA Program, all students complete a group of professional management courses.

Anderson School core courses are the following:

Mgt 300 Oper Rsrch/Mgt Sci	3 hours
Mgt 301 Comp-Based Info Sys	3 hours
Mgt 303 Acctng for Mgt Control	3 hours
Mgt 306 Org Behav I	3 hours
Mgt 307 Org Behav II	3 hours
Mgt 308 Org Environ	3 hours
Mgt 309 Man, Soc & Law	
or	
Mgt 310 Law of Contracts	3 hours

(NOTE: Students concentrating in accounting, marketing management, 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 328 International Management	3 hours
Mgt 398 Mgt Career Planning	1 hours
Mgt 498 Senior Seminar	3 hours
Econ 300 Micro-Econ Theory	3 hours
Econ 315 Money and Banking	3 hours
Total Anderson School Core	40 hours##

Upper-Division Humanities/Social Behavior Sciences

All students must take one three hour 300-level or above course in English, Modern Languages, Philosophy or Fine Arts (Art History, Art Studio, Music, Theatre Arts, Dance, Film), Religious Studies, Anthropology, Geography, History, Political Sciences, Psychology, or Sociology. 3 hours

Students in International Management and Travel and Tourism choose the appropriate course from their lists of approved electives. Accounting students may substitute an accounting elective from Mgt 343, 348, 444, 445, for this requirement.

Management Concentration and Other Electives

Students must complete requirements for a management concentration with additional free electives such that completed concentration and free electives total 24 hours. At least 12 hours must be in management courses.

Candidates for the BBA degree should declare a concentration not later than the first semester of their senior year. The specific concentrations are those listed below.

** 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. Mgt 340 may then be taken by those concentrating in accounting in the second semester of the sophomore year.

##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.

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Accounting - 21 hours

In addition to the core courses required of all BBA candidates (which for accounting majors must include Mgt 310), the accounting concentration consists of these courses: Mgt 340, 341, 342, 346, 440, 443, 449.
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 MBA degree or the Master of Accounting degree.

Business Computer Systems - 21 hours

The course requirements are: Mgt 327, 329, 337, 459, 460, 461; C S 237, C S 237 should be taken soon after admission to the school, since it is a prerequisite to all other Business Computer Systems concentration courses.

Entrepreneurial Studies and Small Business

This concentration is currently being developed.

Financial Management - 18 hours

In addition to Mgt 326, required courses are: Mgt 470, 471, and 472.

Three of the following: Mgt 340, 341, 342, 343, 346, 440, 449, 473, 474, 495, 496; Econ 303, 350, 407, 415.

Math 181 is prerequisite to Mgt 471 and 472.

General Management- 12 hours

Required courses are: One management course beyond the core in each of four of the concentration areas (including small business management)

Human Resources Management - 12 hours

The required courses are: Mgt 463, 464, 465, and 466

International Management - 18 hours

Students interested in professional careers in International Management are urged to prepare to enter the MBA program to pursue a graduate degree or related combined graduate degree options offered by the Anderson School with other departments of the University (such as the dual MBA/MA in Latin American Studies degrees emphasizing International Management).

Course requirements for the BBA concentration are:
Mgt 474, 480, 483 and an additional 3 credit course with prior approval by the faculty advisor normally selected from Mgt 548, 586, 588 or 589*. (Mgt 310 must have been taken as part of the BBA Core). In addition, a minimum of 6 credit hours in one of the following options:

Latin American Emphasis Option
Anth 314, Econ 420, 421, 423, Geog 301, 302, Hist 282, 310, 383, 384, 399, 481, 483, 485, 489, Pol Sc 345, 355 or 356, 455, Soc 350, 450, Span 201 or 202 or Port 275 or 276; or other related courses with faculty advisor's prior approval. Econ 421 and 423 are highly recommended.

European Emphasis Option
Econ 424, 450, 455, Geog 332, Hist 303, 308, 310, 336, 349, 438, 443, Pol Sc 357, 449, French 201, 202 or German 201, 202, or Russ 201, 202, or Span 201 or 211, or other related courses with faculty advisor's prior approval. Econ 450 is highly recommended.

It is highly recommended that the student's 3 credit hours of electives in upper-division humanities/ social behavioral sciences also be selected from option courses above.

Management Science - 21 hours

Required courses are: Mgt 436 and 439, Math 347, C S 452 (AOA Mgt 532), three courses (9 hours) in additional mathematics, computer science, or management courses approved by faculty advisor.

Marketing Management - 15 hours

Mgt 480 and 481 plus three courses from Mgt 482, 483, 484, 486, and 487. Mgt 310 must have been taken as part of the BBA Core.

Production and Operations Management - 21 hours

The course requirements are: Mgt 331, 332, 431, 432. Three courses from C S 237, 337, 436, 439, 452, 459, 491, 492, Math 347, or other courses as approved by faculty advisor.

Travel and Tourism Management - 18 hours

The course requirements are: Mgt 411, 412, 413, 480, 482, 490 or 493.

Please see the Director of the Travel & Tourism program for a list of highly recommended free electives.

Qualified graduates of this concentration are encouraged to obtain the MBA 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: MBA/MA in Latin American Studies.

Suggested programs for the junior and senior years are available for each concentration from the BBA Advisement Center at the Anderson School. A list of faculty concentration advisors is also available.

There are no minors available in the BBA degree.

SCHOLASTIC REGULATIONS

It is emphasized that students are solely 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.

Enrollment Preference

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. One course per semester will be allowed such students to a maximum of 13-16 hours of management courses, including Mgt 290, 291 and 202. Upper division BBA Core and concentration courses will not be certified for the minor. Students enrolled in two sections of the same course may be dropped from both sections.

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

Prerequisites

It is the firm policy of the School that course prerequisites must be observed. Management courses taken out of sequence will not be used to fulfill degree requirements of the School regardless of the grades earned in such courses. The Anderson School reserves the right to disenroll from a class any student who lacks proper prerequisites.

Use of Credit/No Credit Option

Coursework in the following areas cannot be taken on a credit/no credit basis either at UNM or another institution: specific requirements, management core, upper division humanities, concentration including concentration electives. Students should refer to the Grade Options section of the General Academic Regulations section of this catalog for additional information.

Management/Economics Grade Point Average

Management/Economics grade point average is defined as a grade point average computed on all Management/Economics courses required for the BBA degree (core and concentration as well as those Management/Economics courses required for admission and acceptable toward the degree.

"Service" courses--those specifically approved for a minor, which state "not applicable toward the BBA degree" in the course description as well as those specifically offered for two year Associate Programs are exempt from the above calculation.

University policy regarding repetitions is followed.

Transfer work is not included in the above calculation.

Probation and Suspension

Please see the regulations concerning academic probation and suspension shown in the General Academic Regulations section of this catalog.

Internal Probation and Dismissal

Those with a Management/Economics grade point average less than a 2.0 will be placed on internal Anderson School probation.

A student is subject to dismissal from the Anderson School any semester after being placed on probation in which academic status does not improve.

Petitions for readmission after dismissal may be made to the BBA program director.

TRANSFER POLICIES

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.

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.

Transfer of credit is a two-part process. The Admissions Office first prepares a credit evaluation statement (statement of advanced standing) as soon as possible after admission status has been determined. This statement contains a listing of coursework generally acceptable to the University. Each college or school then determines how this transferable work will be used to meet individual degree requirements. Determination of the use of transferable work is made at the time of admission to the Anderson School. Evaluations or opinions offered prior to admission are unofficial and nonbinding.

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 BBA Advisement Center at the Anderson School.

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

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. Additional information is available at the Anderson School BBA Advisement Center.

Special Information for Those Transferring from Two-Year or Branch Colleges

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 manner mentioned above. In addition, the student must maintain at least a 2.0 GPA on the first 12 hours of Anderson School and economics courses undertaken. Failure to do so will cause the student to be placed on internal probation, during which he/she must earn a GPA sufficiently high enough 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 colleges 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. Failure to do so will make the student subject to dismissal by the Anderson School.

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 the Undergraduate Student Affairs at the Anderson School. General Honors classes are acceptable as free electives without prior approval.

Symbols - See page 379

ACT and CLEP Credit

The Anderson School will accept 12 hours of ACT or general or subject 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" in the Admissions section of this catalog.

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 "free electives." It is important that such students make sure that they are taking the courses required for the degree in the proper sequence.

Minor Study

For those schools and colleges accepting a minor in management, the courses are a minimum total of 18 credit hours selected from Mgt 101, 102, 113, 202, 222, 270, 271, 284, 290, 291, 358 or 359, 361, and Econ 201. Upper Division Core and concentration courses will not be certified for the minor.

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 (15-18 hours per semester) in either (a) the College of Arts and Sciences,Δ (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 MBA 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 MBA program and also completes the requirements for a bachelor's degree in the undergraduate field. Each student should consult with the MBA. Program Office for a transcript evaluation. Cooperating 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 MBA program.
6. In order to satisfy the requirements for the MBA 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 MBA courses, he or she must apply for graduate credit. Contact the MBA Program Office for information.

Admission to "Three-Two" Program

As indicated above, students electing the "Three-Two" Program must apply for admission to the MBA program during the third year of their undergraduate studies. Application should be made to the MBA 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 MBA Program Office. Such approval will be given only in special cases.*

Requirements for admission are:
1. Completion, by the end of the semester application is made, of at least 90 hours of coursework 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 coursework at the University of New Mexico before being admitted to the first year of the MBA 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:

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† Students who have earned a bachelor's degree prior to entering the MBA 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 MBA Program Office, Robert O. Anderson Graduate School of Management, The University of New Mexico, Albuquerque, New Mexico, 87131.

Δ Information regarding specific courses of study is available from the MBA Program office.

Humanities - 15 hours

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

Social Sciences - 24 hours

1. Geography, history, political science
2. Behavioral sciences; psychology or sociology, anthropology.
3. Economics**

Laboratory Sciences - 8 hours

Biology, chemistry, geology, physics.

Mathematics - 6-8 hours.

It is recommended that Math 180 and 181 or 162 and 163 be taken

It is recommended that students fulfill the breadth requirements listed prior to being admitted to the first year of the MBA 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 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 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 lengthened program, students who are considering the "Three-Two" Program are encouraged to consult with an advisor 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 advisor in the major field, and an advisor 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 MBA program.

MBA Program

Please see the 1989-90 Anderson Schools Bulletin for information on graduate programs.

Program and statements setting forth specific course requirements and specialization options in the MBA portion of the "Three-Two" Program may be obtained from the MBA 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)
Patrica Elliott, D.B.A., University of Colorado, C.P.A.
Dwight Grant, Ph.D., University of Pennsylvania
Robert A. Lenberg, Ph.D., University of Minnesota
Rodrigo J. Lievano, Ph.D., University of Houston
Don B. Panton, Ph.D., University of Arizona
Allen M. Parkman, Ph.D., University of California, J.D., University of New Mexico
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
Richard A. Reid, Ph.D., Ohio State University
Avraham Shama, Ph.D., Northwestern University
Donald G. Simonson, Ph.D., University of Michigan
Howard L. Smith, Ph.D., University of Washington
John A. Yeakel, Ph.D., University of Florida, C.P.A.

ASSOCIATE PROFESSORS:

Kenneth G. Baker, Ph.D., University of Oregon
William I. Bullers, Ph.D., Purdue University
John M. Finkelstein, Ph.D., University of Pennsylvania
George C. Hozier, Jr., Ph.D., University of Arizona
Suleiman K. Kassicieh, Ph.D., University of Iowa
Helen J. Muller, Ph.D., University of Southern California
James L. Porter, J.D., Temple University School of Law
Robert D. Rogers, Ph.D., University of Nebraska
Carl L. Schultz, Ph.D., University of North Carolina
Robert S. Tripp, Ph.D., University of Minnesota
John Young, Ph.D., University of Kansas at Lawrence

ASSISTANT PROFESSORS:

Michelle Blazek, Ph.D., Arizona State University
Ranjit Bose, Ph.D., University of Texas/Austin
Stephen D. Burd, Ph.D., Purdue University
Raul de Gouvea, Ph.D., University of Illinois at Urbana-Champaign
Debra Haley, Ph.D., Oklahoma State University
Jacqueline Hood, Ph.D., University of Colorado/Boulder
Hoje Jo, Ph.D., University of Florida
Alan McNamee, Ph.D., University of North Carolina, C.P.A.
Ian Miners, Ph.D., Michigan State University
Alan Porter, Ph.D., University of Texas
H.V. Ravinder, Ph.D., University of Texas
Judith K. Thompson, Ph.D., University of California/Berkeley
Dennis F. Togo, Ph.D., Arizona State University, C.M.A., C.P.A.
David Weeks, Ph.D., University of Texas
Nelson Woodard, Ph.D., University of Virginia
Steven A. Yourstone, Ph.D., University of Washington

VISITING LECTURERS:

Michael Daly, M.A., Niagara University
Eddie Dry, Ph.D., Texas A&M University
Camille Koehler, J.D., University of New Mexico, C.P.A.

PROFESSORS EMERITI:

Karl Christman, M.B.A., Indiana University, C.P.A.
Ralph L. Edgel, M.B.A., Northwestern University
Howard Finston, Ph.D., Stanford University
William H. Huber, J.D., Ohio State University
Perry T. Mori, M.B.A., Northwestern University J.D., University of New Mexico, C.P.A.
Wiliam S. Peters, Ph.D., University of Pennsylvania
Daniel M. Slate, Ph.D., University of Washington
Lothar G. Winter, Ph.D., University of Freiburg

MANAGEMENT (MGT)

PREREQUISITES AND COREQUISITES

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

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

Symbols - See page 379

With the exceptions noted immediately below, the minimum prerequisites for all 300 and 400 level courses listed are: (1) the Specific Requirements listed under "Pre-admission coursework", and (2) junior standing. Individual courses may have other prerequisites as indicated in the course descriptions. The exceptions to this rule are courses numbered 358, 359, and 361. The three courses are offered specifically to meet the needs of non-management majors and may not be used to fulfill the requirements for the BBA degree.

First preference for enrollment in all upper-division Management courses will be given to students who have been admitted to the Anderson School.

Students not in the School will be accepted on a space available basis provided they **satisfy all prerequisites.** Students must have a transcript on file with the Undergraduate Advisement Center each semester that they take a restricted course. One course per semester will be allowed. A maximum of 13-16 hours of management classes which apply to the BBA program (including 290, 291, and 202) may be accumulated by those not in the School. Certain exceptions for individuals possessing a Bachelor's degree and enrolled in Non-Degree status may be made for accounting courses only.

Upper-division restricted core and concentration courses will not be certified for a minor in management.

The Anderson School reserves the right to disenroll from a class any student who lacks proper prerequisites, or drop if enrolled in more than one section of the same course.

101. Fundamentals of Accounting I. (3)
The development of the accounting cycle, special journals and financial statements. (Credit not applicable toward BBA degree.) {Fall, Spring}

102. Fundamentals of Accounting II. (3)
Continuation of 101, including corporation and manufacturing accounting and decision making. (Credit not applicable toward BBA 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}

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 toward BBA 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 course. (Not applicable for credit toward BBA degree.)

212. Business Information Analysis and Management. (3)
Application of management decision-making tools to perform financial, statistical, operational, and data analysis.
Prerequisites: Math 180; pre- or corequisites: 202, 290. {Fall, Spring}

222. Introduction to Marketing. [Contemporary Marketing] **(3)**
A complete overview of the system for assessing customer needs, allocation of scarce resources to fulfill those needs, transmittal of market related information, completion of exchange processes, and profit maximization in free markets. Emphasis on interdisciplinary tools for management, decision-making and developing marketing strategies in domestic and international market applications. (Not applicable for credit toward BBA degree.) {Fall, Spring}

226. Business Finance. (3)
An introduction to financial decision making in a corporate setting. Emphasizes the effect of decisions on corporate cash flows with special attention to the timing and risk of the cash flows. (Not applicable for credit toward the BBA degree).
Prerequisite: 202. {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 BBA degree.) {Fall, Spring}

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, underwriting, 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 BBA degree.) {Fall}

284. Professional Selling. [Selling: Retail and Industrial] **(3)**
Professional aspects of the selling function in consumer and industrial markets and the role of selling in the economy. Emphasis on selling methods and applications to maximize profits for both buyers and sellers. (Not applicable for credit toward BBA 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: 290 or Math 245. {Fall, Spring}

300. Operations Research/Management Science. (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.
Prerequisite: "Specific Requirements." {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.
Prerequisite: "Specific Requirements." {Fall, Spring}

306. Organizational Behavior I-Applications. (3)
Emphasis on application of behavioral science theory and concepts.
Prerequisite: "Specific Requirements." {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." {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. Prerequisite: "Specific Requirements." {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 an external constraint on decision-making by individuals and organizations.
Prerequisite: "Specific Requirements." {Fall, Spring}

310. 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.
Prerequisite: "Specific Requirements." {Fall, Spring}

322. Marketing Management. (3)
A complete overview of the system for assessing customer needs, allocating scarce resources to fulfill those needs, transmittal of market related information, completion of exchange processes, and profit maximization in free markets. Emphasis on interdisciplinary tools for management decision-making and developing marketing strategies in domestic and international market applications.
Prerequisite: "Specific Requirements." {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}

327. 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.
Pre- or corequisites: 301, C S 237. {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.
Prerequisite: "Specific Requirements." {Summer, Fall, Spring}

329. Data Management. (3)
The management of data resources to support information systems in organizations. Logical database structures, applications, and physical implementation of information systems using database management systems.
Prerequisites: 301, 327, C S 237.{Fall, Spring}

331. Production System Design. (3)
An examination of management's role in the operations by which an organization converts materials, labor, and capital into goods and services. The study of system design and planning activities for production and service industries.
Prerequisite: 300.{Fall}

332. Production and Inventory Control. (3)
Theory and techniques fundamental to the efficient control of production and inventory systems. Topics include those necessary to prepare students for the professional certification examinations offered by the American Production and Inventory Control Society (APICS).
Prerequisite: 300.{Fall}

337. Survey of Computer Systems and Software. (3)
An overview of hardware/software configurations as integrated systems. Acquisition, evaluation, selection, and management of the computer resources. Emerging information system technologies, including office automation, data communications, and networks.
Prerequisite: 301.{Fall, Spring}

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", 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. {Fall, Spring}

***343. Income Tax Accounting II. (3)**
Continuation of 342. Covers corporation, partnerships, estate and gift taxes, fiduciaries, tax planning and tax shelters.
Prerequisite: 342.{Fall, Spring}

***346. Managerial and Cost Accounting. (3)**
Procedures involved in the development, presentation, and interpretation of accounting information as an aid to management. Usefulness and limitations of accounting data in evaluating and controlling operations, collecting cost information; cost estimation and allocation; standard costs; budgeting; cost-value relationships.
Prerequisite: 303. {Fall, Spring}

***348. Legal Concepts for Accountants. (3)**
An intensive examination of the legal concepts underlying accounting theory and practice. Specific topics: contracts, agency, sales, and legal liability of accountants.
Prerequisites: 340, 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 BBA degree.) {Fall}

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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 BBA 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 BBA degree.) {Fall, Spring}

371. Investments. (3)
Examines the role and operations of capital markets. Studies returns, risk and the pricing of securities traded in the captial markets. (Credit is applicable to BBA degree or minor in Management. Students cannot receive credit for both 371 and 471.)
Prerequisite: 226 or 326. {Fall}

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, 291. Pre- or corequisite: Recrea 386. Mgt 113 is recommended. {Fall}

***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: 411. {Spring}

***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: 411. {Spring}

431. Selected Topics in Production and Operations Management. (3)
Topics in manufacturing or service operations management depending on instructor's and students' interest. Topics include scheduling, material requirements planning, production planning, quality control planning, and service operations management.
Prerequisites: 331, 332. {Spring}

432. Case Studies in Production and Operations Management. (3)
Use of computer to analyze cases in Production and Operations Management.
Prerequisites: 331, 332. {Spring}

***436. Intermediate Operations Research Models for Management. (3)**
An in-depth treatment of deterministic models with an emphasis on applications and computer analysis. Topics selected from linear, integer, dynamic, and goal programming, and network models.
Prerequisite for undergraduates: 300 or equivalent, or permission of instructor; for graduates: 520 or permission of instructor. {Fall}

***439. Operations Analysis and Decision Models. (3)**
An in-depth treatment of stochastic models with an emphasis on applications and computer analysis. Topics selected from probabilistic models, statistical decision theory, game theory, Markov decision processes, queueing models, simulation, and inventory models.
Prerequisite for undergraduates: 300 or equivalent, or permission of instructor; for graduates: 520 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 procedures; preliminary considerations, planning the audit program, classes of audits, audit reports, professional ethics, and legal responsibility; case problems.
Prerequisite: 440 or permission of instructor. {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: 341 or 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 hrs. each semester)ΔΔ
Special permission of the advisor and of the Dean of the Anderson Schools 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 BBA degree. {Summer, 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.{Offered upon demand}

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.{Offered upon demand}

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.{Fall, Spring}

460. Information System Design. (3)
The design and development of information systems and software. Topics include software design, systems design, and systems implementation. Emphasis is on tools and techniques.
Prerequisites: 329, 459. {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.
Prerequisites: 329, 337, 459; corequisite: 460. {Spring}

***462. Data Analysis for Management. (3)**
Applications of statistics to operations management, with emphasis on statistical quality control, forecasting, and analysis of relationships by regression methods.
Prerequisites: 300, 301. {Fall}

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. {Fall, Spring}

***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, 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, 307. {Fall}

***466. Advanced Concepts and Problems in Organizational Behavior. (3)**
Selected topics, problems, learning designs, and models in organizational behavior.
Prerequisites: 306, 307, or permission of the instructor. {Spring}

467. Men, Women, and Leadership. (3)
Addresses the changing role of men and women in work organizations, the new and changing issues which leaders face in the organization, the organizational perspectives on the roles of leaders, and men and women's issues as leaders.
Prerequisites: 306, 307, or permission of the instructor.

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. {Fall}

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.
Prerequisites: 326 and Math 181. {Fall, Spring}

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.
Prerequisites: 326 and Math 181. {Fall, 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. {Spring}

***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.(526 for graduate students). {Spring}

480. [*482] Buyer Behavior. [Consumer/Buyer Behavior] (3)
Interdisciplinary analysis of buyer behavior through review of theories, explanatory and predictive models, empirical studies, and consumer research methodologies. Emphasis on model building and marketing strategy formulation.
Prerequisite: 322 or equivalent. {Fall, Spring}

481. [*480] Marketing Research I. [Marketing Research] (3)
Research methodologies and techniques as an aid to management decision-making and marketing strategy formulation. Emphasis on design of measurement instruments, sampling, collection and analysis of data.
Prerequisite: 322; recommended: 480. {Fall, Spring}

***482. [*485] Marketing Research II. (3)**
Continuation of Marketing Research I with emphasis on more advanced analysis of data, computer applications, model building, and report preparation. Project orientation.
Prerequisites: 322, 481; recommended: 480. {Fall}

483. [*483] International Marketing. (3)
Analysis of foreign marketing opportunities. Develops familiarity with concepts, terminology, decision-making criteria, use of marketing intelligence, constraints on marketing planning, and marketing strategy formulation. Emphasis on Latin-America.
Prerequisite: 322 or equivalent. {Fall, Spring}

484. [*484] Sales Management. [Sales and Purchasing Management] (3)
Focuses on industrial purchasing behavior and the systems required to satisfy the needs of commercial buyers. Emphasis on management of the corporate field sales force.
Prerequisite: 322; recommended: 480, 481. {Fall, Spring}

***486. Distribution Systems Management. (3)**
Management of the marketing channel including the manufacturing, wholesale, and retail levels and related physical distribution activities. Focus on structural and functional analysis, design, and evaluation of distribution systems.
Prerequisite: 322; recommended: 480, 481, (522 or equivalent for graduate students). {Fall, Spring}

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487. [*487] Promotion Management. [Advertising and Promotion Management] (3)
Analysis of personal and non-personal forms of marketing communications including market, audience, and individual behaviors in both industrial and consumer markets. Emphasis of promotion as a marketing mix strategy, budgeting, and media analysis for private, non-profit, and public institutions.
Prerequisite: 322; recommended: 480, 481. {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. (502, 508 for graduate students). {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. (522, 526 for graduate students). {Fall}

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}

GENERAL PREREQUISITES FOR GRADUATE-LEVEL COURSES

The following are the general prerequisites or corequisites that apply to all graduate-level courses offered by the Anderson Graduate School:

Mgt 500, 502, 504, 506, 509, 510: admission to the Anderson Graduate School or permission of the instructor and M.B.A. Program Director. All other courses: prerequisites or corequisites are Mgt 500, 502, 504, 506, 509, 510.

Refer to the course descriptions for any specific prerequisites that may be applicable.

500. Quantitative Analysis I. (3)

501. Statistical Analysis for Management Decisions. (3)
Prerequisite: general. {Fall, Spring}

502. Accounting and Management Information Systems I. (3)
{Fall, Spring}

503. Managerial Accounting. [Accounting and Management Information Systems II] (3)
Prerequisites: general. {Fall, Spring}

504. Organizational Economics I. (3)
{Fall, Spring}

505. Organizational Economics II. (3)
Prerequisite: 504 or equivalent.

506. Organizational Behavior I. (3)
Prerequisites: general. {Fall, Spring}

507. Organizational Behavior II. (3)
Prerequisite: 506. {Fall, Spring}

508. Organizational Environment. (3)
{Fall, Spring}

509. Organizational Environment--Law. (3)
{Fall, offered upon demand}.

510. Introduction to Information Processing. (3)

520. Operations Research and Production Management. (3)
Prerequisites: 501, 510.

522. Marketing Management. (3)
Prerequisites: General, 501, 504. {Summer, Fall, Spring}

526. Financial Management. (3)
Prerequisites: 501, 503, 504. {Fall, Spring, and Summers as scheduled}

528. International Management. (3)
Prerequisites: General, 501, 503, 504, 506, 508, 510, 522, 526. {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 C S 452.)
Pre- or corequisite: 520. {Fall, Spring}

533. Business Forecasting Methods. [Quantitative Analysis for Systems Planning] (3)
Prerequisite: 501 or permission of instructor. {Fall}

535. Information System Analysis and Design. (3)
Prerequisite: 510. {Spring}

536. Quantitative Methods in Health Systems Management. (3)
Prerequisites: 501, 510, 520, 591. {Fall}

537. Database Management Systems. (3)
Prerequisites: CS 237 (COBOL), 510 {Spring}

538. Management Information Systems Design Applications. (3)
Prerequisites: 535, 537. {Fall}

539. Decision Support Systems. (3)
Prerequisites: 535, 537. {Spring}

540. Financial Accounting. (3)
Prerequisite: 502. {Fall}

541. Advanced Accounting Theory and Practice. (3)
Prerequisite: 540. {Spring}

542. Seminar in Personal Tax Planning. (3)
Prerequisite: 343. {Fall}

543. Seminar in Business Tax Planning. (3)
Prerequisite: 343. {Spring}

544. Advanced Auditing. (3)
Prerequisites: 443, 449.

545. Seminar in Accounting Theory and Its Development. (3)
Prerequisite: 540 or equivalent. {Fall}

546. Seminar in Controllership. (3)
Prerequisite: 346 or equivalent. {Spring}

547. Tax Research, Procedure, Compliance, and Practice. (3)
Prerequisite: 343. {Spring}

548. Seminar in International Accounting. (3)
Prerequisite: 503 or permission of instructor. {Fall}

549. Seminar in Managerial Control. (3)
Prerequisite: 503 or equivalent. {Fall}

550. Professional Accounting. (3)
Prerequisite: 545 or permission of instructor. {Spring}

551-552. Problems. (1-3, 1-3)TT
{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)
{Offered upon demand}

560. Seminar in Cross-Cultural Organizational Behavior. (3)
Prerequisites: 501, 503, 506. {Spring}

561. Interpersonal Dynamics. (3)
Prerequisite: 506. {Fall}

562. Organizational Design and Development. (3)
Prerequisite: 506. {Fall}

563. Human Resources Management: Theory and Applications I.(3)
Prerequisites: 501, 503, 504, 506, 508, 510. {Spring in alternate years}

565. Seminar in Administrative Theory and Decision Making. (3)
Prerequisites: 501, 503, 504, 506, 508, 510. {Spring}

566. Human Relations Laboratory. (3)
Prerequisites: 501, 503, 504, 506, 508, 510. {Spring}

567. Women in Management. (3)

568. Creative Leadership and Innovating Organizations. (3)

569. Seminar in Organizational Communication. (3)
(See Sp Com 544.)

570. Analysis of the Financial System. (3)
Prerequisite: 526. {Fall}

571. Security Analysis and Investment Management. (3)
Prerequisite: 526. {Fall, Spring}

572. Financial Planning and Capital Budgeting. (3)
Prerequisite: 526. {Fall, Spring}

573. Seminar in Management of Financial Institutions. (3)
Prerequisite: 526. {Spring}

574. Seminar in International Financial Management. (3)
Prerequisite: 526. {Spring}

575. Seminar in Finance. (3)
Prerequisite: 526. {Fall in alternate years}

576. Health Care Financing and Financial Management. (3)
Prerequisite: 526 or equivalent. {Spring}

580. Research for Marketing Management. (3)
Prerequisite: 522. {Spring}

581. Strategic Marketing Planning. (3)
Prerequisite: 522, or equivalent. {Spring}

582. Industrial Marketing Management. (3)
Prerequisite: 522, or equivalent. {Fall}

583. International Marketing Management. (3)
Prerequisite: 522, or equivalent. {Fall}

584. Management of Sales and Procurement Systems. (3)
Prerequisite: 522, or equivalent. {Spring}

585. Buyer Behavior. (3)
Prerequisite: 522 or equivalent.

587. Advertising and Promotion Management. (3)
Prerequisite: 522; 580 and 585 recommended.

589. Marketing for Nonprofit Organizations. (3)
Prerequisites: 501, 504, 522, or permission of instructor.

590. Problems for Interns. (1-6)

591. Introduction to Health and Health Care Organizations. (3)
Prerequisite: general. Contact department for availability. {Fall}

592. Environmental Factors in Health Systems Planning. (3)
Prerequisite: 591 or equivalent. Contact department foravailability. {Spring}

593. Field Study in Health Systems Management. (3)
Prerequisite: last year of MBA Program. Offered by arrangement with instructor. Contact department for availability. {Spring}

594. Special Topics in Management. (3)
Prerequisite: permission of instructor.

595. Management in Latin America. (3)
Prerequisite: 528, or equivalent. {Offered upon demand}

597. International Management Seminar. (3)
Prerequisite: 528, or equivalent. {Spring}

598. Seminar in General Management. (3)
Prerequisite: at least 45 credit hours completed in the MBA program. {Fall, Spring}

599. General Management of International Operations. (3)
Prerequisite: 528, and at least one of 548, 574, 583. {Spring}

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

687. Seminar in Latin American Markets. (3)
Prerequisites: 522, 528, 583, or equivalents. {Offered upon demand}

689. Research in Latin American Management Topics. (3)
Prerequisites: 528 or equivalent, plus two courses normally chosen from 548, 583, 595, 599. {Offered upon demand}

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699. Dissertation. (3-12 hrs. 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. (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 105, 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 two professional programs, one in architecture which leads directly to the graduate professional study in architecture, and the other in environmental design which can lead to graduate studies in planning and landscape architecture. These programs address both processes by which we design and build our environment, as well as the resultant products. Two graduate programs offer an accredited professional degree in architecture, and a professional degree in community and regional planning.

The curricula of the school provide students with the ability to analyze and synthesize. They deal with concepts and methods which will enable future professionals to address, through creative design, complexities of historical and cultural context, and of behavioral, technological and socio-economic factors. This will permit them to play an important role in the making of an effective and responsive environment.

Admission Procedures: Undergraduate

All incoming freshman students are required to enroll in the 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 and 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 grade point average of at least 2.5 on all credit hours.
3. Demonstration of competency in English by passing Engl 102.
4. A grade of B or better in the Arch 104 (Introduction to Design Skills), or a demonstration of comparable ability prior to application. In addition, Arch 101, CRP 165 or 181 or 265, Engl 102, Art St 121 or 122, 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 in the fall. For B.A.E.D. requirements, see department.
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 architectural design work for transfer students.
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 admission 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. The National Council of Architectural Registration Boards requires 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 understand 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

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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 now offer three specific areas of emphasis: planning, behavioral and social issues and energy conscious architecture.

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.

Curriculum Requirements

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).

ENTRY COURSES: (Required for entry to B.A.Arch program)

Arch 101	Intro to Architecture	3
Arch 104	Intro to Design Skills	3
CRP 181	Intro to Environ Prob	
	or	
CRP 165	Intro to the City	3
	or	
CRP 265	Community Planning: Concepts and Methods	3
Art 122	3-D Design	
	or	
Art 121	2-D Design	3
Math 180	Elem of Calculus I	3
	or	
Math 162	Calculus I	4
Engl 102	Analytical Writing	3
Physcs 102, 151, or 160	General Physics	3
	TOTAL	21/22

B.A. Arch: (Degree requirements)

DESIGN STUDIOS:

Arch 201	Design I	4
Arch 204	Graphics Methods	2
Arch 301	Design III	6
Arch 302	Design IV	6
Arch 401	Design V	
Arch 402	Design VI) 2 of 3	
Arch 408	Design & Planning) Assistance Center)	12
	TOTAL	30

TECHNICAL:

CE 211	Intro to Arch Struct	3
CE 312	Architectural Struct	3
Arch 285	Construction I	3
Arch 256	Site/Environment	3
Arch 385	Environmental Control-Passive	3
Arch 386	Environmental Control-Active	3
		18

HISTORY & BEHAVIOR:

Art Hi 261	Ancient & Medieval Arch	3
Art Hi 262	Renaissance thru Mod Arch	3
Arch 463	20th Century Arch	3
Arch 271	Intro to Design & Behavior	3
		12
TOTAL REQUIRED COURSES		81

Of 45 hours of electives, 24 must be outside of Architecture and Planning, 9 of which must be upper division Arts and Sciences. Distribution of those 24 hours shall be as follows:

Sciences: Biological/Behavioral/Physical (includes anthropology, biology, psychology, chemistry, geology, physics, astronomy 6 hours

Humanities, Social Sciences, Languages (includes literature, history, philosophy, religious studies, economics, geography, political science, sociology, languages) 12 hours

Communications (includes writing, communications, linguistics, journalism) 3 hours

Fine Arts (includes studio art, history theory, criticism) 3 hours

TOTAL HOURS REQUIRED 24 hours

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, 301, 302, etc., must be taken in sequence according to one's level of demonstrated ability, regardless of scholastic standing. A grade of C or better is required in each studio.

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 411. 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 408. Through the Design and Planning Assistance Center, (DPAC), the 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.

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. The National Council of Architectural Registration Boards requires 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 Anselevicius, Diploma of Arch., Leeds School of Arch., England
Richard S. Nordhaus, M.Arch., University of Pennsylvania
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
Stephen Dent, M.Arch, Arizona State University
Nicholas C. Markovich, M.Arch., University of New Mexico
William J. Siembieda, M.C.R.P., University of California (Berkeley)
Robert C. Walters, B.F.A., University of New Mexico

ASSISTANT PROFESSORS:

Steve Borbas, M.S., Pratt Institute(visiting)
Claudia Isaac, M.P.A./U.R.P., Princeton University
Theodore Jojola, Ph.D., University of Hawaii
James C. Richardson, M.C.R.P., Massachusetts Institute of Technology
Kramer Woodard, M.S., Columbia University(visiting)

LECTURERS:

Paul E. Lusk, M.Arch., University of Pennsylvania
Edward B. Norris, B.Arch., 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 (ARCH)

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. Pre- or corequisite: 285; corequisite: 204. {Fall, Spring}

204. Graphic Methods. (2)
Continuation of graphic methods development introduced in Arch 104, emphasis on sketch study and design process techniques used in 201.
Corequisite: 201. {Fall, Spring}

256. [286] Site/Environment. (3)
Introduction to site analysis and site design from individual building to regional scale. Environmental improvement as a requirement of the building process.
Prerequisite: Acceptance into 201 or equivalent.

261. Ancient and Medieval Architecture. (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. (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. Design and Behavior: Introduction. (3)
Issues and case studies on relationships between the built environment and its users. {Fall, Spring}

285. Construction I. (3)
Lab and lectures--introduction of technological aspects of building design and construction. {Fall, Spring}

301. Design III. (6) *
Continuation of design concepts and methods with building design problems of increasing complexity.
Prerequisites: 201, C E 211, or permission of instructor. {Fall}

302. Design IV. (6)*
Continuation of design concepts and methods.
Prerequisite: 301 or equivalent. {Spring}

355. [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: 301.

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: 201. {Spring}

363. [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}

385. Environmental Control: Passive. (3)
Lectures on analysis for building energy systems such as thermodynamics, heat transfer, building heat balance, passive solar.
Prerequisites: 285, one semester of physics. {Fall}

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

Symbols - See page 379

386. Environmental Control: Active. (3)
Design of environmental control systems; heating, cooling, plumbing, power, and light.
Prerequisite: 385. {Spring}

401. Design V. (6) °
Lab, architectural design of complex and large-scale problems, such as housing, educational facilities, neighborhood facilities.
Prerequisite: 302 or equivalent. {Fall, Spring}

402. Urban Design Studio. [Design VI] **(6)°**
(Also offered as CRP 02.) Lab; individual selection of project types consistent with senior design interests and abilities.
Prerequisite: 01 or equivalent. {Spring}

***408.** [*498] **Design and Planning Assistance Center. (6)Δ**
(Also offered as CRP 98.) Architectural and planning services to organizations and groups thoughout the state who cannot afford traditional professional services. May repeat to a total of 12 hours. Advance approval required.
Prerequisite: 302 or permission of instructor. {Summer, Fall, Spring}

409. [499[**NAG Design Studio. (6)Δ**
Introduction to architectural theory and design. Required for NAG students two semesters. Offered on CR/NC basis. {Fall, Spring}.

411. [429] **Problems. (1-3) †**
Students wishing to undertake a special study project must have instructor approval. {Fall, Spring, Summer}

412. [*462] **Seminar. (2-3)**
(See Art Ed 75.) Individually listed topics each semester. {Fall, Spring}

***431. Professional Practice Internship. (2)**
Planned program of actural work experience of a minimun of 160 hours for an architect or an approved related field. {Fall, Spring}

***441. Commercial Interiors. (3)**
Centers on problems, issues, and concerns in design of interior environments that are commercial in nature. Students should have previous drafting and drawing skills. {Spring}

***442. Furniture Design. (3)**
This course centers on the design of furniture as an object which is both functional and aesthetic Students should have previous drawing ability. {Fall}

***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: 357 or equivalent. {Fall}

***461.** [361] **Architecture in Europe from 1750 to 1914. (3)**
(Also offered as Art Hi 461.) European architecture from Neoclassicism to Protomodernism.
Prerequisites: 261, 262, or permission of instructor. {Offered upon demand}

***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.

***464.** [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}

***465. Contemporary Design Theory. (3)**
The focus of this seminar is the critical thought and theoretical base of twentieth century architecture. {Fall, Spring}

***471. Psycho-Social Aspects of the Environment.** [Design and Behavior: Concepts] **(3)**
(Also offered as CRP 471.) Theory and research of the effects of the built environment on urban populations.
Prerequisite: 271 or permission of instructor. {Fall, Spring}

***472. Exploring Albuquerque's Environment. (3)**
(Also offered as CIMTE 472.) Lectures and student research on issues in the cultural, natural, and built environment in Albuquerque.

***473. Architectural Programming** [Advanced Programming] **(3)**
Theory and techniques for analyzing complex social and organizational situations and translating that analysis into design criteria for physical facilities. {Fall, 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}

***480. Energy Conscious Design. (3)**
Explores advanced energy conscious design techniques for both residential and commercial scale buildings. May be repeated.
Prerequisite: Arch 385 & Arch 301 or permission of instructor. {Fall, Spring}

482. Lighting. (2)
{Fall or Spring}

483. Acoustics. (2)
Concepts, theory, and methodology for analysis and design of acoustical environments. {Fall or Spring}

***485. Working Drawings and Specifications. (4)**
Development of partial contract documents. Course includes office methods and procedures.
Prerequisites: 302 and 386. {Fall, Spring}

***486. Construction II. (3)**
Advanced construction course investigating building subsystem, elements and materials from a design and construction standpoint.
Prerequisite: Arch 285, or permission of instructor. {Fall}

501. Graduate Design Studio and Seminar. (6)
Entry by graduate standing or special permission. {Fall, Spring}

502. Graduate Design Studio. (6)
{Spring}

503. Advanced Design Studio. (6)
{Fall, Spring}

511. [551] **Problems. (1-3)**
May be repeated to a total of 12 hours. {Fall, Spring}

512. [562] **Seminar. (2-3)**
(Also offered as Art Ed 575.) {Fall, Spring}

***531. Professional Practice I. (2)**
Seminar which deals with the issues involved in the establishment and operation of an architectural practice. {Fall}

***532. Professional Practice II. (2)**
Topics each semester related to the practice of architecture. May be repeated. {Spring}

540. [510] Techniques of Planning Communication. (4)
(Also offered as CRP 510.) {Spring}

558. [568] Advanced Urban Design. (4)
(Also offered as CRP 568.)
Prerequisite: 365, or CRP 510, or permission of instructor.

560. [580] Seminar in Spanish Colonial Art. (3)Δ Grizzard
(Also offered as *Art Hi 580.)
Prerequisite: 450. {Fall}

571. Urban Design Theory. [Design and Behavior: Theory] **(3)**
(Also offered as CRP 571.) Undergraduates with senior standing may be admitted. {Fall}

572. Survey Research Methods. [Design and Behavior: Research] **(3)**
(Also offered as CRP 572.) Undergraduates with senior standing may be admitted. {Spring}

596. [588] Independent Project Research. [Independent Design Project I] **(2-4)**
Plan II only.
Prerequisite: 501 or equivalent; advance approval by faculty member. {Fall, Spring}

597. [589] Independent Design Project. [Independent Project] **(6)**
Plan II only.
Prerequisite: 596. {Fall, Spring}

598. Thesis Research. (2-4)
Plan I only. Requires advance approval by thesis chairperson.

599. Thesis. (1-6)
See the Graduate Programs Bulletin for total credit requirements. Plan I only.
Prerequisites: 598 or equivalent and advance approval.

COMMUNITY AND REGIONAL PLANNING (CRP)

165. Community and Regional Planning, Introduction. (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, Phil 203.) What are the environmental problems 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. (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, Soc 338.) 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}

***373. Human Settlements. (3)**
Development of the form and structure of human settlements based on historical, cultural, economic, and physical factors. Course includes various theoretical explanations of why settlements are organized, the way they are, and how various elements of settlement system interact. {Fall}

402. Urban Design Studio. (6)
(Also offered as Arch 402.) Lab, individual selection of project types consistent with senior design interests and abilities.
Prerequisite: Arch 401 or equivalent. {Spring}

429. Problems. (1-3, to a maximum of 6)†
Problems are individualized topics conducted on a one to one student-faculty arrangement. Allows for exploration of various subjects of interest to students and faculty members. {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}

***466. Economics for City Planning. (3)**
(Also offered as Econ 466.) 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}

470. Seminar. (1-3 hrs., to a maximum of 6)Δ
Various topics related to planning in the southwest.

***471. Psycho-Social Aspects of the Environment. (3)**
(Also offered as Arch 471.) Theory and research of the effects of the built environment on urban populations.
Prerequisite: Arch 271 or permission of instructor. {Fall, Spring}

***472. Regional Planning Process and 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.
Prerequisite: 511 or permission of instructor. {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 Community Development.** [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 qualitiative and quantitative methods in community profiling.

Symbols - See page 379

***480. Community Growth and Land Use Planning. (3)**
Studies methods of planning for and managing growth. Reviews current land use planning techniques with emphasis on the design of intervention strategies, chiefly at the municipal level. Growth management techniques will be examined in their legal, administrative, and economic contexts.

***498. Design and Planning Assistance Center. (6)Δ**
(Also offered as Arch 402.) Architectural and planning services to organizations and groups thoughout the state who cannot afford traditional professional services. May repeat to a total of 12 hours. Advance approval required.
Prerequisite: 302 or permission of instructor. {Summer, Fall, Spring}

500. Planning Theory and Process. (4)
{Fall}

501. Planning Theory. (2)

510. Techniques of Planning Communication. (4)
(Also offered as Arch 510.) {Spring}

511. Analytical Methods for Planning. (3)
(Also offered as Econ, Pol Sc 502.) Basic statistics course should have been taken prior to enrollment. {Fall}

512. Planning Analysis and Forecasting. (3)
Prerequisites: Student should have taken 511 or an equivalent set of background courses, or permission of instructor prior to enrollment. {Fall}

520. Urban Planning Studio. (4)
{Spring}

521. Advanced Planning Studio. (4)
Prerequisite: 510 or permission of instructor. {Spring}

530. Internship. (2)
{Summer, Fall, Spring}

543. Seminar on Transportation Planning. (3)
Prerequisite: graduate or senior standing or permission of instructor.

536. Social Policy and Planning. (3)
(Also offered as Pub Ad 536.)
Prerequisite: senior standing. {Fall or Spring}

545. Land Use Controls. (3)
Prerequisite: graduate status.

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 permission of instructor. {Spring}

568. Advanced Urban Design. (4)
(Also offered as Arch 568.)
Prerequisite: 510, or Arch 365, or permission of instructor. {Fall, Spring}

569. Rural Community Development. (3)
(Also offered as Pub Ad 569.) {Spring}

570. Seminar. (1-3)
Individually listed topics each semester. {Fall, Spring}

571. Urban Design Theory. (3)
(Also offered as Arch 571.) Undergraduates with senior standing may be admitted. {Fall}

572. Survey Research Methods. (3)
(Also offered as Arch 572.) Undergraduates with senior standing may be admitted. {Spring}

575. Seminar: Energy Policy & Administration. (3)
(Also offered as Pub Ad 575, Econ 343.)

577. Practice of Policy Development. (3)
(Also offered as Pub Ad 577.) Required for the dual MPA-MCRP degree.

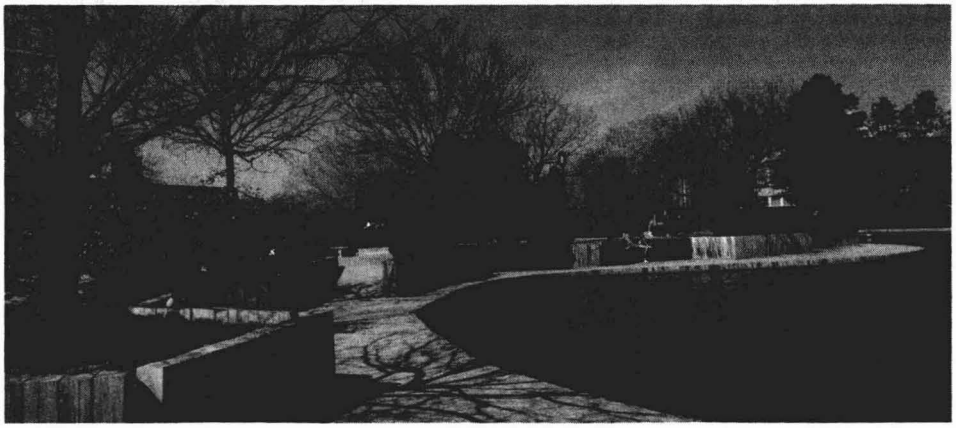
578. Latin American Development & Planning. (3)
(Also offered as Lt-Am 578 and Soc 508.) {Spring}

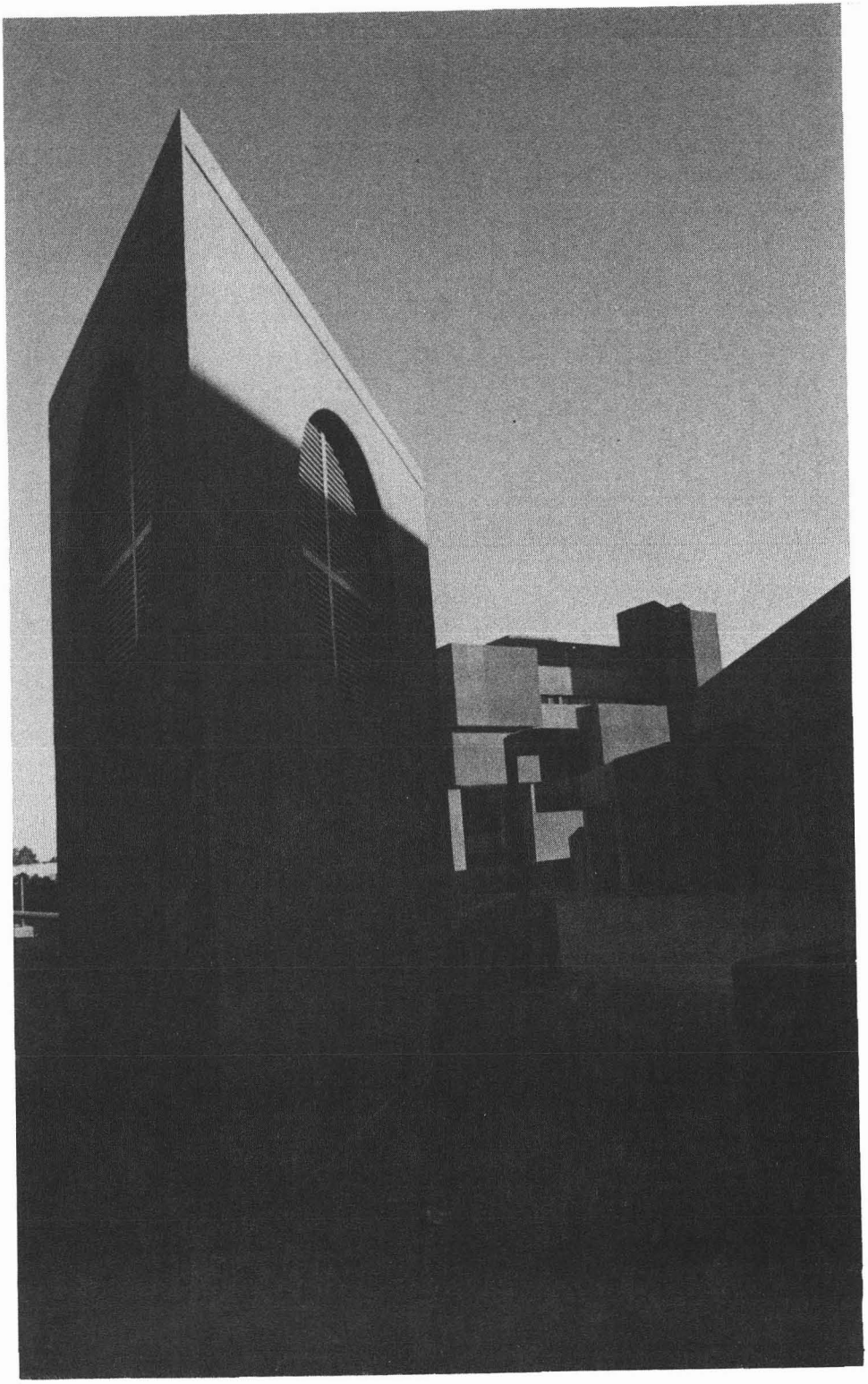
588. Professional Project I. (1-4)Δ
{Fall, Spring}

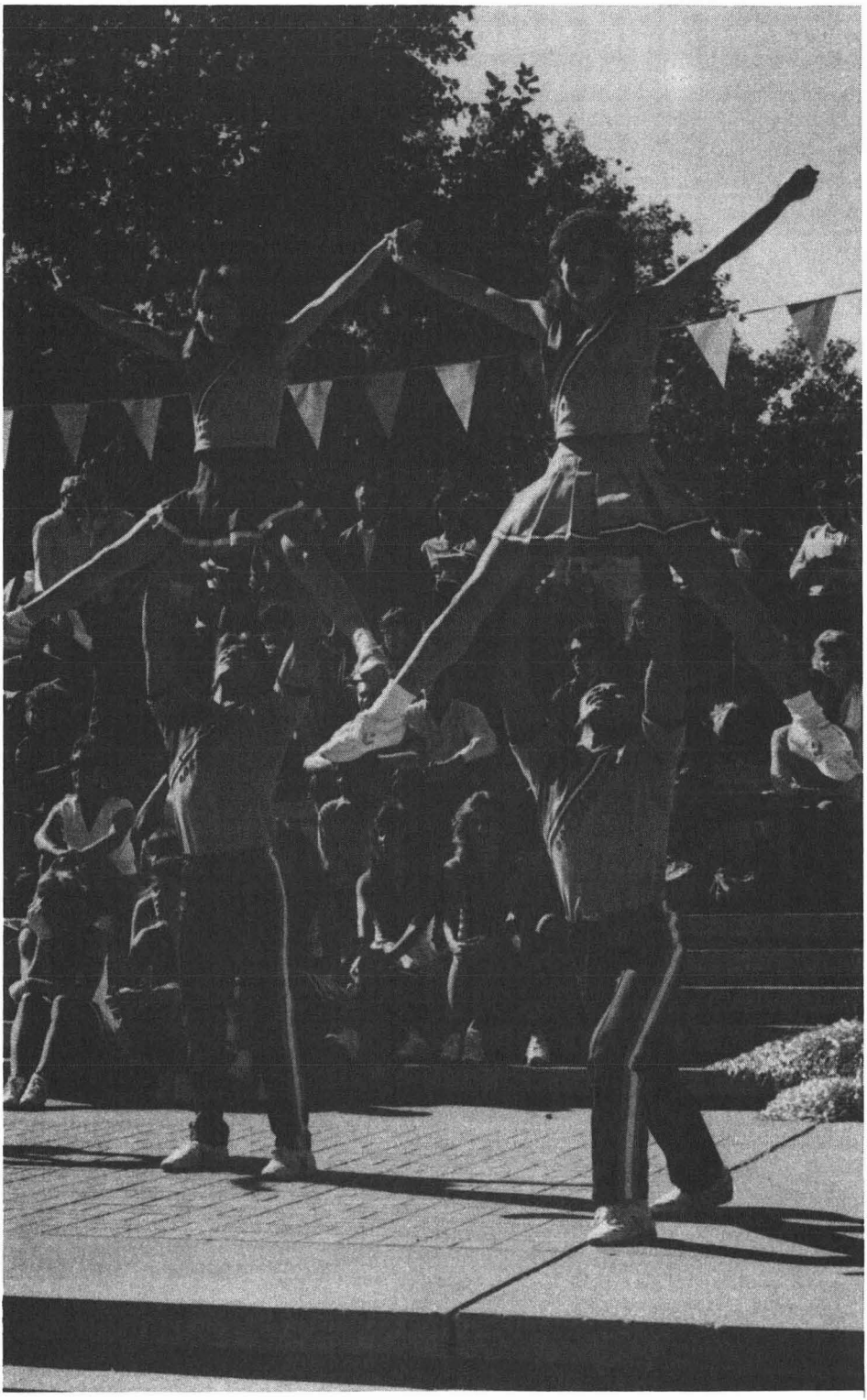
589. Professional Project II. (1-6)Δ
{Fall, Spring}

598. Thesis Research. (1-4)
{Fall, Spring}

599. Thesis. (1-6)
See the Graduate Programs Bulletin for total credit requirements.
Prerequisite: 598 or equivalent and approval by thesis chairperson. {Summer, Fall, Spring}







COLLEGE OF ARTS AND SCIENCES

B. Hobson Wildenthal
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 must visit the College Advisement Center before registering for classes. The Center is located in Ortega 201 and advisors are available during regular University hours,including the noon hour. Appointments are not needed.

Requirements for Admission from University College

1. Twenty-six hours of earned credit; 23 of these hours must 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 26-32 hours. Such students will be admitted on Probation and should refer to the section on "Probation and Suspension."
3. Demonstrated competence in the writing of English as evidenced by one of the following:
   (a) Completion of Engl 102 with a grade of C or higher.
   (b) A score of 25 or better on the English portion of the ACT.
   (c) A score of 570 or better on the verbal portion of the SAT.
   (d) A score of 57 or better plus a passing essay on the College Composition CLEP Subject Examination.
   (e) Credit for Engl 102 through CEEB advanced placement program.
4. Any exception to the above must be approved by the Dean of Arts & Sciences.
5. Student planning to major in a department of the College of Arts and Sciences should apply to the College of Arts and Sciences 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 Arts and Sciences for transfer as soon as these requirements are met.
4. Non-Degree Students apply to Office of Admissions

Transfer from Accredited Universities

1. A cumulative GPA of at least 2.0 on all work attempted.
2. A minimum of 26 hours, 23 must be in courses acceptable to Arts and Sciences.
3. Demonstrated competence in the writing of English (see above).

Provisional Admission

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 for one semester on a provisional basis. At the end of the one semester, students who have not completed Engl 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 unless UNM course equivalent is specified,not as credit toward fulfillment of major, minor or group requirements. *Subject* CLEP may be used to fulfill group requirements and toward elective credit, but not for the major or minor requirements.

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 should be filed not later than the semester prior to 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 family studies (88 hours) music (90 hours) and art (92 hours).
2. A total of 128 acceptable hours.
3. A grade point average of at least 2.0 as defined in the General Academic Regulations section of the Catalog.
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, or one of the special curricula of the College.
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.
10. Students should also be familiar with the requirement for a Bachelor's Degree as outlined in the General Academic Regulation section of the Catalog. **Students who have not been in continuous attendance must follow the requirements of the current catalog upon reenrollment.**

Symbols - See page 379

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 are as necessary to a well-rounded general education. Introductory 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**, communications, linguistics, or journalism.

II. **Humanities:** 9 credit hours (not more than 6 from any one area) in literature, including English, American, foreign and comparative literature, history, philosophy, religious studies (except 333 and 432), and approved courses in American Studies.

III. **Biological/Behavioral Sciences:** 6-7 credit hours in anthropology (courses numbered between150-169, 250-269,350-369, 450-469), biology or psychology. A student who successfully completes Math 145 or Soc381 may **not** use Psych 200 in order to fulfill the requirements this group.

IV. **Physical Sciences:** 6-7 credit hours in chemistry, geology, or physics/astronomy.

V. **Mathematics:** 6 credit hours Math 111, 112, 120, and 215 may not be used to satisfy this. requirement.

VI. **Social Sciences:** 9 credit hours (not more than 6 in any one area) in anthropology (except courses numbered between 150-169, 250-269, 350-369, 450-469),economics, geography, political science, or sociology (not acceptable are Pol Sc 250,309, 478, and 499 and Soc 338, 381, 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 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 202, Russian 202, Spanish 202, 276, Chinese 202, Sign 310 (American Sign Language III).

VIII. **Fine Arts:** 6 credit hours Acceptable are selected courses in the history, appreciation, and criticism of art, architecture, music, theatre, and dance. Not acceptable for this group are all other courses in studio, design, dance, applied music, music theory, or ear training.

Notes on Group Requirements

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 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.

Additional Information

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 for group requirements or 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.

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 difference 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.

Certification to Teach in High School. Students in Arts and Science 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 after the end of the freshman year at the earliest. To be eligible for Co-op a student must be enrolled in a degree granting college.

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.

London Semester Program. The London Semester is a study-abroad program available to all UNM students in good standing who have achieved at least sophomore status, and a GPA of at least 2.0. The program is arranged by the American Institute for Foreign Study which provides room

and board, classrooms, access to libraries, membership in student unions, and a full calendar of cultural and social events. Courses are taught by professors for UNM and collaborating universities. UNM students pay UNM tuition and receive UNM credit for any of the courses offered. Financial Aid for students who would be eligible on campus may be applied to this program. Course offerings vary each semester. Interested students should inquire at the college office for additional information.

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" MBA proposal allows students to complete Arts and Sciences group and major requirements in the first three years, and an MBA in the fourth and fifth years. MBA course work in the fourth year will constitute the students minor requirements. Requirements for admission to the"Three-Two" MBA Program are outlined in the Anderson Schools of Management section of this catalog.

Courses for Which Degree Credit is not Given. The College of Arts and Sciences does not accept any courses which are by nature remedial, tutorial, skills or preparatory. Examples are: any course numbered 100, Math 120, and such courses as Psych 109, Academics 120-121, and Libr 110, 111, 112.

Except as noted below, neither does the College accept: practicum or activity courses like typing, PE, dance, or shop work; courses that are primarily technical or vocational, such as courses in Human Service Work, Radiologic Technology, University College Associate Programs,etc.; courses oriented toward professional practice, such as those taught by Nursing, Pharmacy, Elementary Education, Health Promotion, Physical Ed & Leisure Programs, etc., any course with a "T" suffix; courses taken in a law or medical school. Student may enroll in these courses in pursuit of their own interests, but should not expect degree hours for them.

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. Secondary Education minors may exceed the 12-hour limit to the extent required for this minor.
3. for USP courses that are approved for credit by the College of Arts and Sciences, up to 4 hours.
4. for non-professional PE activity courses, up to 4 hours.
5. for 24 hours of Human Services courses for Psychology majors with minors in Human Services.

Probation, Suspension, Dismissal

Students may be admitted to the College of Arts and Sciences on probation if the cumulative grade point average (GPA) is below 2.0 but 2.0 or better on the last 26/32 attempted hours. Students admitted on probation must be ineligible to continue in University College. Students ineligible for admission (or readmission) on probation may be admitted if they have not attended UNM for a period of three years. Students denied admission or readmission are encouraged to raise their cumulative GPA by taking courses in another UNM college or program or through UNM Continuing education correspondence courses.

Students enrolled in the College of Arts and Sciences are placed on probation at the end of any semester in which the cumulative GPA on UNM work falls below 2.0.

Students on probation are liable for suspension at the end of any semester in which the cumulative GPA does not rise to a 2.0 or better.

Students admitted or placed on probation may be continued on probation if they substantially raise the cumulative GPA and are making reasonable progress in meeting Arts and Sciences course requirements. "Reasonable progress. . . " is defined as at least one-half of the student's course load being in course offered by Arts and Sciences departments (exclusive of Introductory Studies courses) and courses taught by departments outside Arts and Sciences which apply towards the student's major, minor, or group requirements. "Substantially raise the cumulative GPA. . . " is defined as earning 6 grade points above a C average for more than 9 credit hours or 3 grade points above a C average for 9 credit hours or less. If these conditions are not met, the student is suspended for one calendar year from the University of New Mexico.

In addition to suspension from the university for one year the student is also dismissed from the College of Arts and Sciences for an additional two years. However, at the end of one year of suspension a student is eligible to reapply for admission to another UNM college or program. After expiration of the suspension period, students may shorten the period of dismissal by raising the cumulative GPA to a 2.0 through courses in another UNM college or program or through UNM Continuing Education correspondence courses. Students are reminded that up to 30 credit hours of UNM correspondence courses may be applied toward a degree. .

ARTS & SCIENCES

Departments or Programs of Instruction

A student may not elect both a major and minor outside the college.

Major in A&S	Minor in A&S
American Studies (BA)	American Studies
Anthropology (BA or BS)	Anthropology
Asian Studies (BA)(BS)	Asian Studies Astrophysics
	Astrophysics
Biochemistry (BA or BS)	
Biology (BS or BA)	Biology
Chemistry (BA or BS)	Chemistry
	Distributed
Classics (BA)	
Communication (BA)	Communication
Communicative Disorders (BA)	Communicative Disorders
Comparative Literature (BA)	Comparative Literature
Creative Writing (BA)	
Criminal Justice (BA)	
Economics (BA)	Economics
Economics-Philosophy (BA)	
English (BA)English	English
English-Philosophy (BA)	European Studies
Geography (BA)	Geography
Geology (BA or BS)	Geology
History (BA)	History
	Italian Studies
Journalism (BA)	Journalism
Latin American Studies (BA)	Latin American Studies
Languages (BAs):	
French	French
German	German
	Greek
Languages(interdisciplinary)	
Latin	Latin
	PortuguesePortuguese
Russian	
Spanish	Spanish

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Linguistics (BA)	Linguistics
Linguistics/Communicative Disorders(BA)	
Mathematics (BS)	Mathematics
	Medieval Studies
	Paleoecology
	Peace Studies
	Period Minor
Philosophy (BA)	Philosophy
Physics (BS)	Physics
Political Science (BA)	Political Science
	Professional Writing
Psychology (BA or BS)	Psychology
Religious Studies (BA)	Religious Studies
Russian Studies (BA)	Russian Studies
Sign Lang Interp (BS)	Science,Technology and Society
Sociology (BA)	Sociology
	Social Welfare
Communication (BA)	Communication

NOTE: Concentrations within major fields are available or required in some departments. Students should consult the individual departments listed.

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	Minor
	African-American Studies
Art (BA)	Art
	Management
	Computer Science
	Electrical and Computer Engineering (For mathematics majors only)
Family Studies (BA)	Family Studies
	Human Services (for Psychology majors only)
Music (BA)	Library Science
	Mechanical Engineering (For mathematics majors only)
	Music
	Military Science
	Secondary Education
	Special Education
	TESOL
	Theatre Arts (Drama, Dance, Film; Television Production)
	Women Studies

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.

Preprofessional advisement is the responsibility of the Arts and Sciences Advisement Center where students will be advised and/or referred to an appropriate faculty advisor.

Law School Admissions

Information on Law School Admissions and on Law Schools may be obtained in the *The Official Guide To U. S. Law Schools: Pre-Law Handbook*, which may be obtained from: Publications, LSAC/LSAS, Dept. 0, P. O. Box 63, Newtown, Pa. 18940-0063

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 and see an Arts and Sciences advisor.

Curriculum Preparatory to Dentistry

Specific requirements for admission to dental schools in the United States and Canada may 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, 211East Chicago Avenue, Chicago, Illinois 60611. Students interested in Dental School should see an Arts and Sciences advisor.

COURSES OF INSTRUCTION

AMERICAN STUDIES

Marta Weigle, Chairperson
Ortega Hall 307, 277-3929

PROFESSORS:

Marta Weigle, Ph. D., University of Pennsylvania

ASSOCIATE PROFESSORS:

Charles D. Biebel, Ph. D., University of Wisconsin-Madison
Vera Norwood, Ph. D., University of New Mexico
Gary Scharnhorst, Ph. D., Purdue University.
Peter White, Ph. D., Pennsylvania State University
M. Jane Young, Ph. D., University of Pennsylvania

ASSISTANT PROFESSORS:

Jane E. Caputi, Ph. D., Bowling Green State University

MAJOR STUDY

American Studies is designed for the student interested in the interdisciplinary study of American culture. It encourages flexibility and innovation within a general structure of areas of study and investigation. The student will work closely with an undergraduate advisor in putting together the major and must receive the advisor's approval for all coursework. Nine hours of courses in American Studies may overlap with Arts and Sciences group requirements.

MAJOR STUDY REQUIREMENTS

A. Introductory course (Am St 285 or equivalent) 3
B. Interdepartmental Studies of American Culture: after consultation with faculty advisor choose 30 hours of courses from at least two of the five areas listed below, with no more than 12 hours from any one area 15 hours of this coursework

must be from courses numbered 300 and above; the remaining 15 hours must be from courses numbered 200 and above. Six hours of courses in American Studies (drawn from American Studies 185, 186, 187, 196, and the 200 level courses) may be substituted if they fit the subject matter of any of the five areas below. Of the 30 hours required in section B and the 12 hours required in section D1 below (a total of 42), 15 must be in American Studies.

History
Literature (Eng, Modern & Classical Lang)
Political, economic and geographical studies
Social and cultural systems (Soc, Anth, Psych)
Arts, Humanities, and Communications
(Phil, Ling, Fine Arts, Comm, Comp Lit, Journ) 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. Senior Program: after consultation with faculty advisor, choose (courses numbered 300 and above):
1. 12 interdepartmental hours in courses centering around a particular topic or problem in American culture. Of the 12 hours required and the 30 hours required in B above (a total of 42), 15 must be in American Studies. 12
2. American Studies Seminar and Thesis (485) 3

Total Hours 48

A minor is strongly recommended but not required.

DEPARTMENTAL HONORS

Students seeking departmental honors should apply to the undergraduate advisor in their junior year. In addition to maintaining a 3.2 overall grade point average, Honors candidates must also successfully complete 6 credit hours of Senior Honors Thesis in their senior year.

MINOR STUDY REQUIREMENTS

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 advisor 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. 3 of these hours can be replaced by American Studies 185, 186, 187, or 196; for students focusing on folk arts of the Southwest, 3 of these hours must include either American Folklore or Folklore of New Mexico. 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. All of these 12 hours must be from courses numbered 200 level or above. 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 other important themes 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 advisor and the American Studies minor advisor 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 the American Southwest and the Mexican Borderlands supports this concentration. Recognizing the unique contributions of Southwest regional cultural development 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 III" (3). 286 "Introduction to Southwestern Studies" (3). Courses designed to provide an introduction to interdisciplinary methods and a context for Southwest Studies.
B. 27 hours of Interdisciplinary Studies of Southwest Culture: In consultation with faculty advisor, 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, Arts and 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. Senior Program: After consultation with a faculty advisor, choose (courses numbered 300 and above):
1. 9 interdepartmental hours in courses centered around a specific topic or problem in Southwest Cultural Studies. The theme of this final coursework generally emerges from the previous broad sampling (section B above).
2. American Studies Senior Seminar (485): A course in which the interdisciplinary implications of each student's major 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 issue 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 with the exception that the student must take one extra course in American Studies (Am St 286, "Introduction to Southwestern Studies"). Because of the addition of this requirement, the 12 hours of integrated coursework have been reduced to 9, so that the total hours required for the American Studies minor, Southwestern Concentration, is still 24.

MASTER OF ARTS AND DOCTOR OF PHILOSOPHY

Both a Master of Arts and a Doctor of Philosophy degree in the interdisciplinary study of American culture are 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

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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. (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)
Survey of 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.

187. Introduction to Science, Technology and Society. (3)
An introduction to the nature of science and technology as social and political entities. Required for the minor in Science, Technology and Society.

196. Myths & Rituals of American Life. (3)
An examination of the narrative, ceremonial and symbolic activities that structure American Society, dramatizing its values and beliefs. Topics include elite, popular, folk, and mass culture literature and arts, sports, holidays, institutional ceremonies, rites of passage, foodways.

211. The Black Experience in the United States. (3)
An analysis of the political, economic, religious, and familial organization of Black communities in the United States.

215. Law in the Political Community. (3)
(Also offered as Pol Sc 215.) Introduction to the role of law and legal institutions in politics and society. Prerequisite for Pol Sc 315 and 415.

221. Southwest Indian Communities. (3)
An examination of the world view and lifestyles of reservation Indians in an area of unusually high cultural integrity.

231. Women's Experience in the United States. (3)
(Also offered as W St 231.) 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.

241. The Chicano Experience in the United States. (3)
Investigation of the historical and social conditions that have shaped the development of Chicano life.

285. American Life and Thought III. (3)
Examination of the development of American cultural values and attitudes from the seventeenth to the early twentieth centuries. Demonstrates the use of interdisciplinary modes of inquiry.

286. Introduction to Southwestern Studies. (3)
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.

301. Interdepartmental Studies in the Culture of the United States. (1-3)
Subjects, varying from semester to semester, in the interdisciplinary study of American culture. May be taken by graduate students. May be repeated for credit as subject matter varies, with permission of American Studies undergraduate advisor or of the chairperson of the student's major department.

302. Interdepartmental Studies in the Culture of the United States. (1-3)
Subjects, varying from semester to semester, in the interdisciplinary study of American culture. For undergraduates only. May be repeated for credit as subject matter varies, with permission of American Studies undergraduate advisor or of the chairperson of the student's major department.

303. Topics in Popular Culture. (1-3)

304. Ecology in American Thought. (3)
A study of cultural attitudes and values toward urban development, nature, wilderness and the environment.

305. Decoding America. (3).
The meanings and dimensions of American myths and symbols in literature, art, mass media, popular and folk cultures from a variety of analytic perspectives.

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.

321. Indian in a Multicultural Setting. (3)
(Also offered as Anth 307.) 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.

****325. Technology and Society. (3)**
(Also offered as Engr-N 325.) Surveys the history of technological development in America, transfer from Europe, and new transfer to other countries. Identifies ways in which technology has impacted and been impacted by culture. Examines current and potential trends.

326. The Indian in American Popular Culture. (3)
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.

331. Classics of Feminism in the United States. (3)
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.

332. Women and Nature. (3)
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.

341. History of Conflict in New Mexico. (3)
Examination of selected examples of imposition of Anglo-American economic, political, and social institutions on Chicanos and their consequences.

342. La Mujer Chicana. (3)
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. {Offered upon demand}

350. Popular Culture in America. (3)
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. {Offered upon demand}

353. America in the Fifties. (3)
Through architecture, music, art, fiction, drama, poetry, and the social sciences, 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.

354. Schools in Crisis. (3)
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.

360. Albuquerque in Cultural Context. (3)
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.

361. Made in the Southwest. (3)
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.

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.

497. Individual Study. (1-3 hrs. per semester, to a maximum of 9)

498. Internship. (1-6)
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.

501. Interdisciplinary Seminar in U. S. Culture. (1-3)

551. Individual Study-Master's Degree. (1-3 hrs. per semester, to a maximum of 6)

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

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

Karl H. Schwerin, Chair
Anthropology 240, 277-4524

PROFESSORS:

Keith H. Basso, Ph. D., Stanford Univesity
Lewis R. Binford, Ph. D., University of Michigan
Philip K. Bock, Ph. D, Harvard University
John Martin Campbell, Ph. D., Yale University
Louise Lamphere, Ph. D., Harvard University
Jane B. Lancaster, Ph. D., University of California (Berkeley)
Alfonso Ortiz, Ph. D., University of Chicago
Karl H. Schwerin, Ph. D., University of California (Los Angeles)
Lawrence G. Straus, Ph. D., University of Chicago
Erik Trinkaus, Ph. D., University of Pennsylvania
M. Marta Weigle, Ph. D., University of Pennsylvania

ASSOCIATE PROFESSORS:

Anita L. Alvarado, Ph. D., University of Arizona
Richard A. Barrett, Ph. D., University of Michigan
Garth L. Bawden, Ph. D., Harvard University
Jeffery W. Froehlich, Ph. D., Harvard University
Larry P. Gorbet, Ph. D., University of California (San Diego)
J. Stanley Rhine, Ph. D., University of Colorado
Mari Lyn C. Salvador, Ph. D., University of California (Berkeley)
Robert S. Santley, Ph. D., Pennsylvania State University
James M. Sebring, Ph. D., University of California (Berkeley)
David E. Stuart, Ph. D., University of New Mexico (Part time)
Joseph C. Winter, Ph. D., University of Utah

ASSISTANT PROFESSORS:

James L. Boone, Ph. D., University of New York-Binghanton
Hilliard S. Kaplan, Ph. D., University of Utah
Robert D. Leonard, Ph. D., University of Washington
Jeffrey C. Long, Ph. D., University of Michigan
Sylvia Rodriguez, Ph. D., Stanford University
Wirt H. Wills, Ph. D., University of Michigan

PROFESSORS EMERITI:

Florence H. Ellis, Ph. D., University of Chicago
Frank C. Hibben, Ph. D., Harvard University
James N. Spuhler, Ph. D., Harvard University

MAJOR STUDY

Anthropology is the study of humanity and its works, from the most remote point in human history to the cultural, linguistic, and biological diversity of the present. Each of the four subfields of anthropology contributes to an integrated picture of the past and present human variation. By comparing information gathered about different human groups, anthropologists can understand much about why human society is as we find it today, and can offer suggestions about how to deal with many contemporary problems.

MAJOR STUDY REQUIREMENTS (36 credits)

All majors are required to complete the seven courses in the core curriculum (21 hours) which provide an integrated preparation for advanced study in any of the four anthropological subfields. It should be noted that Anth 310 has as a prerequisite Anth 110 or any introductory course in the linguistics department. All of these prerequisites are acceptable for fulfilling the anthropology major and the Arts and Science Communications Group. Courses in the anthropology core curriculum include:

Archeology:	Anth 120 Digging Up Our Past
	Anth 320 Strategy of Archeology
Biological Anthropology	Anth 150 Evolution & Human Emergence
	Anth 350 Human Biology
Ethnology:	Anth 130 Cultures of the World
	Anth 330 Principles of Cultural Anthropology
Linguistic Anthropology:	Anth 310 Language and Culture

Majors must also elect an additional 15 hours in anthropology, which must include a minimum of 9 upper division credits (300-400 level). No more than 6 hours of field or problem courses may be applied toward the major.

In addition to fulfilling the core curriculum and unit distribution requirements for the B. A. degree, students desiring a B. S.

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degree must concentrate (i. e., a minimum of 9 of the above elective hours of 300-400 courses) in archeology and/or biological anthropology, including an advanced laboratory course or a summer field school of at least 4 credits. To complement this science emphasis, they must also take at 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 advisors as early in their academic careers as possible.

MINOR STUDY REQUIREMENTS (21 credits)

A total of 21 hours, including at least one of the following core curriculum sequences: 292L, 310; 120, 320; 130, 330; or 150, 350. No more than 3 hours of field or problem 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 archeologists, 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 undergraduate advisor.

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.

DEPARTMENTAL 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 499F; 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 Humankind. (3)
Fundamentals of biological and cultural anthropology: origin of mankind, prehistoric adaptation, and contemporary cultural and linguistic diversity. (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. Will discuss a variety of culturally different views of human origins. The results of recent archeological research will be presented. (Does not provide credit toward anthropology major requirements.)

110. Language, Culture, and the Human Animal. (3) Gorbet
Fundamentals of anthropological linguistics. The biological, structural, psychological, and social nature of language; implications for cross-cultural theory, research, and applications. {Fall, Spring}

120. Digging Up Our Past. (3)
Introduction to archeology. Uses contemporary archeological findings to discuss aspects of cultural evolution and to teach basic concepts of archeological 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 Anth 121L. Together they satisfy the laboratory science requirement. {Fall, Spring}

121L. Archeology Laboratory. (1)
Basic techniques of excavation and methods of analysis in contemporary archeology. Should be taken concurrently with Anth 120. 2 hrs. 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)
Basic concepts and methods of cultural anthropology. Selected cultures, ranging from preliterate societies to aspects of urban civilization. {Fall, Spring}

150. Evolution and Human Emergence. (3)
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 Anth 151L. Together they satisfy the laboratory science requirement. {Fall, Spring}

151L. Human Evolution Laboratory. (1)
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 Anth 150. 3 hrs. lab. {Fall, Spring}

202. [252] Tribal Art. (3)
(Also offered as Art Hi 252.) Traditional arts of non-urban, non-industrial, small societies from Africa, Europe, Asia, Oceania, and the Americas.

203. [280] Native American Art. (3) Brody
(Also offered as Art Hi 280.) Prehistoric and historic art forms of North America.

220. World Prehistory. (3) Santley, Straus
Discusses cultural development on a world-wide basis from the origin of the hominids to historic times. Covers such topics as the origins and evolution of culture, agriculture, civilization, and cities.

221. [255] Ancient Peoples of the Southwest. (3) Wills, Leonard
Survey of prehistoric cultures of the Southwest from Paleo-Indian times to the Historic Period. {Spring}

222. [284] Ancient Mexico. (3) Santley
An intensive archeological survey of the pre-Columbian civilizations of Mexico and adjacent areas. Open to undergraduates with no previous courses in anthropology.

230. Topics in Current Anthropology. (3) Δ Stuart
Experimental courses on topics of current interest.

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.

238. [254] **Cultures of the Southwest.** (3) Lamphere, Leonard
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.

243. Aging: Worldwide Ways. (3) Alvarado
Current topics in anthropological gerontology. Emphasis on interelationships of biology, culture, health status and longevity in human populations. Designed for students in health and social sciences and those interested in careers as service providers.

250. Human Development. (3) Long
An evolutionary and cross-cultural study of developing physiological systems and cognitive, social and emotional behavior in human fetuses, infants, children and adolescents.

252. [231] **Behavior of Apes and Monkeys.** (3) Froehlich, Lancaster
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.

301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3) (See Am St 301-302.)

307. [315] **Current American Indian Problems.** (3)

***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. {Fall}

***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. {Spring}

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.

ARCHEOLOGY

(Anthropology 120 is suggested as background for the following courses.)

***320. Strategy of Archeology.** (3) Binford
The purpose and theory of the study of archeology; relates archeology to anthropological principles and the practice of a science.
Prerequisites: 120, 130. {Fall}

***321.** [*356] **Southwest Archeology.** (3) Wills, Leonard
An intensive survey of Southwest prehistory including discussion of major interpretative problems. Covers the period from 11,000 years ago to historic times. {Fall}

***322. Mesoamerican Prehistory.** (3) Santley
An advanced survey of the prehistory of Mexico, Guatamala and Belize from the origins of village farming to the Spanish conquest.

***323.** [*385] **American Archeology: North America.** (3) Binford, Campbell
An analysis of research problems in North American prehistory. Focuses on explaining social, cultural, and economic change as reflected in the archeological record. {Spring}

***324.** [*386] **American Archeology: South America.** (3) Bawden
Archeology of South America from the Paleo-Indian to the European period. Emphasizes the origins and evolution of Andean civilization and associated interpretive problems. {Fall 1990 and alternate years}

***325.** [*312] **Stone Age Europe.** [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 1989 and alternate years}

***326. Late European Prehistory.** (3) Boone
An intensive survey of the later prehistory of Europe, from the development of agricultural communities through the Roman Empire.

***327.** [*362] **African Prehistory.** (3) Binford, Straus
The prehistory of Africa from the appearance of the first hominids to the development of complex societies. {Spring 1990 and alternate years}

***328.** [*391] **Near Eastern Archeology.** (3) Bawden, Boone
A survey of the Near Eastern culture area from the origins of agriculture to the development of Bronze Age civilization. {Offered upon demand}

***329.** [*349] **Archeology of Complex Societies.** (3) Santley, Boone
Comparative approach to origin and development of stratified societies and pristine states as known from the archeological record. {Fall}

***370.** [*420] **Topics in Archeology.** (3)Δ

***371.** [*466] **Archeological Research Methods.** (3) Straus, Boone
Collection, interpretation, and analysis of archeological and paleoenvironmental data. Prerequisites: 120 or permission of instructor, intro. statistics; recommended: 320. {Fall}

***372.** [*467] **Analytic Methods in Archeology.** (3) Leonard, Wills
Specific, individualized instruction on qualitative and quantitative methods of archeological data analysis. Students will do all phases of data analysis from initial selection of attributes to computer processing, tabulation, and interpretation of results.
Prerequisite: permission of instructor. {Spring}

***373. Technical Studies in Archeology.** (3)Δ
Technical course with variable content dealing with such issues as dating, paleoenvironmental and subsistence studies in archeology.

***374.** [*366] **Archeological Field Techniques.** (3)
Site survey, techniques of excavation, field mapping, data recording, initial laboratory analysis, cataloging, and site reporting.
Prerequisites: 120 and permission of instructor. {Spring}

520. Site Structure. (3) Binford

521. [594] **Seminar: Southwestern Archeology.** (3) Leonard, Wills
{Offered upon demand}

ARTS & SCIENCES

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522. Latin American Archeology. (3) Bawden, Santley

523. Archeology and the Modern Record. (3) Binford

525. [516] **Seminar: European Prehistory.** (3)†† Binford, Straus
{Offered upon demand}

526. Upper Pleistocene Paleoanthropology. (3) Straus, Trinkaus

527. Lower/Middle Pleistocene Paleoanthropology. (3) Straus, Trinkaus

529. Comparative Civilizations. (3) Bawden, Boone, Santley

570. [520] **Advanced Topics in Archeology.** [Topics in Archeology] (3)Δ

571. History and Theory of Archeology. (3)

572. Current Debates in Archeology. (3)

573. Archeological Taphonomy. (3) Binford

BIOLOGICAL ANTHROPOLOGY

***350. Human Biology.** (3) Long
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.
Prerequisites: 150 and/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 1990 and alternate years}

***352.** [*331] **Evolutionary Biology of Primates.** (3) Froehlich
Evolutionary history of the paleogene primates and the comparative biology of living primates. Students are encouraged but not required to enroll concurrently in 353L.
Prerequisites: 150 and/or 231. {Fall 1990 and alternate years}

***353L.** [*332L] **Primate Fossil Laboratory.** (1) Froehlich
Methods used in the collection and study of paleogene primate and other mammalian fossils.
Corequisite: 352. {Fall 1990 and alternate years}

***355.** [*388] **Human Genetics.** (3) Long
Fundamentals of human transmission, cellular, molecular, developmental, and population genetics. {Offered upon demand}

***357.** [*455] **Paleoanthropology: Human Origins.** (3) Trinkaus.
A detailed consideration of the events and processes involved in the origins of the human lineage and its first several million years of evolution, including discussions of our Miocene ancestors, the Australopithecines and the origins of the genus Homo.
Prerequisite: 150. {Fall 1989 and alternate years}

***358.** [*456] **Paleoanthropology: Evolution of the Genus Homo.** (3) Trinkaus
A detailed discussion of the biological and cultural events and processes involved in the evolution of the genus Homo from its origins to the beginnings of agriculture. {Spring 1990 and alternate years}

***360.** [*340] **Biocultural Bases of Women's Health.** (3) Alvarado, Lancaster
Evolutionary, biological, ecological, and cross-cultural orientations in the medical anthropology of women. Emphasis on life cycle perspectives and critical health issues for modern women. {Spring}

***361.** [*341] **Biosocial Bases of Sex Roles.** (3) Lamphere, Lancaster
Focuses on the roles played by men and women viewed from the perspective of evolutionary biology with attention to the diversity of sex-roles in the historical and cross-cultural record. {Spring 1989 and alternate years}

***365.** [*465] **Medical Anthropology.** (3) Alvarado
Analysis of systems of health, curing, and disease in aboriginal, western, and pluralistic societies. {Spring 1989 and alternate years}

***450. Topics in Biological Anthropology.** (3)Δ

***451. Human Paleobiology.** (3) Trinkaus
The analysis of the skeletal remains from past human populations, oriented at the mortality, morbidity and genetic affinities of those extinct populations.
Prerequisite: 351L. {Spring 1989 and alternate years}

***452.** [*432] **Human Functional Morphology.** (3) Trinkaus
Functional morphology of the human body, with emphasis on the structure and development of the musculo-skeletal and neurological systems and the associated human kinesiology.
Prerequisite: 351L or permission of instructor. {Spring 1989 and alternate years}

550. Topics in Biological Anthropology. (3)Δ

551. Seminar: Behavior and Evolution. (3)Δ Kaplan, Lancaster

553. Forensic Anthropology. (3) Rhine
Prerequisite: 351 or familiarity with skeletal biology.

554. [531] **Seminar: Morphology and Evolution.** (3)Δ Froehlich, Trinkaus

560. [555] **Biosocial Anthropology.** (3) Δ

ETHNOLOGY

301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)
(See Am St 301-302.)

307. [315] **Current American Indian Problems.** (3)
(Also offered as Am St 321.) 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.

***330. Principles of Cultural Anthropology.** (3)
Development of ideas and theories in socio-cultural anthropology; focus on topics such as integration of human societies, sources of change in economic and cultural systems. {Fall, Spring}

***331.** [*305] **North American Indians.** [The American Indian: North America] (3) Ortiz
Major culture types and selected ethnographic examples of North American Indian cultures. {Spring}

***332.** [*306] **South American Indians.** (3) Kaplan, Schwerin
Approaches to explaining differential adaptations to the diversity of South American environments. Focus on aboriginal societies with selected examples from lowland or highland regions. {Fall}

***333. Ritual Symbols and Behavior.** (3) Ortiz
(Also offered as Relig 333.) Comparative analysis of ritual processes, symbol systems, and world views in the context of social structure.

***335. Comparative Value Systems. (3)** Sebring
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 1990 and alternate years}

***336. [*308] Psychological Anthropology. (3)** Bock
A critical survey of the ways that anthropologists have used psychological concepts and methods to understand the relationship between individuals and cultural phenomena.
Prerequisite: 130 or permission of instructor. {Spring 1989 and alternate years}

***337. Ethnohistory of the Southwest. (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, Lamphere
Analyses of changes in Native American cultures in the post-colonial period, including urban Indians.

***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. {Spring 1990 and alternate years}

***340. [*310] Topics in Cultural Anthropology. (3)Δ**
Current topics in socio-cultural anthropology to be explored in experimental courses.

***341. [*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.

***342. Comparative Social Stratification. (3)** Sebring
Social stratification and hierarchy in hunter-gatherer, tribal, peasant, and other, mainly non-Western cultures and civilizations; methodologies and theories used to analyze and explain stratification and hierarchy.

***343. [*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.

***345. Spanish-Speaking Peoples of the Southwest. (3)** Alvarado, Rodriguez
Analysis of the ethnohistory and modern culture patterns of Spanish-speaking peoples of the Southwest. {Spring 1989 and alternate years}

***346. Ethnography of Communication. (3)** Weigle
Observation, description, and analysis of verbal and nonverbal communication in mundane and artistic situations. Special emphasis on narration, humor, song, dreams, and concepts of creativity cross-culturally.

***347. Folklife Studies. (3)** Weigle
Folk culture: community studies, ethnohistory, festivals, games, folk religion, folk medicine and witchcraft, folk arts and crafts. Emphasis on American and especially Southwestern groups. {Spring}

***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. {Fall}

***380. [*361] Modernization of Traditional Societies. (3)** Barrett
(Also offered as Soc 361.) The impact of technological and economic change on societal institutions with special attention to underdeveloped areas. {Fall}

***381. [*316] Applied Anthropology. (3)** Sebring
Application of anthropological knowledge, and theory to the solution of practical problems in human society and culture. Emphasis upon non-Western cultures. {Fall}

***382. [*321] Ethnology of South Asia. (3)** Sebring
Survey of modern social structures and cultures of South Asia with emphasis upon selected areas and problems. {Spring}

***383. [*493] History of Anthropology. (3)** Schwerin
Development of anthropological theory and growth of the discipline from the nineteenth century to the contemporary period. {Spring 1989 and alternate years}

***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. {Spring 1990 and alternate years}

***385. [*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.

***387. [*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 1989 and alternate years.}

***389. [*396] Cultural Ecology. (3)** Schwerin
The ecological orientation in explaining human behavior. Focus is upon the systemic relationships among ecological, demographic, social, and cultural variables.
Prerequisites: 120, 130. {Fall}

***430. Topics in Ethnology. (3)Δ**
Comparative study of social, economic, and political systems, their evolution and interrelations.

530. Topics in Ethnology. (3)Δ
{Fall, Spring}

533. Interviewing Seminar. (3) Bock
(Also offered as Soc 533.) {Spring}

534. [*487] Behavior Observation. [Research Methods in Ethnology] (3) Kaplan

536. Seminar: Theories of Symbolic Action. (3) Ortiz
(Also offered as Relig 536.)

537. Seminar: Southwestern Ethnology. (3) Alvarado, Lamphere
{Fall 1989 and alternate years.}

538. Seminar: Culture Change. (3) Alvarado
{Fall 1990 and alternate years.}

539. Seminar: Cultural Ecology. (3) Schwerin

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541. Seminar: Theory and Method in Ethnology. (3)

542. Seminar: Urban Anthropology. (3) Lamphere
{Fall 1989}

543. Seminar: Anthropology of Aging. (3) Alvarado
{Spring 1990}

544. Seminar: Medical Anthropology. (3) Alvarado, Lancaster
{Spring 1989}

545. Seminar: Anthropological Problems in Latin America. (3) Schwerin

546. Theory in Ethnology I. (3) Barrett, Schwerin {Fall}

547. Theory in Ethnology II. (3) Bock, Lamphere {Spring}

548. Seminar: Complex Societies. (3)

549. Seminar: Economic Anthropology. (3)

580. [561] Seminar: Economic Development and Social Change. (3) Barrett
{Spring 1989}

LINGUISTIC ANTHROPOLOGY

Courses with similar content and the same number as 110, 317, 318, 416, 417, 418, 419, and 514 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. Anth 110 and 310 may also be applied for the Communication Group requirement.

292L. Introduction to Linguistic Analysis. (3)
(See Ling 292L.)

***310. [*359] Language and Culture. (3)** Gorbet, Basso
(See Ling 359.) Examination of the interrelations of language and speech with other selected aspects of culture and cognition.
Prerequisite: an introductory linguistics course. {Spring}

***312. [*352] Verbal Art. (3)** Weigle
Comparison 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.

***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.
Prerequisite: 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}

***410. Topics in Anthropological Linguistics. (3)Δ**
(See Ling 410.)

***413. Linguistic Field Methods. (3)** Gorbet
(See Ling 413.) Practice in transcribing from oral dictation, phonemic analysis, introduction to problems of morphology.
Prerequisites: 317 and permission of instructor. {Offered upon demand}

***415. [405] North American Indian Languages. (3)** Gorbet
(See Ling 405.) 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. {Offered upon demand}

***416. [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. {Offered upon demand}

***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 theoretical grammar including cognitive approaches. Topics range from syntax to pragmatics.
Prerequisite: 318. {Fall}

***419. [470] History of Linguistics. (3)** Gorbet
(Also offered as Ling 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, 318. {Offered upon demand}

510. Topics in Anthropological Linguistics. (3)Δ
(See Ling 510.)

514. [554] Seminar: Linguistic Theory. (3)Δ
(Also offered as Ling 554.) {Offered upon demand}

TECHNICAL COURSES

***400. Museum Practices. (3)ΔΔ** Brody, Salvador
(Also offered as Art Hi 400.) History, philosophy, and purposes of museums. Techniques and problems of museum *administration, education, collection, exhibition, conservation,* and public relations. {Spring}

485. [460] Seminar in Museum Methods. (3)Δ Salvador
(Also offered as Art Hi 485.) Theoretical and practical work in specific museum problems.
Prerequisite: 400 or equivalent.

486. Practicum: Museum Methods. (3)Δ Salvador
(Also offered as Art Hi 486) Practicum in museum methods and management
Prerequisites: 400 or Art Hi 400

***490. Topics in Mathematical Anthropology. (3)**
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. {Offered upon demand}

509. [559] Seminar in Native American Art. (3)Δ Brody
(Also offered as Art Hi 559.)
Prerequisites: 402 and/or 403. {Offered upon demand}

585. [560] Seminar in Museum Methods. [Seminar in Museology and Museography] **(3)Δ** Salvador
(Also offered as Art Hi 585.) Theoretical and practical work in specific museum problems.
Prerequisite: 400 or Art Hi 400 or equivalent. {Spring}

586. Practicum: Museum Methods. (3)Δ Salvador
(Also offered as Art Hi 586.) Practicum in museum methods and management.

INDIVIDUAL STUDIES, FIELD PROGRAMS, AND HONORS COURSES

***375F. [*475F] Summer Archeology Field Session. (2-6)Δ**
Wills
Intensive instruction in archeological field and laboratory techniques and the opportunity for independent student research.
Prerequisite: permission of instructor. {Summer only}

399F. Introduction to Field Research. (2-6)†
Directed study under the supervision of faculty member.
Prerequisite: permission of instructor. {Offered upon demand}

***459F. [*476F] Summer Paleontology Field Session. (1-6)Δ**
Froehlich
Intensive instruction in paleontological field and laboratory techniques and the opportunity for independent student research.
Prerequisite: permission of instructor. {Summer 1989 and alternate years}

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)
Readings and discussions concerning anthropological research methods, sources, goals, and professional ethics. Open to upper division majors and concentrators whose applications 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 archeology, 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}

500. Topics in Masters' Studies. (3)Δ

***535. Qualitative Methods & Logistics (3)** Alvarado
Survey of current formal & informal anthropological field methods. Societies ranging from forager to industrial. Logistics of entry & self-maintenance in the field. Anthropological ethics.

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)Δ
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 (AS COP)

J. E. White,Jr., Coodinator
Ortega 201, 277-3046

105. Arts and Sciences Co-op Work Phase. (0)
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)
Provides the means for obtaining 1-3 hours of credit for a project related to co-op work experience. Students must consult a departmental advisor 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*

BIOCHEMISTRY

Robert Loftfield, Chairperson
BMSB1 251, 277-2362

Bachelor of Arts, Sciences in Biochemistry

MAJOR STUDY

The Department of Biochemistry of the School of Medicine is responsible for teaching Biochemistry courses and for administering the Biochemistry Major in Arts and Sciences.

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FOR THE DEGREE OF BACHELOR OF ARTS:

Math Calculus 162-163 (or 182-183 or 172-173 or 180-181)
Intro Physcs 151-152-153L-154L (or 160-161-163L-262-264L)
Intro Biol 121L-122L
Intro & Anal Chem 131L (or 121L); 132L (or 122L plus 253L)
Org Chem 301-302-303L-304L (or 307-308-309L-310L) Phys Chem 315 (or 311-312)
Intro Biochm 445-446-448L
6 credit hours from Biochemistry courses above Biochemistry 450 and approved courses in related disciplines* to a minimum of a total of 62 credit hours. Biochemistry 201-202 is strongly recommended for sophomores considering a major in Biochemistry. No minor study is required.

FOR THE DEGREE OF BACHELOR OF SCIENCES

The requirements are identical to those for the B. A. except that Chem 311-312, is required and the minimum total of approved courses in related disciplines* is 65 credit hours. Chem 307-310L and Math 162-163 are strongly recommended. Biochm 201-202 is strongly recommended for sophomores considering a Major in Biochemistry. No minor study is required.

DEPARTMENTAL HONORS

Students who will have completed 6 hours of Senior Research (Biochemistry 497-498) or 3 hours of Senior Research and 3 hours of 500-level Biochemistry may submit a Senior Thesis based on their Senior Research project. The award of Honors will be based on the quality of the thesis and on an oral presentation of the research. (Note that the University requires an overall GPA of 3. 2 for Honors.)

The Dean of the College of Arts and Sciences shall appoint a Biochemistry Advisory Committee consisting of the Chairperson of the Departments of Biochemistry, Biology, and Chemistry (or their delegates). The Advisory Committee will report to the Dean and will be responsible for initiating and facilitating inter-departmental coordination and collaboration in curriculum design, teaching and undergraduate student research. The Advisory Committee will review proposed changes in the Biochemistry Major Requirements.

The Chairperson of the Department of Biochemistry will be responsible for the administration of the Biochemistry Major Program and will submit an Annual Report on the program to the Dean of the College of Arts and Sciences. As with other Arts and Sciences Programs, the Biochemistry Undergraduate Major may not be significantly modified without prior advice and approval from the Arts and Sciences Curriculum Committee and from the Arts and Sciences Faculty.

BIOCHEMISTRY (BIOCHM)

201. Sophomore Biochemistry Seminar. (1) Loftfield
A series of weekly seminars with biochemists or professionals who employ biochemistry. Introduction to the use of research literature and oral presentations. Primarily intended for students anticipating a Biochemistry major. Prerequisites: Chemistry 302 or 308 taken previously or concurrently. **Graded CR/NC only.** {Fall}

202. Sophomore Biochemistry Seminar. (1) Loftfield
A series of weekly seminars with biochemists or professionals who employ biochemistry. Introduction to the use of research literature and oral presentations. Primarily intended for students anticipating a Biochemistry major. Prerequisites: Chemistry 302 or 308 taken previously or concurrently. **Graded CR/NC only.** {Spring}.

***423. Introductory Biochemistry. (3)** Biochemistry Staff
(Also offered as Biol, Chem, Med Sc 423.) Introductory course into metabolic reactions with 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. Biochm 423 should not be taken by students who anticipate majoring in Biochemistry.
Prerequisite: Chem 302 or Chem 308. {Fall, Spring}

***445. Intensive Introductory Biochemistry 1. (4)** Loftfield
(Also offered as Chem, Med Sc 445.) An introduction into the physical and chemical properties of proteins and enzymes, enzymic catalysis, intermediary metabolism and hormonal control of anabolic and catabolic pathways.
Prerequisite: Chem 302 or 308; corequisite: Chem 322 or 315 taken concurrently. {Fall}

***446. Intensive Introductory Biochemistry II. (4)** Scallen
(Also offered as Med Sc, Chem 446.) An introduction into the structure, synthesis and processing of nucleic acids and proteins, structure and control of genetic material.
Prerequisite: 445. {Spring}

***448L. Biochemical Methods. (2)** Loftfield
(Also offered as Med Sc 448L.) Biochemical techniques including chromatographic and electrophoretic purification of enzymes, determination of enzyme parameters (Vm, Km, Ea), fractionation of subcellular organelles, isolation of chromatin, biosynthesis of protein, analysis of DNA.
Prerequisite: concurrent registration in 446 and permission of instructor. {Spring}

***461. Nutritional Biochemistry. (3)** Omdahl
(Also offered as Med Sc 461.) An integrated study of the metabolic roles of the major nutrients (fats, carbohydrates, proteins) together with vitamins and minerals in health and disease.
Prerequisite: 446 or 423. {Fall}

***462. Environmental Biochemistry. (3)** Vander Jagt
(Also offered as Chem, Med Sc 462.) Study of the interactions organisms experience when encountering a wide range of environmental agents including toxins, mutagenic and carcinogenic chemicals, and other foreign agents. Emphasis is placed on metabolism, host defenses, and repair of damage.
Prerequisite: 423 or 446 or permission of instructor.

***463. Topics in Biochemistry. (1-3)Δ**
(Also offered as Chem 587, Med Sci 463-464.)
Prerequisite: permission of instructor. {Fall upon demand.}

***464. Topics in Biochemistry. (1-3)Δ**
(Also offered as Chem 587, Med Sci 463-464.)
Prerequisite: permission of instructor. {Spring upon demand.}

497. Senior Honors Research. (1-3)
Senior thesis based on independent research.
Prerequisite: A grade of A or B in 448L and permission of instructor. {Summer.}

498. Senior Honors Research. (1-3)
Senior thesis based on independent research.
Prerequisite: A grade of A or B in 448L and permission of instructor. {Spring.}

* Some, but not all, courses in chem, biol, math, engineering, family studies, med sc, physics or biochem.

521. Neurochemistry. (4) Wild
(Also offered as Med Sc 521.)
Prerequisite: permission of Instructor. {Spring}

522. Enzymology. (3) Δ Loftfield
(Also offered as Med Sc 522.)
Prerequisites: 446 or permission of Instructor. {Fall}

BIOLOGY

Donald W. Duszynski, Chairperson
Castetter Hall 173A, 277-3411

PROFESSORS:

J. Scott Altenbach, Ph. D., Colorado State University
Oswald G. Baca, Ph. D., University of Kansas
James H. Brown, Ph. D., University of Michigan
Clifford S. Crawford, Ph. D., Washington State 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
Tokio Kogoma, Ph. D., University of Tokyo
J. David Ligon, Ph. D., University of Michigan
Marvin L. Riedesel, Ph. D., State University of Iowa
Randy Thornhill, Ph. D., University of Michigan
Kathryn G. Vogel, Ph. D., University of California (Los Angeles)

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Earl W. Bourne, Ph. D., Oklahoma State University
Gordon V. Johnson, Ph. D., University of Arizona
William W. Johnson, Ph. D., University of Minnesota
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Howard L. Snell, Ph. D., Colorado State University
Stephen A. Stricker, Ph. D., University of Washington
Margaret Werner-Washburne, Ph. D., University of Wisconsin
Charles S. Wisdom, Ph. D., University of California (Irving)

LECTURER:

Sandra H. Ligon, M. S., University of New Mexico

ANCILLARY FACULTY:

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William H. Baltosser, Ph. D., New Mexico State University
James Bednarz, Ph. D., University of New Mexico
Troy Best, Ph. D., University of Oklahoma
Celestyn Brozek, Ph. D., Agricultural Academy, Krakow, Poland
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In Cheol Kim, Ph. D., University of British Columbia, Canada
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Eugene W. Rypka, Ph. D., Stanford University
Norman J. Scott, Ph. D., University of Southern California
George Shopp, Jr., Ph. D., Medical School of Virginia
Richard Smartt, Ph. D., University of New Mexico
Mohan Sopori, Ph. D., All India Institute of Medical Sciences
Peter Stacey, Ph. D., University of Colorado (Boulder)
Nancy W. Thornhill, Ph. D., University of New Mexico
Eleonora Trotter, Ph. D., University of New Mexico
Sandra Turner, Ph. D., Colorado State University
Maribeth Watwood, Ph. D., University of Georgia (Athens)
Robert E. Waterman, Ph. D., University of Washington
Carleton White, Ph. D., University of New Mexico
John A. Wiens, Ph. D., University of Wisconsin (Madison)
Stephen C. Wood, Ph. D., University of Oregon
Bruce D. Woodward, Ph. D., University of New Mexico
Marlene Zuk, Ph. D., University of New Mexico

PROFESSORS EMERITI:

William G. Degenhardt, Ph. D., Texas A&M University
Howard J. Dittmer, Ph. D., State University of Iowa
William C. Martin, Ph. D., Indiana University
Loren D. Potter, Ph. D., University of Minnesota

MAJOR STUDY

Students majoring in Biology learn about the basic organization of the living world. That alone is sufficient for many Arts and Sciences students, who simply wish to be well educated citizens. Others, who seek professional careers in the life sciences, use the major as a foundation for further training.

MAJOR STUDY REQUIREMENTS

Majors in biology seeking a Bachelor of Science degree must satisfy the requirements given in sections A and B. Majors in biology seeking a Bachelor of Arts degree must satisfy the requirements in sections C, D, and E. (Biol 100, 110, 112L, 123L, 136, 139L, and 239L are not allowed for biology major credit.)

A. The B. S. Program requires a minimum of 37 credit hours earned in biology courses. These courses must include: 121L-122L, 221; at least one of following: 260L, 350L, 371L, 386L; and at least one of the following 429, 430, 435L, 460L, 478L. The remainder of the total required credit hours are to be earned in elective biology courses.
B. Required Supportive Courses for the B. S. : Math 180-181 or 162-163; Physics 151-152 (or 160-161); Chem 121L-122L (or 131L-132L) and 301-303L (or 212). (For those interested in microbiology, molecular/cellular biology physiology, or medicine, Chem 301-303L and 302-304L are recommended.)
C. The B. A. Program requires a minimum of 32 credit hours earned in biology courses. These courses must include: 121L-122L, and 221. The remainder of the total required credit hours are to be earned in elective biology courses. (Biol. 100, 110, 112L, 123L, 136, 139L, and 239L are not allowed for biology major credit.)

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D. Required Supportive Courses for the B. A. : Math 145 and C. S. 150 (or Math 180-181); Physics 102 and either Physics 301 or 433 or either Geol. 101 or 209 (or Physics 151-152); Chem 121L-122L (or 131L-132L) and Chem 301-303L (or 212).
E. The B. A. Program requires a minimum of 6 credit hours to be taken from a list (available from the Biology Department) of restricted elective courses.

Grade of C or better required in all of the above courses.

NOTE: Departmental advisement is required for students who wish to follow a specialized program of courses that focuses on any one of the following six biological areas: botany, evolution/ecology, microbiology, molecular/cellular biology, physiology, and zoology.

MINOR STUDY REQUIREMENTS

Biol 121L-122L, 221, plus 9 additional hours of biology. (Biol 100, 110, 112L, 123L, and 499 are not allowed for biology minor credit.)

Grade of C or better required in biology courses used to meet minor requirements.

MINOR STUDY IN QUATERNARY STUDIES

See p.174

PROFESSIONAL CURRICULA

Lists of suggested electives for students pursuing careers in specific areas of biology may be obtained in the departmental office. Faculty advisors are available for students wishing to pursue various specialities or professional curricula.

CURRICULA PREPARATORY TO HEALTH SCIENCES

See *School of Medicine*.

BIOLOGY (BIOL)

110. Biology Non-Majors. (3) Altenbach
Biological principles important for the non-biologist in today's world. Ecological, evolutionary, and molecular topics. 3 lectures. (Credit not allowed for both 110 and either 121L-122L or 123L.) {Fall, Spring}

112L. Biology Laboratory for Non-Majors. (1) S. Ligon
An optional laboratory which may be taken concurrently with or subsequent to 110. One 3-hours lab per week including plant and animal diversity, techniques, and investigation of current issues. {Fall, Spring}

121L. Principles of Biology. (4) Loker, Milne, Natvig
Impact biology, biological chemistry, molecular genetics, Mendelian inheritance, embryology. Emphasis on development 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) Findley, Molles, Snell, 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. (4) Johnson
Principles of cell biology, genetics, and organismic 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) Loker
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 lectures. (Credit not allowed for both 136 and either 237 or 238.) {Fall, Spring}

139L. Human Anatomy and Physiology Laboratory for Non-Majors. (1)
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}

200L. Principles of Ecology. (4) Marshall, Milne
Structure and functioning of ecological communities. The role of humans in the earth's ecosystems.
Prerequisites: 121L-122L. 3 lectures, 3 hrs. lab or field exercise. {Fall}

210. Natural History of Plants. (3) Marshall
An introduction to the function, ecology, and economic uses of plants. {Alternate springs}

221. Introductory Genetics. (3 Johnson, Rice
Structure, function, and transmission of hereditary factors. May be taken with or independently of 223L.
Prerequisites: 121L, 122L. {Fall, Spring}

222. Introductory Genetics Problems. (1) Johnson, Rice
Problem solving techniques in genetic analysis. Coverage is correlated with topics in 221.
Corequisite: 221. {Fall, Spring}

223L. Introductory Genetics Laboratory. (1) Johnson
Genetic principles using the fruit fly and lower organisms.
Pre- or corequisite: 221. 3 hrs. lab. {Fall, Spring}

224L. Southwestern Natural History. (4) Findley
Natural history and identification of Southwestern plants and animals, biological landscape of the Southwest. 3 lectures, 3 hrs. lab or field trip. One or more overnight field trips required. {Fall}

237. Human Anatomy and Physiology I. (3) Bourne
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 lectures. {Fall, Spring}

238. Human Anatomy and Physiology II. (3) Bourne
Continuation of 237. Cardiovascular, respiratory, digestive, excretory, reproductive, and endocrine systems. 3 lectures. {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)
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)
Continuation of Biol 247L. Topics integrated with 238.
Pre- or corequisite: 238. 3 hrs. lab. {Fall, Spring}

249L. Human Anatomy Laboratory. (1)
Accelerated human anatomy course using cadavers for students who have completed eight hours of anatomy and physiology with labs but lack cadaver study.
Prerequisites: 8 hours of anatomy and physiology with labs and permission of instructor. 3 hrs. lab. {Spring}

260L. Introductory Botany. (4) Wisdom
Overview of plant anatomy, physiology, classification, evolution and ecology. Covers both higher and lower plants.
Prerequisites: 121L-122L or permission of instructor. 2 lectures, 4 hrs. lab. {Fall, 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-122L or permission of instructor. 1 lecture, 5 hrs. lab. {Fall}

300. Evolution. (3) Taylor
Basic principles, history, and contemporary issues of evolution.
Prerequisite: 221. 3 lectures. {Spring}

****350L. General Microbiology. (4)** Barton
Anatomy, physiology, and ecology of microorganisms. Principles of bacterial techniques, host-parasite relationships, and infection and immunity.
Prerequisites: 121L-122L, Chem 301. 3 lectures, 3 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) Lowrey
Identification, classification, and nomenclature of vascular plants. Field trips.
Prerequisites: 121L-122L or permission of instructor. 3 lectures, 3 hrs. lab. {Fall, Spring}

371L. Invertebrate Biology. (5) Crawford, Duszynski
Survey of the major invertebrate groups with emphasis on evolutionary and ecological relationships, and the correlation of structure with function.
Prerequisites: 121L-122L. 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-122L or permission of instructor. 2 lectures. {Fall}

379. Conservation Biology. [Biological Conservation] **(3)** Ligon, Snell
Importance of biological diversity from ecological, aesthetic, economic, and political viewpoints. Extinction as a past, present, and future process, and the roles of genetics, levels of biological organization, reserves, and laws in the protection and recovery of endangered organisms.
Prerequisite: 121L-122L or permission of instructor. {Offered on demand}

382L. Introductory Parasitology. (4) Duszynski, Loker
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-122L; recommended 371L. 2 lectures, 4 hrs. lab. {Spring}

386L. General Vertebrate Zoology. (4) Findley, Ligon
Ecology, behavior, sociology, adaptations, and evolution of the vertebrates.
Prerequisites: 121L-122L. 3 lectures, 3 hrs. lab. {Fall}

400. Senior Honors Thesis. (1-3)
Original theoretical and/or experimental work under supervision. Work for the thesis is carried on throughout the senior year. A maximum of 4 hours credited towards a biology major.

***401L. Biometrics. (4)** Milne, Rice
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)
Maximum of 4 hours credited towards the biology major and 2 hours towards the biology minor.
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.
Prerequisites: 121L-122L. {Spring}

***404L. Marine Invertebrate Laboratory.** [Marine and Desert Invertebrate Laboratory] **(2)** Duszynski
Major intertidal marine invertebrates of the northern Gulf of California. A one-week field trip to the Gulf and field trip fee is required.
Pre- or corequisite: 371L. {Fall}

***405. Scientific Communication.** [Scientific Publication] **(3)** Brown, Kodric-Brown
Organization, writing, illustrating, and submitting scientific papers and grant proposals; oral and poster presentation of research; workshop format.
Prerequisites: 16 hrs. of biology or permission of instructor. {Fall}

***406. Insect Ecology. (3)** Taylor
Physiology and behavior of insects as adaptations to their environments.
Prerequisites: 121L-122L and 414L or permission of instructor. {Spring}

407L. Bosque Biology. (3) Crawford, Molles
Long-term study of Rio Grande riparian woodland; hands-on field ecology emphasizing different biotic features and interactions each semester. 4 hrs. field/lab/discussion weekly.
Prerequisites: 121L, 122L, or permission of instructor. {Summer, Fall, Spring}

***412. Developmental Biology. (3)** Trujillo
Molecular biology of animal development emphasizing regulatory mechanisms. Concurrent enrollment in 413L recommended.
Prerequisites: 221 and Chem 212 or 301 or permission of instructor. 3 lectures. {Fall}

***413L. Developmental Biology Laboratory. (2)** Bourne
Developmental anatomy of the vertebrates is stressed. Concurrent enrollment in 412 recommended.
Prerequisite: 221 or permission of instructor. 4 hrs. lab. {Fall}

***414L. Insect Biology. (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}

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***418. Population Genetics. (3)** Rice
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 and calculus. {Fall}

***419. Biological Adaptation. (3)**
Adaptations of plants and animals to light.
Prerequisites: 121L-122L and junior status.

***420. Biological Adaptation. (3)**
Adaptations of plants and animals to temperature and water.
Prerequisites: 121L-122L and junior status.

***421L. Comparative Vertebrate Anatomy. (4)** Altenbach
Prerequisites: 121L-122L and 386L or permission of instructor. 2 lectures, 6 hrs. lab. {Spring}

***423. Introductory Biochemistry. (3)**
(Also offered as Chem, Biochm and Med Sc 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 plasmids and bacteriophage including recombinant DNA techniques.
Pre- or corequisite: 425. 3 hrs. lab.

***427. Advanced Genetics. (3).** 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)** . Johnson
Genetic principles applied to man.
Prerequisite: 221. {Fall}

***429. Cell Biology I. (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. {Fall, Spring}

***430. Vertebrate Physiology. (4)** Riedesel
Functions and structures with emphasis on fundamental physiological processes and mechanisms at cell and system levels.
Prerequisite: 14 hrs. of biology, Chem 212 or 301-303L. {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 corequisite: 430. 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.
Prerequisites: 121L-122L and permission of instructor. 3 lectures, 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 or permission of instructor. 1 lecture , 5 hrs. lab. {Fall}

***440L. The Soil Ecosystem. (4)** Johnson
Interrelationship between the abiotic and biotic factors in soils; influence of soils on above-ground biota.
Prerequisite: 121L-122L, Chem 121L-122L or 131L-132L. {Fall}

***443L. Comparative Physiology. (4)** Toolson ,
Comparative treatment of physiological processes in animals, with emphasis on osmoregulation, metabolism, circulation, and thermobiology.
Prerequisite: permission of instructor. 3 lectures, 3 hrs. lab. {Offered on demand}

446. Laboratory Methods in Molecular Biology. (4) Natvig.
Principles of DNA and RNA purification, enzymatic manipulation of nucleic acids, molecular cloning, gel electrophoresis, kybridization procedures, and nucleotide sequencing.
Prerequisite: Permission of instructor. 2 hrs. lecture, 5 hrs. lab. {Spring 1989 and alternate years}

***449. Cell Biology II. (3)** Kerkof
(Also offered as Biol 549.) Continuation of Cell Biology I (429). Advanced treatment of the cellular and molecular basis of the life process.
Prerequisite: 429. {Spring}

***450. General Virology. (3)** Baca
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.
Prerequisites: Chem 423 or Biol 350 or 429 or 351. {Fall}

***451. Microbial Ecology. (3)** Dahm
Role of microorganisms in terrestrial and aquatic ecosystems. Emphasis on biogeochemistry and nutrient cycling.
Prerequisites: Chem 423 or 212. 3 lectures. {Fall}

***452. Vertebrate Endrocrinology. (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. (Laboratory (2 credit hours) not required.) {Spring}

***455. Ethology: Animal Behavior. (3)** Ligon
A survey of behavior patterns in animals, with emphasis on adaptive significance.
Prerequisites: 121L-122L. {Spring}

***456. Immunology. (3)** Vogel
Immunoglobulin structure, anitigen-antibody reactions, immunity and hypersensitivity; experimental approach will be emphasized.
Prerequisites: 239L or 350L, Chem 302-304L; recommended: 429 and Chem-Med Sc 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)**
Laboratory preparation, detection, and measurement of anitibodies.
Pre- or corequisite: 456. 4 hrs. lab. {Offered upon demand}

Physiological and biochemical activities of bacteria and fungi with emphasis on cell energetics.
Prerequisite: 350L. 3 lectures, 3 hrs. lab. {Spring}

461F. Tropical Biology. (3) Findley, Scott
Terrestrial and marine tropical environments, communities, and organisms; ecology, structure, function, distribution, evolution, and history.
Prerequisites: 121L-122L. {Alternate years}

***465. Sociobiology and Evolutionary Ecology. (3)** Thornhill
Evolutionary and social biology; speciation, adaptation, population ecology.
Prerequisites: 121L-122L. {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) Marshall
Evolutionary approach to the study of plants and plant populations. Will cover plant life history strategies, plant population biology, and plant reproduction with an emphasis on empirical studies.
Prerequisites: 121L, 122L and 200L.

***468. Plant Reproductive Ecology. (3)** Marshall
Resource allocation, breeding systems, modes of reproduction and pollination biology. Includes lectures, discussions and laboratory methods.
Prerequisites: 200L, 260L or permission of instructor. {Alternate years}

***469. Plant Herbivore Interactions. (3)**
Wisdom studies of plants and the organisms that eat them, emphasizing coevolution, plant and herbivore biology, plant defenses, herbivore strategies and multi-trophic level interactions. Common research methodologies will be demonstrated in class.
Prerequisites: 200L (Either 260L, 371L, or 386L) or permission of instructor. {Spring, alternate years}

***470L. Stream Ecology. (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.
Prerequisites: 121L-122L. 3 lectures, 3 hrs. lab. {Fall}

***471. Plant Physiological Ecology (3)** Wisdom
Interaction of plants with their environment, covering plant water relations, carbon gain and utilization and soil mineral nutrition. Common research methodologies will be demonstrated in class.
Prerequisites: 200L, 260L or permission of instructor {Spring, alternate years}

***474L. Plant Anatomy. (4)** Lowrey
Structure of vascular plants; cellular, tissue, and organ systems, their function and evolutionary relationships.
Prerequisites: 121L-122L or permission of instructor. 260L recommended. 2 lectures, 4 hrs. lab. {Spring}

***478L. Plant Physiology. (4)** Johnson
Nutrition, metabolism, and growth of higher plants.
Prerequisite: 260L or permission of instructor; Chem 301-303L recommended. 3 lectures, 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. Water Pollution. (3)** Kidd
Application of ecosystem and community diversity concepts to water pollution problems.
Prerequisite: permission of instructor. {Offered upon demand}

***485L. Water Pollution Laboratory. (1)** Kidd
Techniques of monitoring aquatic habitats are stressed.
Pre- or corequisites: 484, permission of instructor. {Offered upon demand}

***486L. Ornithology. (4)** Ligon
Classification phylogeny, natural history, and literature of birds. 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.
Prerequisites: 121L-122L. 3 lectures, 3 hrs. lab. {Fall}

***488L. Herpetology. (4)** Snell
Classification, phylogeny, natural history, and literature of reptiles and amphibians. All-day field trips and one or more overnight field trips required.
Prerequisite: 386L or permission of instructor. 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 or permission of instructor. 3 lectures, 3 hrs. lab. {Alternate Falls}

***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: 386L or permission of instructor. {Alternate Springs}

***491L. Radiobiology. (4)** Johnson
Properties of radiation; principles, theory, and use of detection and counting instruments; radioisotopes as tracers in biological experiments.
Prerequisites: 221, 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 corequisites: Physcs 152-154L; 1 year of organic chemistry recommended. {Spring}

***493L. Advanced Radiobiology Laboratory. (1-3)** Johnson
Advanced radioisotope methodology, independent research in radiobiology.
Corequisites: 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: 121L-122L. {Spring}

***495. Limnology. (3)** Dahm
Biological, physical, and chemical interactions in fresh water ecosystems.
Prerequisites: 121L-122L, 1 year of physics or chemistry. 3 lectures. {Spring}

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***496L. Limnology Laboratory. (1)** Dahm
Techniques for studying the biology, chemistry, and physics of aquatic ecosystems.
Pre- or corequisite: 495 or permission of instructor. {Spring}

***498. History and Philosophy of Biology. (3)** Findley
Development of major ideas in biology and their bearing on contemporary attitudes and policy.
Prerequisites: Biol. 121L-122L, upper division or graduate status {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)

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}

507L. Bosque Biology. (3) Crawford, Molles
4 hrs. field/lab/discussion weekly.
Prerequisites: 121L, 122L, graduate status. {Summer, Fall, Spring}

510. Genetics of Speciation. (3)
Prerequisite: 221. {Spring}

***511. Community Ecology (3)** Brown

512. Population Biology. (4) Taylor, Yates.
Prerequisites: 121L-122L, graduate status. 3 lectures, 2 hrs. lab/discussion. {Fall}

513. Physiological and Behavioral Ecology. (5) Snell, Toolson
Prerequisites: 121L-122L, graduate status; corequisite 512. 3 lectures, 4 hrs. lab/discussion. {Fall}

514. Ecosystem Studies. (4) Dahm, Gosz
Prerequisites: 121L-122L, graduate status, 512, 513. 3 lectures, 2 hrs. lab/discussion. {Spring}

515F. Research in Field Biology. (3) Brown, Kodric-Brown, Molles
Prerequisites: Graduate status or permission of instructor. 3 hrs. lecture/discussion. {Spring}

519. Comparative Vertebrate Physiology. (3) S. Wood
(Also offered as Med Sc 619.)
Prerequisites: biochemistry, physiology, or permission of instructor. {Spring}

520. Energy and Metabolism. (3) Trujillo
Prerequisite: Biol 429 or Chem 423. {Spring}

521L. Advanced Behavioral Ecology. (3) Kodric-Brown, Thornhill.
Prerequisites: Graduate standing or permission of instructor. {Fall}

***522. Modecular Biology and Evolution. (3)** Natvig, Rice.
Prerequisite: permission of instructor. 3 lectures {Spring 1990 and alternate years}

545. A Cellular Approach to the Biology of Aging. (3) Vogel
Prerequisites: 429, at least one of 425, 456, 483, or permission of instructor. 3 lectures. {Spring 1986}

***546. Laboratory Methods in Molecular Biology. (4)** Natvig.
Prerequisite: Permission of instructor. 2 hrs. lecture, 5 hrs. lab. {Spring 1989 and alternate years}

547. Transmission Electron Microscopy. (4) Stricker
Prerequisites: 429, graduate status. 2 lectures, 4 hrs. lab.

548. Scanning Electron Microscopy. (3) Stricker
Prerequisites: 429, 547, graduate status. 1 lecture, 4 hrs. lab.

549. Cell Biology II. (3) Kerkof
(Also offered as Biol 449.)
Prerequisite: 429. {Spring}

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)Δ Taylor
Prerequisites: 512 and Math 163 or equivalent. 3 lectures. {Alternate Springs}

559. Ecology of Natural Communities. (4)
Prerequisites: 513 and permission of instructor. Field trips required. 3 lectures, 4 hrs. lab. {Alternate Springs}

561F. Tropical Biology. (3) Findley, Scott
Also offered as 461F for undergraduate credit. {Alternate years}

563L. Advanced Plant Taxonomy. (4)
Prerequisites: graduate status and permission of instructor. 2 lectures, 6 hrs. lab. {Spring}

567. Evolutionary Plant Ecology. (3) Marshall
Prerequisties: 121L, and 122L, and 200L.

568. Plant Reproductive Ecology. (3) Marshall
Also offered as 468 for undergraduate credit.
Prerequisites: 200L, 260L or permission of the instructor. {Alternate years}

569. Plant Herbivore Interactions. (3) Wisdom
Also offered as 469 for undergraduate credit.
Prerequisites: 200L, (either 260L, 371L or 386L) or permission of instructor. {Spring, alternate years}

571. [571L] Physiological Plant Ecology. (3) Wisdom
(Also offered as 471 for undergrate credit.)
Prerequisite: 200L, 260L or permission of instructor. {Spring, alternate years}

573L. Plant Ecology of North American Forests and Tundra. (4) Milne
Prerequisites: 260L and 363L or permission of instructor. 3 lectures, 3 hrs. lab. {Fall}

574L. Plant Ecology of North American Deserts and Grasslands. (4) Milne
Prerequisites: 260L and 363L or permission of instructor. 3 lectures, 3 hrs. lab. {Spring}

581. Advanced Cell and Molecular Biology. (4)
(Also offered as Med Sc 571-572.) {Fall}

582. Advanced Cell and Molecular Biology. (4)
(Also offered as Med Sc 571-572.) {Spring}

593. Plant Mineral Metabolism. (2) Johnson
Prerequisite: 476L. 2 lectures. {Fall}

594L. Plant Mineral and Water Relations Laboratory. (2)
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}

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

644. Mechanism of Gene Expression. (3)
(Also offered as Med Sc 644.)
Prerequisites: 425 or Med Sc 634 and Biochm 445. {Spring 1986 and alternate years}

651F. Advanced Field Biology. (4-8)
Approval of Committee on Studies required.

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

CHEMISTRY

Richard W. Holder, Chairperson
Clark Hall 103, 277-6655

PROFESSORS:

Fritz S. Allen, Ph. D., University of Illinois
Roy D. Caton, Ph. D., Oregon State University
Ulrich Hollstein, Ph. D., University of Amsterdam
Thomas M. Niemczyk, Ph. D., Michigan State University
Robert T. Paine, Jr., Ph. D., University of Michigan
E. Paul Papadopoulos, Ph. D., University of Kansas
Su-Moon Park, Ph. D., Michigan State University
Riley Schaeffer, Ph. D., University of Chicago
David L. Vander Jagt, Ph. D., Purdue University
Edward A. Walters, Ph. D., University of Minnesota

ASSOCIATE PROFESSORS:

Carlos J. Bustamante, Ph. D., University of California (Berkeley)
Richard W. Holder, Ph. D., Yale University
William M. Litchman, Ph. D., University of Utah
Donald R. McLaughlin, Ph. D., University of Utah
Cary J. Morrow, Ph. D., Tulane University
Mark Roy Ondrias, Ph. D., Michigan State University
James Satterlee, Ph. D., University of California (Davis)

ASSISTANT PROFESSORS:

Thomas Bein, Ph. D., University of Hamburg
Mark J. Hampden-Smith, Ph. D., University of London
Peter R. Ogilby, Ph. D., University of California (Los Angeles)
Joseph Vincent Ortiz, Ph. D., University of Florida

INSTRUCTORS:

Lorraine Marie Deck, M. S., University of New Mexico

PROFESSOR EMERITUS:

Milton Kahn, Ph. D., Washington University

The program of the Department of Chemistry conforms to the standard prescribed by the American Chemical Society.

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 biochemistry.

MAJOR STUDY REQUIREMENTS

Five year BS/MS Degree in Chemistry. It is possible to obtain the B. S. and the M. S. degrees in Chemistry in five years. Interested student should contact the Department for details.

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 30 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 30 hours (see approved electives below). Electives must be selected from the following courses: Chem 401L, 423 or 445, 431, 433, 446, 454L, 462, 466, 495-496 (no more than 2 credit hours in 495-496). The B. A. program must also include Physcs 151, 152, 153L, and 154L, or Physcs 160, 161, 163L, 262 and 264L 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.) Those students who previously majored in a field requiring Math 180, 181 or 182, 183 may substitute one of those sequences in lieu of Math 162, 163 with permission of the Department of Chemistry chairperson. If substitution is approved, the student must also take an additional 3 hours of Mathematics in a course approved bythe Department Chairperson.

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 Physcs 160, 161, 163L, 262, 264L, mathematics equivalent to 264 or 311, and 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 31hours (B.A. degree) or 44-47 hours (B.S. degree).

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In lieu of a specific minor a student in the B. S. program may obtain the following distributed minor:

Physics: 160(3), 161(3), 163L(1), 262(3), 264L(1)
Mathematics: 162(4), 163(4), 264(4), plus two courses from 311(3), 314(3) and 316(3)
English: 219(3) Technical Writing
Total Hours -- 32

No distributed minors are allowed for B. A. majors.

The Department of Chemistry assigns prospective chemistry majors to faculty advisors 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. Natural science 100 is also offered in the University College and the Department of Biology. {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: completion of Math 121 or 150 with a grade of C or better; or a math placement score which qualifies the student for Math 162 or 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. (4)
Chemical and physical behavior of matter, atomic and molecular structure, and chemical periodicity. Introduction to quantitative laboratory techniques and chemical instrumentation. Strongly recommended for students intending to major in chemistry.
Prerequisite: 1 year of high school chemistry within the last 3 *years or permission of instructor. Pre- or corequisite:* Math 162. 3 lectures, 3 hrs. lab. **(Credit not allowed for both 121L and 131L.)** {Fall}

132L. Principles of 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)
Provides either lecture or laboratory credit for transfer students needing only the lecture or laboratory for Chem 121L or 131L. 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)
Provides either lecture or laboratory credit for transfer students needing only the lecture or laboratory for Chem 122L or 132L. 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. **Offered on a CR/NC basis only.**

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. (3)**
Chemical and physical behavior of the compounds of carbon. A quantitative approach to mechanistic principles is emphasized. 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. (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, Physcs 151, or 161; corequisite: Physcs 152 or 262 and Math 264. {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. Special Topics for Undergraduates. (1-3)Δ**
Possible topics are: chemical literature, environmental chemistry, photochemistry, stereochemistry, macromolecules, ∂ΣC-NMR, natural products.
Prerequisite: permission of instructor. {Fall upon demand}

****326. Special Topics for Undergraduates. (1-3)Δ**
Possible topics are: chemical literature, environmental chemistry, photochemistry, stereochemistry, macromolecules, ∂ΣC-NMR, natural products.
Prerequisite: permission of instructor. {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. Readings in Selected Topics. (1-3)Δ**
Advanced topics not covered in general offerings.
Prerequisite: prior arrangement with instructor and permission of the department chairperson. {Fall upon demand}

****392. Readings in Selected Topics. (1-3)Δ**
Advanced topics not covered in general offerings.
Prerequisite: prior arrangement with instructor and permission of the department chairperson. {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} **Offered on a CR/NC basis only.**

***423. Introductory Biochemistry. (3)**
(Also offered as Med Sc, Biochm, 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}

***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}

***445. Intensive Introductory Biochemistry I. (4)**
(Also offered as Biochm, Med Sc 445.) An introduction into the physical and chemical properties of proteins and enzymes, enzymic catalysis, intermediary metabolism and hormonal control of anabolic and catabolic pathways.
Prerequisite: 302 or 308; corequisite: 311 or 315. {Fall}

***446. Intensive Introductory Biochemistry II. (4)**
(Also offered as Biochm, Med Sc 446.) An introduction into the structure, synthesis and processing of nucleic acids and proteins, structure and control of genetic material.
Prerequisite: 445. {Spring}

***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}

***462. Environmental Biochemistry. (3)**
(Also offered as Med Sc, Biochm 462.) 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, and radiation biology.
Prerequisite: 423 or Biol 429. {Spring}

***466. Computers in Chemistry. (2)**
Introduction to the Fortran IV computer language with application to problems of chemical interest. {Spring}

495. Undergraduate Problems. (1-3)
Prerequisite: permission of instructor. {495--Summer, Fall; 496--Spring} **Offered on a CR/NC basis only.**

496. Undergraduate Problems. (1-3)
Prerequisite: permission of instructor. {495--Summer, Fall; 496--Spring} **Offered on a CR/NC basis only.**

497. Senior Honors Research. (1-3)
Senior paper based on independent research.
Prerequisite: permission of instructor. {Summer, Fall} **Offered on a CR/NC basis only.**

498. Senior Honors Research. (1-3)
Senior paper based on independent research.
Prerequisite: permission of instructor. {Spring} **Offered on a CR/NC basis only.**

Symbols - See page 379

***499. Chemistry Seminar - Research. (1)**
Offered on a CR/NC basis only.

501. Molecular Structure 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. Topics in Organic Chemistry. (1-3)Δ
{Fall upon demand}

516. Topics in Organic Chemistry. (1-3)Δ
{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. Topics in Inorganic Chemistry. (1-3)Δ
Prerequisite: permission of instructor. {Fall upon demand}

538. Topics in Inorganic Chemistry. (1-3)Δ
Prerequisite: permission of instructor. {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. Topics in Analytical Chemistry. (1-3)Δ
{Fall upon demand}

546. Topics in Analytical Chemistry. (1-3)Δ
{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 upo demand}

567-568. Topics in Physical Chemistry. (1-3, 1-3 hrs.)Δ
Prerequisite: permission of instructor. {567--Fall upon demand; 568--Spring upon demand}

587. Advanced Topics in Biological Chemistry. (1-3)Δ
(Also offered as Med Sc 463-464, 523-524.)
Prerequisite: 423 and sometimes 445 or 446, 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 Sc 623.)
Prerequisites: 302 or 308, 423 or 446, or Med Sc 590-591. {Fall upoN demand}

625. Chemistry Seminar. (1)
{Fall, Spring}

650. Research/Readings. (2-12)
{Summer, Fall, Spring}

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

COMMUNICATION

Kenneth D. Frandsen, Chairperson
1801 Roma NE #132, 277-5305

PROFESSORS:

Jean M. Civikly, Ph. D., Florida State University
John C. Condon, Ph. D., Northwestern University
Kenneth D. Frandsen, Ph. D., Ohio University
Richard L. Hopkins, Ed. D., Boston University
Richard J. Jensen, Ph. D., Indiana University

ASSOCIATE PROFESSORS:

Janice E. Schuetz, Ph. D., University of Colorado
W. Gill Woodall, Ph. D., University of Florida
Estelle M. Zannes, Ph. D., Case Western Reserve University

ASSISTANT PROFESSORS:

Robert A. Barraclough, Ed. D., West Virginia University
Thomas E. Jewell, J. D., Brigham Young University
Diane L. Lamude, Ph. D., University of Utah
Kevin G. Lamude, Ph. D., University of Utah

ADJUNCT ASSISTANT PROFESSOR:

Donald M. Boehnker, Ed. D., Indiana University

ADJUNCT LECTURER II:

Timothy J. Singleton, M. S., Indiana University

MAJOR STUDY REQUIREMENTS

36 credits in departmental courses, including 101; 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 Communication for advice on specific course patterns and information concerning requirements for completion of major.

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 mass 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 mass communication.

The University offers a multidisciplinary program of studies in mass communication. Course offerings in Communication coordinate with offerings in the Departments of Journalism, Theatre Arts and other departments.

MINOR STUDY REQUIREMENTS

18 credits in departmental courses, including 101; 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.

COMMUNICATION (COMM)

101. Introduction to Communication. [Introduction to Speech Communication] **(3)**
Principles and concepts of various types of human communication, including interpersonal, small group, organizational, public and mass communication. A lecture/discussion course. *{Fall, Spring}*

110. Mass Media and Society. (3)
(Also offered as Journ, T A 110.) The development of the mass media with emphasis on television in the areas of programming, policy, regulations, economics, and technology. Examination of the social, cultural, and political impact of the mass media on contemporary society. {Fall, Spring}

111. Technical Introduction to Television. (3)
(Also offered as Journ, T A 111.) 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. Course fee required. Prerequisite or corequisite: T A/Comm/Journ 110.

130L. Public Speaking. (3)
Analysis, preparation, and presentation of speeches. A performance course. 1 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 of a variety of interpersonal communication concepts with special emphasis on the application of communication skills in different situations. {Summer, Fall, Spring}

225. Small Group Communication. (3)
Basic characteristics and patterns of communication in small groups. Includes attention to role theory, conflict resolution, and creative decision-making methods. {Fall, Spring}

232. Business and Professional Speaking. (3)
Analysis, preparation, and presentation of speeches common in business and professional settings.
Prerequisite: 130 or permission of instructor.

240. Communication in Organizations. (3)
Examines current theories of organizational behavior with emphasis on communication patterns and practices. Attention to superior-subordinate communication, formal and informal communication networks, authority and power.

252. Introduction to Linguistic Analysis. (3)
(See Ling 292L.)

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.

268. Introduction to Mass Communication Effects. (3)
Survey of the uses and effects of mass communication in society with emphasis on selected *audience groups including women,* children, elderly, and minorities.

270. Communication for Teachers. (3)
Concepts and practices of interpersonal, small group and public communication pertinent to classroom teachers at the elementary, middle, and secondary levels of education.

275. Forensics. (1 per semester, to a maximum of 4)
Participation in intercollegiate debate or individual speaking events, campus and community activities.
Prerequisite: permission of instructor. {Fall, Spring}

293. Topics. (1-3)

303. English Phonetics. (3)
(Also offered as Com Ds, Ling 303.) An introduction to the physiological mechanisms underlying speech production, the linguistic classification and transcription of speech sounds, the acoustic *properties of speech sounds, the relationship between phonetics* and phonology, and applications to speech pathology. {Fall, Spring}

321. Interpersonal Communication Analysis. (3)
Advanced analysis of theories and research in interpersonal communication with emphasis on communication processes, relational development, and conflict resolution.

323. Nonverbal Communication. (3)
Theory, analysis, and practice of a variety of nonverbal messages, including body movement and appearance, vocal cues, and environmental cues.

Symbols - See page 379

325. Intercultural Communication. (3)
Examines cultural influences in interpersonal communication across ethnic and national boundaries.

327. Persuasive Communication. (3)
Analysis, practice and evaluation of principles of attitude change for a variety of interpersonal and public communicaton situations.

328. 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, 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.

344. Interviewing. (3)
Theory and practice of dyadic communication in informational, employment, and decision-making situations.

348. Organizational Communication Analysis. (3)
Perspectives, methods, and designs for analysis of communication in complex organizations, including survey and questionnaire development, interview schedules, account analysis, and attention to practical applications of findings.

350. Language, Thought and Behavior. (3)
Examines influence of language habits on perception evaluations, creativity, 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. 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.

364. Broadcast and Cable Programming. (3)
Emphasis on evaluation, selection and scheduling of programming given targeting considerations. Case studies with local media industries.
Prerequisite: 110 or permission of instructor.

366. Broadcast and Cable Promotion. (3)
Survey and development of a complete promotion campaign for local broad- or cablecaster. Topics include client and audience research, targeting, positioning, budgeting, media buying, and creative execution.
Prerequisite: 110 or permission of instructor.

368. Broadcast Criticism. (3)
Evaluation of radio/television programming content from the perspective of the journalistic and academic critic. Examination of theoretical issues and production elements as they affect programming genres.

375. Advanced Forensics. (1 per semester, to a maximum of 4)
Intensified study and participation in intercollegiate debate and individual speaking events.
Prerequisite: permission of instructor. {Fall, Spring}

***423. Advanced Nonverbal Communication. (3)**
Analysis and evaluation of theories and research on nonverbal communication.
Prerequisite: 323.

***425. Theories of Small Group Communication. (3)**
(Also offered as Ed Fdn 420.) Major concepts, theories, and research in small group communication. Attention to decision-making, group formation and development, and communication processes and networks. Consideration of applications in a variety of contexts.

***428. Mass Communication Research. (3)**
Basic concepts, principles and methods for conducting marketing research and assessing the social effects of mass communication, with instruction in computer applications.

***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.

***434. Freedom of Speech. (3)**
A survey of the evolution of Freedom of Speech in the United States. Emphasis on major interpretations, court decisions, and theories concerning Freedom of Speech.

***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. Organizational Communication: Diagnosis and Intervention. (3)**
Identification and analysis of communication problems in organizations. Development and preparation of appropriate intervention strategies.

***449. Organizational Communication: Training and Development. (3)**
Perspectives and techniques for assessing needs and improving communication patterns in organizations. Attention to problems and requirements of communication training and development in organizational settings.

***452. The Middle Ages. (3)**
(See Engl 451.)

***463. Current Developments in Mass Communication. (3 per semester, to a maximum of 6)Δ**
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. Instructional Television Production. (3)**
Emphasis on scripting of video materials and analysis of the values and uses of video materials in educational, business,

industry, and community settings.
Prerequisite: 111 or permission of instructor.

***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)

***469. Public Relations Campaigns. (3)**
Concepts and principles of public relations techniques and application of those techniques in campaigns. Attention to history, evolution, and present structure of public relations.
Prerequisite: permission of instructor.

***470. Communication in the Secondary Schools.** [Speech Communication in the Secondary Schools] **(3)**
Communication skills pertinent to teaching high school students and development of course content, instructional objectives, and teaching materials for instruction in communication.

***471. Current Developments in Communication Education.** [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 communication principles and practices in mass media, instructional, and organizational settings. **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. (3)
Required of all graduate students. (Fall)

501. Foundations of Communication Research. (3)
(Spring)

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. Seminar: Organizational Communication Analysis. (3)

550. Seminar: Language Behavior. (3)

551-552. Graduate Problems. (1-3 hrs. per semester, to a maximum of 6)

555. Seminar: Educational Linguistics. (1-3)
(See Ling 555.)

561. Seminar: Mass Communication Processes and Effects. (3)

564. Seminar: Mass Communication Policy and Regulation. (3)

570. Seminar: Instructional Communication. (3)

573. Teaching the Basic Course. (1)

595. Special Topics in Communication. (3 per semester, to a maximum of 6)
Content varies, may be repeated with different content.

598. Master's Project. (1-6, to a maximum of 6)
See the Graduate Programs Bulletin for total credit requirements.
Prerequisite: permission of department chairperson.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.
Prerequisite: permission of department chairperson.

COMMUNICATIVE DISORDERS

Richard B. Hood, Chairperson
901 Vassar, N. E., 277-4453

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
Linda L. Riensche, Ph. D., Memphis State University

ASSISTANT PROFESSOR:

Edward A. Shirkey, Ph. D., Memphis State University

ADJUNCT ASSISTANT PROFESSOR:

Carol Westby, Ph. D., University of Iowa

CLINICAL FACULTY:

ASSISTANT PROFESSOR:

Mary L. Bolton-Koppenhaver, M. S., University of Kansas

INSTRUCTORS:

Priscilla Garcia, M. S., University of Utah
Jan S. Lewis, M. A., University of Kansas
Janet Patterson, M. S. University of New Mexico
Judy K. Williams, M. A., Northwestern University

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MAJOR STUDY

The Department of Communicative Disorders endorses the training program recommendations of the American Speech-Language-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.

MAJOR STUDY REQUIREMENTS

Thirty-six (36) hours. The following 21 are required: Com Ds 302, 303, 320, 321, 350, 360, 430. The other 15 may be chosen from the following: Com Ds 330, 358, 422, 425, 450, 451, 460, 493, 494, 500;

Linguistics 292L or 440, 317, 318, 351, 367; Sign 201, 210, 212, 214.

MINOR STUDY

Eighteen (18) hours. The following 6 are required: Com Ds 302 and 303. The other 12 may be chosen from the following: Com Ds 320, 321, 350, 360, 422, 425, 430; Linguistics 292L or 440; Sign 201 or 202.

DUAL MAJOR IN LINGUISTICS AND COMMUNICATIVE DISORDERS

Twenty-seven (27) hours in both Linguistics and Communicative Disorders. Consult either chairperson for specific requirements.

COMMUNICATIVE DISORDERS (COM DS)

NOTE: For sign language courses, see p. 176.

220. Workshop in Communicative Disorders. (1-3 hrs., to a maximum of 6)
An introduction to the identification and management of communicative disorders for classroom aides and teachers. Content to be varied according to demand.
No prerequisite. {Offered upon demand}

***302. Introduction to Communicative Disorders. (3)** Hood, Shirkey
(Also offered as Spc Ed 302.) Introduces students to nature of speech, language, and hearing disorders in children and adults, and acquaints students with professions of speech-language pathology and audiology. {Fall, Spring}

***303. Phonetics. (3)** Hudson-Edwards, Riensche
(Also offered as Comm and Ling 303.) An introduction to the physiological mechanisms underlying speech production, the linguistic classification and transcription of speech sounds, the acoustic properties of speech sounds, the relationship between phonetics and phonology, and applications to speech pathology. {Fall, Spring}

***320. Acoustics and Perception of Speech. (3)** Riensche
Principles and processes of sound generation, transmission, reception, and perception in human communication. {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}

***330. Speech Pathology in the Schools. (3)**
An introduction to types of speech and hearing problems found in the schools. {Offered upon demand}

***350. Anatomy and Physiology of Speech and Hearing. (3)** Riensche
Structure and function of the speech and hearing mechanisms as they relate to normal and disordered communication. {Fall}

358. Preclinical Training. (3) Bolton-Koppenhaver, Lewis
Introduction to basic clinical skills prerequisite for clinical practicum.
Prerequisites: 302, 303, and permission of instructor. {Fall, Spring}

***360. Speech Disorders. (3)** Shirkey
Introduces students to the nature of normal speech, speech sound disorders, and fluency disorders. Emphasis will be on the nature of stuttering and children's speech sound disorders.
Prerequisites: 302, 303, 360. {Spring}

***420. Workshop in Communicative Disorders. (1-3, to a maximum of 6)**
Not accepted toward a communicative disorders major. No prerequisite. {Offered upon demand}

***422. Hearing Conservation. (3)** Lamb
The role of the speech and hearing specialist in hearing conservation programs; screening audiometry; special tests for infants and children; hearing problems in industry.
Prerequisite: 321 or permission of instructor. {Spring}

***425. Aural Rehabilitation. (3)** Hood
Appraisal and management of individuals with impaired hearing.
Prerequisite: 321. {Spring}

***428L. Aural Rehabilitation Laboratory. (1)** Hood
Projects and demonstrations in support of theory presented in 425.
Pre- or corequisite: 425. {Offered upon demand}

***430. Development of Speech and Language. (3)** Butt
Normal developmental sequence of language development and communication behavior from birth to seven years. Specific areas of speech sound production, syntax, semantics, pragmatics, and metalinguistics. Cognitive stages and effects on language of cognitive delays observed in developmentally disabled children.
Prerequisite: 303. {Fall}

***432. Assessment and Intervention in Language. (3)** Butt
Includes selection, administration and interpretation of standardized language tests; emphasis is on pragmatic assessment and application of assessment finding to the treatment plan. {Spring}

***450. Neurology and Neuropathologies of Speech. (4)** Porch
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. Undergraduate Problems. (1-3, to a maximum of 6)
Prerequisite: permission of instructor. {Summer, Fall, Spring}

***460. Speech Sound Disorders of Children. (4)** Shirkey
Assessment and treatment of children's articulation and phonological disorders. Class meets four hours per week and includes one hour of lab in which clinical skills will be taught.
Prerequisite: 360. {Fall}

***493. Reading and Research in Honors. (3)**
{Summer, Fall, Spring}

***494. Senior Thesis.** (3)
{Summer, Fall, Spring}

500. Clinical Practice. (1-3, to a maximum of 15)
Prerequisite: 358 or permission of instructor. {Summer, Fall, Spring}

506. Research and Writing in Communicative Disorders. (3) Riensche
{Summer, Fall}

507. Aphasia and Related Disorders. (3) Porch
Prerequisites: 302, 430, and 450, or permission of instructor. {Spring}

510. Seminar in Multicultural Issues in Communicative Disorders. (1-3, to a maximum of 6) Westby
Prerequisite: permission of instructor. {Summer, Fall, Spring}

515. Auditory Pathologies. (2) Lamb
Prerequisite: 321 or equivalent. {Fall}

520. Hearing Science. (3) Lamb
{Summer}

525. Voice Disorders. (4) Williams
{Fall}

530. Language Disorders in Children. (3) Butt
{Spring}

531. Neuromotor Speech Disorders/Alternative and Augmentative Systems. (3) Butt
Prerequisite: 530 or permission of instructor. {Fall}

533. Language Analysis Lab. (1) Butt
Prerequisite: 430. Recommended: Ling 292L. 1 hr. lecture, 1 hr. lab. {Fall, Spring}

535. Seminar in Cleft Palate. (3) Porch
{Summer}

536. Seminar in Speech and Language Pathology. (1-3, to a maximum of 6) Butt, Westby
{Summer}

537. Clinical Aphasiology. (3) Porch
Prerequisite: 507 or permission of instructor. {Fall}

538. Stuttering. (4) Shirkey
Prerequisite: 360. 3 lectures, 1 hr. lab. {Spring}

539. Seminar: Current Concepts in Speech Pathology and Audiology. (1-3)

551-552. Problems. (1-3)

555. Seminar in Educational Linguistics. (1-3)
(See: Ed Fdn, Ling, M Lang, Comm 555.)

558. Clinical Field Study. (3-6) Bolton-Koppenhaver, Hood

559. Research Field Study. (1-3)

560. Clinical Audiology I. (3) Hood
{Fall}

561. Clinical Audiology II. (3) Lamb
{Spring}

562. Electrophysiologic Measures of Audition. (3) Lamb
Prerequisite: 560. {Spring}

563. Hearing Aids. (3) Hood
{Summer}

565. Seminar in Aural Rehabilitation. (3) Hood
{Fall}

567. Pediatric Audiology. (2) Lamb
Prerequisites: 560, 561, or permission of instructor.
{Fall}

582. Teaching the Communicatively Disordered Child. (3)
(Also offered as Spc Ed 582.)
Prerequisite: 430, 530, must be admitted to graduate study in the department. {Summer, Spring}

599. Master's Thesis. (1-6 hrs. per semester)

COMPARATIVE LITERATURE

Joseph Zavadil, Chairperson
Humanities 317, 277-4511

PROFESSORS:

Robert E. Fleming, Ph. D., University of Illinois (English)
Bruno Hannemann, Ph. D., University of California (Berkeley) (Languages)
David C. McPherson, Ph. D., University of Texas (English)
Peter Pabisch, Ph. D., University of Illinois (Languages)
George F. Peters, Ph. D., Stanford University (Languages)
Alfred Rodriguez, Ph. D., Brown University (Languages)
Claude M. Senninger, Ph. D., University of Paris (Languages)
Warren S. Smith, Ph. D., Yale University (Languages)
Jon M. Tolman, Ph. D., University of New Mexico (Languages)
Julian E. White, Jr., Ph. D., University of North Carolina (Languages)

ASSOCIATE PROFESSORS:

Patrick J. Gallacher, Ph. D., University of Illinois (English)
Natasha Kolchevska, Ph. D., University of California (Berkeley) (Languages)
Antonio Marquez, Ph. D., University of New Mexico (English)
Joseph B. Zavadil, Ph. D., Stanford University (English)

ASSISTANT PROFESSORS:

Byron T. Lindsey, Ph. D., Cornell University (Languages)
Walter Putnam, Ph. D., University of Paris (Languages)

MAJOR STUDY

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 advisor so that their programs may be carefully planned.

MAJOR STUDY REQUIREMENTS

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 satisy this requirment.)

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; Ital 275-276; Latin 201-202; Port 201-202; Russ 201-202; Span 202. Reading proficiency may also be demonstrated by examination through the University Testing Service.

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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 REQUIREMENTS

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 advisor. Proficiency in an appropriate foreign language must be demonstrated, as in the comparative literature minor.

COMPARATIVE LITERATURE (COMP L)

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.

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)Δ
(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. (3)Δ**
(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)Δ**
(Also offered as Russ 340.) Topics will deal with individual authors, genres, or periods.

***341. Greek Mythology. (3)**
(See Greek 341.)

***343. Soviet Literature in Translation. (3)**
(Also offered as Russ 343.) Readings in Russian literature since the revolution: Sholokhov, Mayakovsky, Babel, Pasternak, Solzhenitsyn.

***344. Topics in Latin Literature in Translation. (3)Δ**
(See Latin 344.)

***345. Topics in Greek Literature in Translation. (3)Δ**
(See Greek 345.)

375. World Literature Through the Renaissance. (3)
(See Engl 375.)

376. World Literature Since the Renaissance. (3)
(See Engl 376.)

***380. Seminar in Comparative Literature. (1-3)**
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)Δ
(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 advisor.

***450. Special Topics in German Studies. (3)Δ**
(See German 450.)

451. The Middle Ages. (3)ΔΔ
(See Engl 451.) Comparative literature credit available for some sections with the permission of the comparative literature advisor.

459. Irish Literature. (3)
(See Engl 459.) Comparative literature credit available for some sections with the permission of the comparative literature advisor.

470. Contemporary Literature. (3)
(See Engl 470.) Comparative literature credit available for some sections with the permission of the comparative literature advisor.

***475. Dante in Translation. (3)**
(See Ital 475.)

***490. Seminar in Russian Literature. (3)Δ**
(See Russ 490.)

500. Introduction to Graduate Study in Comparative Literature. (3)

510. Criticism. (3)
(See Engl 510.)

511. Special Topics: History of Ideas, Literary Movements, etc. (3)†
(See Engl 511.)

513. The Middle Ages. (3)ΔΔ
(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)Δ
(See Engl 587.)

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

CRIMINAL JUSTICE

MAJOR STUDY

The University of New Mexico offers an interdisciplinary program designed to prepare students for careers in criminal justice. Career possibilities include:

- government agency work in law enforcement, corrections, and preventive services
- work in public safety programs
- preparation for a career in law, health wervice, social work or counseling
- preparation for graduate level study in sociology or public administration with a specialization in the criminal justice area

For specific advisement about the criminal justice program, contact:

Criminal Justice Advisor
The University of New Mexico
Department of Sociology
Albuquerque, NM 87131 (505) 277-2501

MAJOR STUDY REQUIREMENTS

In addition to fulfilling the general requirements of the College of Arts and Sciences, students must complete 55 hours of coursework in criminal justice -- 37 hours core and 18 hours of pertinent electives as advised.

The additional 18 hours of electives are to be selected in consultation with the criminal justice program advisor. A comprehensive listing and description of criminal justice content courses applicable as electives may be obtained from the advisor.

CORE COURSES: 37 HOURS*

Comm 240 (Comm in Org)
Mgt 113 (Mgt: An Intro)
Pol Sc 270 (Pub Pol & Admin)
Pol Sc 301 (Govt of NM)
Pol Sc 375 (Intro to Pub Mgt)
Psych 413 (Indus & Org Psych)
or Soc 441 (Complex Org)
Soc 380 (Intro Rsrch Meths)
Soc 312 (Juvenile Delinq)
Soc 313 (Criminology)
Soc 413 (Crim Justice)
Soc 414 (Soc of Correct)
Soc 488 (Field Obs & Exp)

MINOR STUDY REQUIREMENTS

The criminal justice program does not require a minor.

ADMINISTRATIVE UNIT

The Sociology Department serves as the administrative unit for the criminal justice program. Additionally, the department chairperson will appoint an interdisciplinary faculty committee to function in an advisory capacity on criminal justice program matters.

Please note prerequisites for core courses: Pol Sc 200/Pol Sc 301; Psych 101 or 102/Psych 413; Soc 213/Soc 312 and 313; Soc 101/380 and 441.

ECONOMICS

Ronald Cummings, Chairperson
1915 Roma NE #1019B, 277-3056 or 5304.

ARTS & SCIENCES

PROFESSORS:

Shaul Ben-David, Ph. D., Cornell 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
Ronald Cummings, Ph. D., University of Kansas
Micha Gisser, Ph. D., University of Chicago
Peter Gregory, Ph. D., Harvard University
Alfred L. Parker, Ph. D., Ohio State University

ASSOCIATE PROFESSORS:

Max Bennett, Ph. D., John Hopkins University
Glenn Harrison, Ph. D., University of California-Los Angeles
Richard Santos, Ph. D., Michigan State University
Donald Tailby, Ph. D., Rutgers University
Paul Therkildsen, Ph. D., University of Colorado
Lee Zink, Ph. D., Oklahoma State University

ASSISTANT PROFESSORS:

Alok Bohara, Ph. D., University of Colorado
Brian McDonald, Ph. D., Pennsylvania State University
Susan Christopher Nunn, Ph. D., University of Wisconsin
Christine Sauer, M. A., Brown University

LECTURER:

Lisa Rutstrom, M. A., Stockholm School of Economics

EMERITI FACULTY:

Gerald Boyle, Ph. D., Syracuse University
Sanford Cohen, Ph. D., Ohio State University
David Hamilton, Ph. D., University of Texas
Paul Jonas, Ph. D., Columbia University
Nathaniel Wollman, Ph. D., Princeton University

AFFILIATED FACULTY:

Allen V. Kneese, Ph. D., University of Indiana
Roger D. Norton, Ph. D., Johns Hopkins University

MAJOR STUDY REQUIREMENTS

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), Econ 309 (Introduction to Econometrics), and 15

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additional hours of economics. Although majors may select any economics courses to fulfill the 15 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
Math 180 Elements of Calculus I
Math 181 Elements of Calculus II
Econ 289 Intro to Probability & Statistics
Econ 315 Money and Banking
Econ 320 Economics of Labor Relations
Econ 360 History of Economic Thought

B. Pre-Law
Econ 289 Intro to Probability & Statistics
Econ 320 Economics of Labor Relations
Econ 330 Consumer Economics
Econ 332 Government Control of Business
Econ 342 Environmental Economics
Econ 350 Public Finance
Econ 360 History of Economic Thought
Econ 450 Comparative Economic Systems.

C. Business Economics
Econ 212 Capital Markets and Personal Investment
Econ 289 Intro to Probability & Statistics
Econ 309 Intro to Econometrics
Econ 315 Money and Banking
Econ 320 Economics of Labor Relations
Econ 332 Government Control of Business
Econ 342 Environmental Economics
Econ 350 Public Finance

D. Contemporary Economic Problems
Econ 229 Radical vs. Conservative Economics
Econ 239 Economics of Feminism
Econ 330 Consumer Economics
Econ 331 The Economics of Poverty
Econ 341 Urban Economics
Econ 342 Environmental Economics
Econ 350 Public Finance
Econ 420 Economic Problems of UnderdevelopedCountries
Econ 424 International Economics
Econ 450 Comparative Economic Systems

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.

MINOR STUDY REQUIREMENTS

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 CRP, 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)
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)
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)

230. USSR Today -- People, Politics, Culture. (3)
(Also offered as Hist, Russ, Pol Sc 230.)

239. The Economic Status of Women. (3)
Examines economic situation of women in light of history. Explores effects of race, ethnicity, class, age, etc. Provides economic analysis of obstacles facing women's quest for equality and autonomy. Evaluates strategies for social change.
Prerequisite: 201 or permission of instructor. (Spring)

289. An Introduction to Probability and Statistics. (3)
(See Math 145.)

****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 United States. (1-3, 1-3)Δ
(See Am St 301-302.) May be taken for departmental credit only with the permission of the chairperson.

****303. Macro-Economic Theory. (3)**
Composition, fluctuations, growth, and distribution of national income.
Prerequisite: 200.

***304. Micro-Economics 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 relation-

ships, productions functions, and in simulating economic models.
Prerequisites: 300, 303, Math 102 or equivalent.

****315. Money and Banking. (3)**
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 permission of instructor.

***320. Economics of Labor Relations. (3)**
Determinants of labor force, wage levels and structures, and employment; human capital theory and discrimination, economic consequences of trade union and government intervention.
Prerequisites: 200, 201.

***330. Consumer Economics. (3)**
The theory of consumption.
Prerequisites: 200, 201, or permission of instructor.

***331. The Economics of Poverty. (3)**
Defines the scope of poverty problems, relates the problem to economic theory, and examines possible solutions.
Prerequisites: 200, 201, or permission of instructor.

***332. Government Control of Business. (3)**
Government and social control of business enterprise, including public utilities; the economics of rate making in public utilities.
Prerequisites: 200, 201, or permission of instructor.

333. Market Power, Antitrust Regulation and Public Enterprise. (3)
Theory of regulation and its empirical evidence. The objective and impact of antitrust policies, direct regulation, and public ownership.
Prerequisite: 300 or permission of instructor.

***335. The Economics of Health. (3)**
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 permission of instructor.

340. American Indian Economic Development. (3)
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 permission of instructor.

***341. Urban Economics. (3)**
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 permission of instructor.

***342. Environmental Economics. (3)**
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 permission of instructor.

***343. Seminar: Energy Policy & Administration. (3)**
(Also offered as Pub Ad, CRP 575.) Public policy and administrative issues and problems in federal and state energy agencies and programs.
Prerequisite: permission of instructor. (Spring)

***350. Public Finance. (3)**
(Also offered as Pol Sc 350.) Taxation, governmental borrowing, financial administration, and public expenditures.
Prerequisites: 200, 201.

***360. History of Economic Thought. (3)**
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)**
Institutional and technological forces in the evolution of the industrial economy.
Prerequisites: 200, 201, or permission 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 permission of instructor.

395. Seminar in Economics. (3)
Contemporary economic problems -- topics will vary with student interest and with current areas of controversy.
Prerequisites: 300, 303. Open to economic major or with permission of instructor.

***407. Mathematical Methods in Economics. (3)**
(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 permission of instructor.

***408. Economic Forecasting Methods. (3)**
Economic model building using time series approach. Basic topics covered are Box-Jenkins univariate models (ARIMA), transfer function and VAR models. Emphasis will be placed on several applied computer assignments and individual applied projects.
Prerequisite: Econ 309 or equivalent.

***409. Economic Statistics. (3)**
Prerequisites: statistics, economic theory.

***410. Selected Issues in Health Economics. (3)**
Studies of specific health problems, benefits and costs in streptococcal culturing; immunizations issues in pneumococcal pneumonia, measles, polio, and influenza and econometric studies about hospital efficiency.
Prerequisite: 335.

***415. Central Banking. (3)**
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)**
Theories, policies, and practices, with emphasis on Latin American economic problems.
Prerequisites: 200, 201.

***421. Latin American Economies. (3)**
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)**
Public and private annuity, unemployment compensation, workmen's compensation, and medical programs.
Prerequisite: 200 or permission of instructor.

***423. Latin American Topics. (3)**
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.

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***424. International Economics. (3)**
Determinants fo patterns of international trade and comparative advantage. Trade restrictions and gains from trade. International factor movements.
Prerequisites: 300 or permission of instructor.

***425. Trade Unionism in the United States. (3)**
History of American labor movement. The labor management relationship with emphasis on the economics of collective bargaining.
Prerequisite: 320.

***427. Labor and Public Policy. (3)**
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.

***429. International Finance. (3)**
International financial system. Balance of payments and its adjustment under different currency standards. Government policies in the open economy.
Prerequisites: 303, 315, and/or permission of instructor.

439. Topics in American Indian Economic Development. (1-6)
Offers selected topics in American Indian Economic Development, including the theory of such development and its practical application in a tribal organization.
Prerequisite: permission of instructor.

***440. Regional Analysis. (3)**
Analysis of regional economies, economic models.
Prerequisites: 200, 201.

***442. Natural Resources. (3)**
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)**
(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 permission of instructor.

***450. Comparative Economic Systems. (3)** Jonas
A critical analysis of the proposed major reforms of the existing economic system.
Prerequisites: 200, 201.

451-452. Problems. (1-3, 1-3 hrs. per semester)

***455. The Soviet Economic System. (3)**
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 permission of instructor.

***466. Economics for City Planning. (3)**
(Also offered as CRP 466.) 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)**
(Also offered as Geog, M Lang, 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.

***485. Philosophical Foundations of Economic Theory. (3)**
(See Ec-Ph 485.)
Prerequisites: 200, 201.

***495-496. Departmental Seminar. (1-3, 1-3)**
Problems in economic theory and their relationship with changing character of economy.
Prerequisite: undergraduates require approval of department.
Offered on a CR/NC basis.

497-498. Reading for Honors. (3, 3)

499. Senior Honors Thesis. (4)

500. [*400] Applied Microeconomic Theory. (3)
Prerequisite: 300.

501. [500] Micro-Economic Theory. (3)
Prerequisite: 300.

502. Analytical Methods for Planning. (3)
(Also offered as Pol Sc 502, CRP 511.) Student should have taken a basic statistics course prior to enrollment. {Fall}

503. Seminar in Economic Theory and Applied Economics. (3)Δ
Prerequisite: permission of instructor.

504. Quantative Analysis II. (3)

505. [*404] Applied Macroeconomic Theory. (3)
Prerequisites: 289, 303.

506. [505] Macro-Economic Theory. (3)
Prerequisite: 303.

507. Programming and Growth. (3)
Prerequisites: 407, Math 314.

508. Data Construction and Evaluation in Economics. (3) Brown
Prerequisites: 289, 407.

509. Econometrics. (3)
Prerequisites: Math 180, 181, 314, 345, 346.

510. Econometrics. (3) Brown
Corequisite: 509.

511. History of Economic Thought. (3)
Prerequisite: graduate status in economics or permission of instructor.

512. Economic History. (3)
Prerequisite: graduate status in economics or permission of instructor.

513. [501] Advanced Micro-Theory. (3)
Prerequisites: 407 or equivalent, 500, one year calculus, Math 314.

514. [506] Advanced Macro-Economic Theory. (3)
Prerequisites: 505, one year of calculus, Math 314.

515. Theory of Money and Banking. (3) Chung, Parker
Prerequisite: 303 or 315.

516. Monetary Problems and Policies. (3)
Prerequisite: graduate standing in economics.

519L. Econometrics/Laboratory. (3)
Prerequisites: Math 180, 181, 314, 345, 346.

520. Seminar in Labor Economics. (3)
Prerequisites: 320 or equivalent and permission of instructor.

521. Comparative Labor Problems. (3)

526. Seminar in European Economic History. (3)
(Also offered as Hist 526.)

531. Standards and Levels of Living. (3)
Prerequisite: graduate status in economics or permission of instructor.

532. The Theory of Consumption. (3)
Prerequisite: graduate standing in economics or permission of instructor.

533. Seminars in Industrial Organization. (3)
Prerequisite: 300 or permission of instructor.

540. Mineral Economics. (3)
Prerequisite: 500 or permission of instructor.

542. Seminar in Natural Resource Planning. (3)
Prerequisite: 300 or 500.

543. Seminar in Natural Resource Planning. (3)
Prerequisite: 303 or 505.

544. Special Topics in Environmental Economics. (3)
Prerequisite: 300 or equivalent. {Fall}

****546. Economic Education. (2 or 4)**
(Also offered as Bus Ed, TOE 546.) {Summer only}

547. Mathematical Economics. (3)
Prerequisites: 407, 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)
Prerequisite: permission of instructor.

562. State and Local Finance. (3)
Prerequisite: 350 or graduate status in economics or permission of instructor.

565. Seminar in Fiscal Policy. (3)
Prerequisite: graduate status in economics.

570. Institutional Economics. (3)
Prerequisite: graduate status in economics or permission of instructor.

578. Economic Planning. (3)
Prerequisite: 303. {Spring}

580. International Trade Theory. (3)
Prerequisite: 424 or permission of instructor.

582. Theories of Economic Development and Growth Models. (3)

583. Seminar in Economic Development with Particular Application to Latin America. (3)
Prerequisite: graduate status in economics or permission of instructor.

584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3)
(Also offered as Hist, Pol Sc, 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

ARTS & SCIENCES

MAJOR STUDY

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 REQUIREMENTS

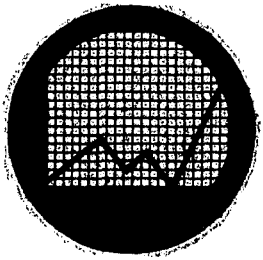
Students completing an economics-philosophy major are not required to have a minor. The minimum requirement is 45 hours, including Econ 200, 201, 300, 303, 315, and 360 or 450, and 3 hours to be selected from 320, 332, 340, 350, 422, or 424; Phil, 21 hours selected from courses chosen in consultation with your advisor; Econ-Phil 485.

MINOR STUDY REQUIREMENTS

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 1989 and alternate years.}



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ENGLISH

Lee A. Bartlett, Chairperson
Humanities Bldg 229, 277-6347

PROFESSORS:

Rudolfo A. Anaya, M. A., University of New Mexico
Michael R. Fischer, Ph. D., Northwestern University
Gene Frumkin, B. A., University of California, (Los Angeles)
Robert E. Fleming, Ph. D., University of Illinois
David C. McPherson, Ph. D., University of Texas
Ivan Melada, Ph. D., University of California, (Berkeley)
James Thorson, Ph. D., Cornell University
Hugh Witemeyer, Ph. D., Princeton University

ASSOCIATE PROFESSORS:

James F. Barbour, Ph. D., University of California (Los Angeles)
Lee A. Bartlett, Ph. D., University of California, (Davis)
Lynndianne Beene, Ph. D., University of Kansas
Helen Damico, Ph. D., New York University
Paul B. Davis, Ph. D., University of Wisconsin
David K. Dunaway, Ph. D., University of California ,(Berkeley)
Cheryl Fresch, Ph. D., Cornell University
Barry J. Gaines, Ph. D., University of Wisconsin
Patrick J. Gallacher, Ph. D., University of Illinois
Michael J. Hogan, Ph. D., Universityof Kansas
David M. Johnson, Ph. D., University of Connecticut
David R. Jones, Ph. D., Princeton University
Antonio Marquez, Ph. D., University of New Mexico
Thomas W. Mayer, Professional Writer
Louis Owens, Ph. D., University of California, (Davis)
Mary J. Power, Ph. D., University of Wisconsin
Scott P. Sanders, Ph. D., University of Colorado, (Boulder)
Gary Scharnhorst, Ph. D., Purdue University
Patricia C. Smith, Ph. D., Yale University
Frederick B. Warner, Ph. D., University of Illinois
Mary Bess Whidden, Ph. D., University of Texas
Peter L. White, Ph. D., Pennsylvania State University
Joseph B. Zavadil, Ph. D., Stanford University

ASSISTANT PROFESSORS:

Gary Harrison, Ph. D., Stanford University
Sandra D. Lynn, M. A., University of California (Berkeley)
Wanda Martin, Ph. D., University of Louisville
Lucy Tapahonso, M. A., University of New Mexico
Hector A. Torres, Ph. D., University of Texas
Carolyn Woodward, Ph. D., University of Washington

LECTURER:

Harvena Richter, Ph. D., New York University

PROFESSORS EMERITI:

George W. Arms, Ph. D., New York University
Edith Buchanan, Ph. D., Duke University
Ernest W. Baughman, Ph. D., Indiana University
Harold W. Lavender, Ph. D., University of New Mexico
Dorothy M. Logan, M. A., University of New Mexico
Katherine G. Simons, M. A., Columbia University
Dudley Wynn, Ph. D., New York University

MAJOR STUDY

Besides teaching and literary research, a major in English can lead to a career in publishing, journalism, advertising, the arts, personnel, sales and marketing, management, government work, and research and investigation. Even when additional qualifications are needed, as in law, an undergraduate major in English is often a distinct advantage.

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 219, 220 or any course numbered 250 or above. There are no prerequisites for Engl 131, 132, 150 or for literature courses numbered under 250.

At least one lower-division course in literature is required for admission to a literature course numbered above 300. An English major should meet this last prerequisite by taking Engl 250.

A few courses have special prerequisites listed after the course descriptions.

MAJOR STUDY REQUIREMENTS

There are several English major concentrations that offer different emphasis or pre-professional preparation.

Liberal Arts Concentration (33 hours)

English 250, 294, 295; 352 or 353; 351 or 354; Nine hours at the 400 level and nine additional hours, with no more than three at the 200 level.

The Pre-Graduate Concentration (36 hours)

A program for students planning to on to graduate study in English or American Literature.

Engl 250, 294, 295; one survey 296, 375 or 376; 351; 352 or 353; 354; one of the following: 460, 461, 462; two of the following: 410, 440, 445, 450, 451, 453, 454, 455, 456, 457, 458, 459, 485, 486; six additional hours at the 300 or 400 level, recommended electives: 304, 305, 306, 470.

Teaching English Concentration

The program preparing for certification to teach English in New Mexico is currently being revised. See the Director of Undergraduate Studies for details.

Professional Writing Concentration (34 hours)

This concentration prepares students for careers as professional writers and editors in a variety of specific occupations in business, government, and industry. The concentration requires courses in writing, language, and literature; a professional internship and senior project; and complementary coursework in scientific, technical, or professional disciplines. *Professional Writing Sequence:* 290 (Writing and the Professions); 320 (Professional Writing and Editing); 420 (Special Topics in Professional Writing); 497 (Internship); 498 (Senior Project). *Language and Literature Sequence*: 240; 250; six hours from, 219 or 220, 294, 295, 296; 375, 376; nine hours from 351-410, 440, 441, 445, 449-470, 485, 486. *Professional Complement:* Nine hours of upper division coursework in scientific, technical, or professional disciplines. Students may petition the Professional Writing Committee to substitute an appropriate course in any department for Engl 420; in addition, Engl 320 may be repeated, when its content is appropriate, to substitute for Engl 420. Interested students should consult the Director of Professional Writing before beginning this program.

English Major, Pre-Law Concentration (30 hours)

A program for students planning to go on to law school.

Engl 250; 220; Nine hours from the following: 294, 295, 296, 375 or 376; 352 or 353; three hours from 460, 461, 462, 463; Engl 410; six additional hours at the 300 or 400 level; Outside

the department, the following courses are strongly recommended: a course in public speaking, Sp Com 130L or 232, Phil 156 (Logic) or Pol Sc 315 or 316 (Constitutional Law).

English Major, Pre-Business Concentration (30 hours)

A pre-professional major for students planning to go on to an MBA program or to enter business courses.

Engl 250; 219 or 220; nine hours from 294, 295, 296, 375, 376; 352 or 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 is 320.

Creative Writing Major (33 hours)

27 hours in English and six in other creative areas such as film, music, painting, dance, journalism, etc. Engl 250; 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; Engl 423 (Thesis).

English Philosophy Major

(See current catalog p. 116)

DEPARTMENTAL HONORS

Students who seek honors in English should apply to the Director of Undergraduate Studies. 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 REQUIREMENTS

An English minor requires 18 hours of English courses numbered above 103. 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: 449, 450, 451, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 470, 485, 486; 9 more hours with no more than 6 below 300.

An English major may offer an American Studies minor as well as a minor in a single department. For requirements see "American Studies".

Professional Writing Minor (18 hours)

Requirements are: 219 or 220 or 240; 290 (Writing and the Professions), one professional writing section of either 320 or 420, and one hour of Engl 497 (Independent Study-Internship optional). Elective courses: 9 hours chosen from 220, 240, other sections of 320 and 420, Journ 302, 312, 332, and Theatre Arts 355, 356. Interested students should consult the Director of Professional Writing before beginning this program.

Minor in Period Studies (21 hours)

A multidisciplinary program comprised of 21 hours: 12 hours in English courses numbered above 102, and 9 hours from at least two other disciplines. Each student's program will focus on a particular historical period and be developed around the student's individual interests after prior consultation with a minor advisor. The Mediaeval Studies minor represents a typical minor in period studies.

Mediaeval Studies Minor

A multidisciplinary program consisting of 21 hours of approved courses. Each student's program will be developed around the student's individual interests after approval by an advisor. A brochure of requirements is available at the Department of English.

The distribution of requirements is as follows: 3 hours of English 315, the introductory course in Mediaeval English Literature (English 211, 315, 351, 387, 411, 449, 450, 451); 9 hours from courses in Mediaval Art (Art 220, 261, 404, 453), Mediaeval History (History 305, 315, 317, 321, 322, 323, 341, 343, 347), Latin (101, 102, 201, 202, 351, 352), Greek (101, 102, 301, 302, 345), Italian (475), Music (261), Philosophy (304, 305), Religious Studies (360). Interested students should contact the Director of Undergraduate Studies of the Department of English or Helen Damico at the Department of English.

ENGLISH AS A SECOND LANGUAGE

Classes in English as a Second Language are offered in the ESL Writing Program, Mesa Vista, 2043, phone 277-5426 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. Noncredit, full-time English classes are offered in the Intensive English Institute.

ENGLISH (ENGL)

UNDERGRADUATE COURSES

I. Expository Writing

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 Film. (3)
(See Film 210.)

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}

290. Introduction to Professional Writing (3)
Introductory course in the professional writing concentration. Study of technical writing, public information and public relations writing, and freelance non-fiction writing.
Prerequisite: English 102.

298. Workshop in Literature or Writing. (1-3)Δ
Various topics in Literature, Language, and Writing. As the introductory course in the Professional Writing Concentration: Writing and the Professions.

320. Advanced Expository Writing. (3)
Advanced study of specific academic, technical, and professional genres. Topic varies.
Prerequisite: 219, 220, 298 (Writing and the Professions). {Fall, Spring}

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420. Topics in Professional Writing. (3)†
Advanced study of professional writing theory and practice. Past topics have considered audience analysis, biography/authbiography, language theory/editing practice, the rhetoric of popular science writing, stylistics analysis of non-fiction.
Prerequisite: 219 or 290.

442. Major Rhetorical Texts. (3)
Survey of the western tradition of rhetoric and dialectic from Plato and Aristotle to contemporary rhetoricians.
Prerequisite: 250 or permission of instructor.

***498. Advanced Workshop in Literature or Writing. (1-3 hrs. per semester, to a maximum of 6)Δ**
Intensive study of various topics in Literature, Language, and Writing.

II. Creative Writing

221. Creative Writing: Prose Fiction. (3)
A $10. 00 workshop fee is required.
Prerequisite: 101 or its equivalent. {Fall, Spring}

222. Creative Writing: Poetry. (3)
A $10. 00 workshop fee is required.
Prerequisite: 101 or its equivalent. {Fall, Spring}

321. Creative Writing: Short Fiction, Novel. (3)ΔΔ
Intermediate course with generally equal emphasis on writing and reading. A $10. 00 workshop fee is required.
Prerequisite: 221 or permission of instructor.

322. Creative Writing: Reading and Writing of Poetry. (3)ΔΔ
Intermediate course with generally equal emphasis on writing and reading. A $10. 00 workshop fee is required.
Prerequisite: 222 or permission of instructor.

***421. Creative Writing: Workshop in Prose Fiction. (3)ΔΔ**
Advanced workshop devoted primarily to student writing. A $10. 00 workshop fee is required.
Prerequisites: 221, 321, or permission of instructor.

***422. Creative Writing: Workshop in Poetry. (3)ΔΔ**
Advanced workshop devoted primarily to student writing. A $10. 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)Δ**
Advanced workshop devoted to student preparation of working scripts for film or television.
Prerequisite: permission of instructor. {Fall}

III. Literature and Language

131. Perspectives on the Western Tradition. [Literature] **(3)**
Western literature from classical Greece through the Renaissance complemented by texts from other traditions. Classical World, Middle Ages, Renaissance; Homer, Sophocles, Vergil, Dante, Chaucer, Shakespeare, the Bible.

132. Perspectives on the Western Tradition. [Literature] **(3)**
Western literature from the Enlightenment to the present, complemented by texts from other traditions. Enlightenment, Romanticism, Modernism; Swift, Voltaire, Goethe, Thoreau, Freud, Eliot.

150. The Study of Literature. (3)
An introduction to the study and appreciation of literature **for non-English majors.** Shows how understanding writers' techniques increases the enjoyment of their works; relates these techniques to literary conventions; teaches recognition, analysis, discussion of important themes.

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: 150.

240. Traditional Grammar. (3)
A study of the basic analysis of English sentences offered by traditional grammar. Presents terminology and methods for identifying parts of speech, functional units of sentences, and basic sentence patterns.

250. 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}

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: 150.

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.

277. Great Books. (3)Δ
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.

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.

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.

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.

***303. English Phonetics. (3)**
(See Com 303.)

304. The Bible as Literature. (3)
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.

ΔΔ May be repeated once for credit.

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. Provides 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.

315. Interdisciplinary Approaches to Literature. (3)Δ
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, and Medieval Literature and Culture.

***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. (3)Δ**
(See German 336.)

***337. Spanish Literature in Translation. (3)**
(See Span 337.)

***338. Russian Literature in Translation. (3)**
(See Russ 338.)

***341. Greek Mythology. (3)**
(See Greek 341.)

***344. Topics in Latin Literature in Translation. (3)Δ**
(See Latin 344.)

***345. Topics in Greek Literature in Translation. (3)Δ**
(See Greek 345.)

351. Chaucer. (3)

352. Shakespeare: Histories and Comedies. (3)

353. Shakespeare: Tragedies. (3)

354. Milton. (3)

360. Individual Authors. (3)Δ
Study of one or two or more authors. Titles of individual sections vary as content varies.

375. World Literature Through the Renaissance. (3)
Masterpieces of European and Asiatic literature including the Bible.

376. World Literature Since the Renaissance. (3)
Masterpieces of European literature.

387. Studies in Genre: Comedy, Epic, Satire, Tragedy, etc. (3)Δ
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)Δ
Advanced study of various topics in Literature, Language, and Writing. Some recent course titles: American Writers of the Left, Writing Biography and Autobiography, Contemporary Criticism, History of the American Drama, Language Theory and Editing Practice, Chicano Literature. {Fall, Spring}

420. Topics in Professional Writing. (3)
Advanced study of professional writing theory and practice. Past topics have considered audience analysis, biography/autobiography, language theory/editing practice, the rhetoric of popular science writing, stylistic analysis of non-fiction. May be repeated once for credit.
Prerequisite: 102, 219 or 220 or 298.

***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)**
(Also offered as Ling 441.)
Prerequisite: 440 or permission of instructor.

442. Major Rhetorical Texts (3)
Survey of the western trandition of rhetoric and dialectic from Plato and Aristotle to contemporary rhetoricians.
Prerequisite: 250 or permission 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)ΔΔ
Titles of individual sections will vary as content varies.

453. The English Renaissance. (3)ΔΔ
Titles of individual sections will vary as content varies.

454. Seventeenth-Century English Literature. (3) ΔΔ
Titles of individual section will vary as content varies.

455. Restoration and Eighteenth-Century Literature. (3)ΔΔ
Titles of individual sections will vary as content varies.

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.

ΔΔ May be repeated once for credit.

Symbols - See page 379

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)ΔΔ
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 Ital 475.)

***480. Philosophy and Literature. (3)**
(See Eng-Ph 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. Interdisciplinary Seminar in U. S. Culture. (1-3)Δ
(Also offered as Am St 501.)

510. Criticism. (3)
{Spring}

511. Special Topics: History of Ideas, Literary Movements, etc. (3)†

520. Topics in Professional Writing. (3)

521. Creative Writing Workshop: Prose Fiction. (3)Δ
Prerequisite: 422 or permission of instructor.
May be repeated for credit as content varies.

522. Creative Writing Workshop: Poetry. (3)Δ
Prerequisite: 422 or permission of instructor.
May be repeated for credit as content varies.

527. Studies in Rhetoric for Teachers. (3)Δ
(Also offered as CIMTE 527.) {Fall}

528. Studies in Reading and Literature for Teachers. (3)
(Also offered as CIMTE 528.) {Spring}

537. Teaching Composition. (3)
{Fall}

538. Teaching Introductory Literature. (2)
{Fall}

540. Language. (3)Δ
{Fall}

551. The Middle Ages. (3)ΔΔ
{Fall}

553. The Renaissance. (3)ΔΔ
{Fall}

554. The Seventeenth Century. (3)ΔΔ
{Fall}

555. The Eighteenth Century. (3)ΔΔ
{Spring}

556. The Nineteenth Century. (3)ΔΔ
{Fall, Spring}

560. American Literature. (3)ΔΔ
{Spring}

570. The Twentieth Century. (3)ΔΔ
{Spring}

587. Genre: Comedy, Epic, Satire, Tragedy, etc. (3)Δ

590. Problems and Methods of Literary Study. (3)
{Spring}

595. Colloquium. (4)Δ
{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)Δ

640. Studies in Language. (4)

650. Studies in British Literature. (4)Δ

660. Studies in American Literature. (4)Δ

680. Special Studies: Types, Backgrounds, Forces. (4)Δ

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.

ENGLISH-PHILOSOPHY

MAJOR STUDY

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.

ΔΔMay be repeated once for credit.

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 REQUIREMENTS

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. Recommended courses: 250 Analysis of literature, 410 Literary Criticism.
2. 18 hours in philosophy courses, 12 of which are to be Numbered 300 or above. Recommended course: 367 Philosophy of Art & Aesthetics.
3. 6 hours additional of English or philosophy numbered 300 or above.
4. Eng-Ph 480.

MINOR STUDY

Not offered.

ENGLISH-PHILOSOPHY (ENG-PH)

***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

Stanley A. Morain, Chairperson
Bandelier West 121, 277-5041

PROFESSORS:

Elinore M. Barrett, Ph. D., University of California (Berkeley)
Stanley A. Morain, Ph. D., University of Kansas
Rodman E. Snead, Ph. D., Louisiana State University

ASSOCIATE PROFESSORS:

Jerry L. Williams, Ph. D., University of Oregon
Bradley T. Cullen, Ph. D., Michigan State University (East Lansing)

ASSISTANT PROFESSORS:

Stephen A. Thompson, Ph. D., University of Colorado (Boulder)

PROFESSOR EMERITUS:

Iven V. Bennett, Ph. D., Boston University
Robert D. Campbell, Ph. D., Clark University

MAJOR STUDY

We live in a highly technical society, one in which it often is difficult to ensure that technological advances work to human benefit rather than human detriment. To help humans make intelligent decisions in such a society, geography is becoming increasingly important. Geography is both a physical science and a social science; the geographer cannot study society without studying the environment in which it exists. Thus, the geographer is, in this sense, a human-ecologist, studying the interactions of people and places as manifested in such issues as strip mining, traffic, irrigation, racial discrimination, soil erosion, atmospheric pollution, and regional planning.

MAJOR STUDY REQUIREMENTS

The major in geography requires 37-39 credit hours of lower and upper division coursework. Geog 101, 102, and 105L, are required of all majors. In addition, the major must earn a grade of C or better in at least two (2) courses from each of four (4) topical/systematic groups and complete at least one (1) course in regional geography. The topical/systematic groups are: Group A--Geographic Information Technologies, Group B--Physical Geography; Group C--Economic Development and Planning; Group D--Environmental Geography. All courses in these four groups (A-D) require Geog 101 or 102, or permission of the instructor, as prerequisites. In order to allow students an option for either completing a general degree or beginning a focus in one of the four topical/systematic groups, each major must complete three (3) credit hours of electives selected from Groups A through D.

The required curriculum for the major is as follows:

Geog 101	Physical Geography	3
Geog 102	Human Geography	3
Geog 105L	Physical Geography Lab	1
Group A	Geographic Information Technologies	6-8
Group B	Physical Geography	6
Group C	Economic Development & Planning	6
Group D	Environmental Geography	6
Group E	Regional Geography	3
	Elective (selected from Group A, B, C, or D)	3
	TOTAL CREDIT HOURS	37-39

Courses included in each of the Groups are as follows:

Group A: 285L, 361, 363, 373, 385L, 462, 482, 484, 485L.
Group B: 351, 352, 353, 356, 481, 483.
Group C: 263, 360, 364, 366, 367, 381, 401, 464.
Group D: 359, 365, 391, 393, 395, 459, 471, 472.
Group E: 301, 302, 303, 304, 328, 332, 336, 337, 374.

MINOR STUDY REQUIREMENTS

Geog 101, 102, and 15 additional hours.

Distributed minor not available.

GROUP REQUIREMENTS

Geog 481 is accepted as a nonlaboratory science in fulfillment of the physical science (Group IV) requirement of the College of Arts and Sciences; all other geography courses are accepted toward fulfillment of the social science (Group VI) requirements in that College.

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GEOGRAPHY (GEOG)

101. Physical Geography. (3)
World geography; physical elements. Use of maps and globes for a systematic analysis of world climates, vegetation, soils, and landforms, their distribution, interrelation, and significance to man.

102. Human Geography. (3)
World geography; human elements. A systematic analysis of world population, demographic factors, ethnic groups, predominant economies, and political units, their distribution, interrelation, and interaction with the physical earth.

105L. Physical Geography Laboratory. (1)
Exercises designed to complement 101. 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.

106L. Human Geography Laboratory. (1)
Exercises in 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.

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.

201. World Regional Geography. (3)
The regional geography of the world. Both physical and human aspects are studied along with current economic and political problems.

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.

273. Map Reading and Interpretation. (3)
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)
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.

***301. South America. (3)**
The physical and cultural landscapes of South America, including patterns of settlement and resource use by aboriginal, colonial, and modern peoples.

***302. Mexico and the Caribbean. (3)**
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.

***303. North America. (3)**
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.

***304. The Southwest. (3)**
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.

***328. People and Land in Sub-Saharan Africa. (3)** Williams
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.

***332. Western Europe. (3)**
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.

***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.

***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.

***351. Systematic Climatology. (3)**
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 permission of instructor.

***352. Regional Climatology. (3)**
The classification and world distribution of temperature regimes, air mass types, precipitation areas, and climatic regions.
Prerequisite: 351 or 101 or permission of instructor.

***353. Microclimatology. (3)**
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.

***356. Biogeography. (3)** Morain
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.

***359. Water in Environmental Systems. (3)** Thompson
The drainage basin is used as the fundamental unit for a quantitative analysis of the movement and storage of water in the hydrologic system. Applied land and water use planning aspects are emphasized.

***360. Population Geography. (3)**
Spatial analyses of basic population characteristics including migration and mobility, urbanization, food supply and environmental alteration. Population exercises and projects will be assigned.

***361. Quantitative Methods in Geography. (3)** Cullen
Use of probability theory and descriptive statistics in geographic applications, models, and theories.
Prerequisite: College algebra or permission of instructor.

***363. 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.

***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.

***365. Urban Environment.** (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.

***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.

***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.

***373. Air Photo Interpretation.** (3) Morain, Snead
Techniques of analysis of aerial photographs for geographic study and research. Course also introduces remote sensing.
Prerequisite: 101.

***374. Settlement in New Mexico.** (3) Williams
A geography of New Mexico which will concentrate on the natural, economic, and social environments that relate to settlement systems. Includes a survey of settlement from prehistoric periods to the urban Rio Grande corridor.

***381. Political Geography.** (3) Campbell
The spatial organization of political processes; political institutions as systems and hierarchies of systems; the political ecology of representative national and sub-national systems.

***385L. Computer Cartography.** (4)
Digital mapping fundamentals including: hardware and software considerations, vector versus raster data, digital terrain models, digital remote sensing and cartography, and an introduction to geographic information systems. Fee required.
Prerequisite: 285L.

***391. Problems in 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) Barrett
Systems which man has evolved to supply plant and animal food, emphasizing their relation to ecological and cultural conditions, human nutrition, and human population.

***395. Nature and Culture in America.** (3)
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.

***399. Topics in Geography.** (1-3)Δ

***401. Latin American Development.** (3)
Analysis of geographic aspects of the development process in Latin America, with emphasis on the interplay between the natural environment and people, and on the spatial patterns thus created.

***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.

***453. Interdisciplinary Asian Studies.** (3)
(Also offered as Hist, Phil, Pol Sc 453.) Cross-cultural and interdisciplinary investigations of problems and methodologies current in Asian Studies.

***459. Water Resources Management.** (3) Thompson
An examination of the problems and trends in the use of water resources in the United States, with emphasis on the physical and social aspects related to its management.
Prerequisite: 101 or 102 or permission of instructor.

***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.

***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: 263 or 361.

***471. Human-Environment Systems.** (3) Thompson
Uses a systems approach to analyze and model human-environment interactions; techniques and methods of system description and analysis; and the analysis of small and large scale enviromental systems.

***472. Conservation.** (3)
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.

***478. Seminar in International Studies.** (3) Slavin
(Also offered as Econ, M Lang, 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 her/his particular background and relating it to international matters. Open only to seniors.

***481. Geomorphology.** (3) Snead
Origin, development, and classification of landforms, with detailed consideration of gradation processes.
Prerequisites: Geol 101 and 105L or permission of instructor.

***482. Remote Sensing Systems.** (3) Morain
Platforms and sensor systems used to acquire non-photographic data about earth's natural and cultural resources. Review principles of the electromagnetic spectrum and the strategies and techniques for data handling and image processing.
Prerequisite: 373 or permission of instructor.

***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.

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***484. Applied Remote Sensing. (3)** Morain
Reviews State-of-the-Art applications of aerial and satellite sensors for natural and cultural resources. Emphasis is placed on processing and interpreting multispectral scanner data, microwave and thermal scanner data as well as on development of Geographic Information Systems.
Prerequisite: 482 or permission of instructor.

***485L. Production Cartography. (3)**
An introduction to the photographic and mechanical techniques used to produce multiple-separation maps. Topics include basic photography fundamentals, diffusion transfer prints, negatives, scribing, contact prints, and advanced map design.
Prerequisite: 285L.

491-492. Problems. (1-3, 1-3 hrs. per semester)
Supervised individual study and field work.

***493-494. Internship in Applied Geography. (1-6, 1-6)**
Written field analysis of a project coordinated between the student, faculty, and private or public manager. Credits to be determined by supervising faculty.

501. Seminar in the History and Philosophy of Geography. (3) Cullen

511. Seminar in Physical Geography. (3)

512. Seminar in Environmental Problems. (3) Barrett

521. Seminar in Regional Geography. (3)

551-552. Problems. (1-3, 1-3 hrs. per semester)

555. Interdisciplinary Seminar: Asia. (3)
(Also offered as Hist, Pol Sc 555.)

560. Seminar in Human Geography. (3)

566. Seminar in Land-Use Planning. (3) Williams

571. Seminar in Man-Environment Systems. (3)

582. Seminar in Remote Sensing. (3) Morain

585. Seminar in Cartography. (3)
Prerequisite: 285L or 385L.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

GEOLOGY

Klaus Keil, Chairperson
Northrop Hall 141, 277-4204

PROFESSORS:

Roger Y. Anderson, Ph. D., Stanford University
Douglas G. Brookins, Ph. D., Massachusetts Institute of Technology
Wolfgang E. Elston, Ph. D., Columbia University
Rodney C. Ewing, Ph. D., Stanford University
Klaus Keil, Ph. D., Johannes Gutenberg University (Mainz, Germany)
Cornelis Klein, Ph. D., Harvard University
Albert M. Kudo, Ph. D., University of California (San Diego)
Lee A. Woodward, Ph. D., University of Washington

ASSOCIATE PROFESSORS:

John W. Geissman, Ph. D., University of Michigan
Jeffrey A. Grambling, Ph. D., Princeton University
Stephen P. Huestis, Ph. D., University of California (San Diego)
Barry S. Kues, Ph. D, Indiana University
Stephen G. Wells, Ph. D., University of Cincinnati
Crayton J. Yapp, Ph. D., California Institute of Technology

ASSISTANT PROFESSORS:

Laura J. Crossey, Ph. D., University of Wyoming
Christopher K. Mawer, Ph. D., Monash University (Australia)
Robyn Wright, Ph. D., Rice University

FACULTY ASSOCIATES AND RESEARCH ASSOCIATES:

Timothy H. Bell, Ph. D., Adelaide
Jonathan F. Callender, Ph. D., Harvard University
William F. Chambers, Ph. D., Duke University
Ernest S. Gladney, Ph. D., University of Maryland
Ishmael Hassan, Ph. D., McMaster University (Canada)
Steven J. Lambert, Ph. D., California Institute of Technology
Spencer G. Lucas, Ph. D., Yale University
Horton Newsom, Ph. D., University of Arizona
Frank V. Perry, Ph. D., University of California (Los Angeles)
Harald Poths, Ph. D., Johannes Gutenberg University (Germany)
Frans Rietmeijer, Ph. D., Rijksuniversitet-Utrecht (Netherlands)
Harrison "Jack" H. Schmitt, Ph. D., Harvard University
Edward R. D. Scott, Ph. D., Cambridge University (England)
John W. Shomaker, M. S., University of New Mexico
Carol L. Stein, Ph. D., Harvard University
G. Jeffrey Taylor, Ph. D., Rice University
Rosemary Vidale-Buden, Ph. D., Yale University

PROFESSOR EMERITI:

J. P. Fitzsimmons, Ph. D., University of Washington
Stuart A. Northrop, Ph. D., Yale University
Sherman A. Wengerd, Ph. D., Harvard University

MAJOR STUDY

Geology is the study of the Earth and other bodies in the solar system. It involves the study of the formation, composition and history of rocks, the large- and small-scale processes that modify them after they form (including the effects of water, the atmosphere and human activities), and the useful materials (metals, petroleum, coal, etc.) that may be obtained from them. Geology is a multidisciplinary science that utilizes chemistry, physics, biology, oceanography and other disciplines to achieve a comprehensive understanding of the evolution of our planet and the solar system.

MAJOR STUDY REQUIREMENTS

For the degree of Bachelor of Arts: Geol 301, 302, 303, 304, 307, 311L, 314L, 317L, 319L, 401, 490 and 13 additional hours above 299 (six of these may be taken in other sciences). Biol 121 or 122 (but not both) may count toward the 13 hours. Chem 121L, 122L, Math 162, 163 or 180, 181 as well as Physics 160, 161 or 151, 152 are required. B. A. students are not eligible for a distributed minor and must select an alternative minor or a second major.

For the degree of Bachelor of Science: Geol 102, 102L, 301, 311L, 302, 312L, 303, 313L, 304, 314L, 307, 317L, 318, 319L, 401, 420L, 490, and any two 400-level Geology courses excluding Geol 401, 420L, 482L, 490, 491-492, 493 and 495. In addition, Chem 121L, 122L, Math 162, 163, 264, Statistics, Physics 160, 161, 262 (a 400 level Geol course may be substituted for Physics 262). Students completing the B. S. program will have a distributed minor (see the Department of Geology main office for more information).

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.

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 honors advisor 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 REQUIREMENTS

The minor in geology will consist of 20 credit hours, of which 12 must be above the 299 level.

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 coursework 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

Contact department for information.

GEOLOGY (GEOL)

101. Physical Geology. (3)
Materials composing the earth, work of agencies, both external and internal, modifying its surface, and rock-forming processes. {Summer, Fall, Spring}

102L. [102] Historical Geology. (4) Wright
History of the earth and the evolution of continents and ocean basins; evolution of life.
Prerequisite: 101; pre- or corequisite: 105L. 3 lectures, 3 hrs. lab. {Summer, Fall, Spring}

104. Life on Earth. (3) Kues
Origin and evolution of life and some aspects of paleoecology.
Prerequisite: 101. {Spring}

105L. Physical Geology Laboratory. (1)
Minerals, rocks, and topographic and geologic maps; field trips.
Corequisite: 101. 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}

203. Earth Resources and Man. (3) Brookins, Elston, Ewing
Geologic occurrences of fuels and minerals and their influence on domestic and world affairs.
Prerequisite: 101 recommended. {Summer, Fall, Spring}

207L. Earth Resources and Man Laboratory. (1)
Ore specimens, exploration and utilization techniques; occasional field trips.
Pre- or corequisite: 203. 2 hrs. lab. {Summer, Fall, Spring}

209. The Earth Environment. (3) Anderson
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}

211. Dinosaurs and Their World. (3)
Survey of the fossil record, evolution, paleobiology, and extinction of dinosaurs, and the animals they shared the earth with. 3 lectures. {Fall}

215. Interior of the Earth. (3) Geissman, Huestis
Internal constitution of the earth, earthquakes and seismic risk, earth's magnetism, gravity, and thermal state, and relations to plate tectonics.
Prerequisite: 101 or permission of instructor. {Fall, Spring}

225. Oceanography. (3) Huestis, Kudo
The ocean as a physical and chemical feature and a dynamic process. {Summer, Fall, Spring}

250. 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}

255L. New Mexico Field Geology. (4)
Scientific method in field observation and analysis of geologic phenomena. Written report for each 4-hour field trip; 2-hour lecture to discuss previous field project and perparation for following project.
Prerequisites: 101, 105. {Offered upon demand}

263. Geology of National Parks. (3) Kudo, Wright
Study of the geologic features and history of our national parks as an introduction to basic geologic principles. {Fall}

265. Lunar and Planetary Geology. (3) Elston, Keil
Geology of the moon and planets as deduced from visual and geophysical observations, space probe data, laboratory experiments, meteorites, tektites, and terrestrial analogs of lunar and planetary features.
Prerequisite: 101 or 102, or permission of instructor. {Spring}

****300. Topics in Geology. (3)**
Summary of specific areas of geology, designed especially for earth science teachers and other non-traditional students. Subjects may vary from year to year; lectures normally supplemented by laboratory exercises.
Prerequisite: permission of instructor. {Spring and upon demand}

****301. Mineralogy I. (2)** Ewing, Keil, Klein
Introduction to crystallography, crystal chemistry and basic crystal structures and their relation to physical and chemical properties of materials.
Prerequisites: 101, 105L; pre- or corequisites: Chem 121L, Geol 311L. 2 lectures. {Fall}

****302. Mineralogy II. (2)** Grambling, Klein
Systematic review of the structure, chemistry, physical and optical properties of rock forming minerals.
Prerequisites: 301, 311L; pre- or corequisites: Chem 122L, Geol 312L. 2 lectures. {Spring}

****303. Igneous and Metamorphic Petrology. (2)** Grambling, Kudo
Introduction to classification, identification, occurrence and origin of igneous and metamorphic rocks.
Prerequisites: 302, 312L, Chem 122L, or permission of instructor; corequisite: 313L. 2 lectures. {Fall}

****304. Sedimentology and Stratigraphy. (2)** Crossey, Wright
Introduction to origin, petrology and stratigraphic occurrence of sedimentary rocks.
Prerequisites: 303, 313L, or permission of instructor; corequisite: 314L. 2 lectures. {Spring}

Symbols - See page 379

****307. Structural Geology. (3)** Mawer
Nature and origin of rock structures and deformation; map and stereographic projection problems; stress and strain.
Prerequisites: 105L, Math 162, Physcs 160 or permission of instructor. Corequisite: 317L. 3 lectures. {Fall}

****311L. Mineralogy I Laboratory. (2)** Ewing, Keil
Hand-specimen mineral identification, crystallography and crystal chemistry.
Prerequisites: 101, 105L; pre- or corequisites: Chem 121L, Geol 301. 6 hrs. lab. {Fall}

****312L. Mineralogy II Laboratory. (1)** Grambling, Klein
Laboratory will include optical mineralogy and microscopic identification of non-opaque minerals.
Prerequisites: 301, 311L; pre- or corequisites: Chem 122L, Geol 302. 3 hrs. lab. {Spring}

****313L. Igneous and Metamorphic Petrology Lab. (1)** Grambling, Kudo
Laboratory will integrate hand-specimen identification and petrography.
Prerequisites: 302, 312L, Chem 122L and permission of instructor; corequisite: 303. 3 hrs. lab. {Fall}

****314L. Sedimentology/Stratigraphy Laboratory. (1)** Crossey, Wright
Field and laboratory techniques in sedimentary rock identification, petrography and correlation.
Prerequisites: 303, 313L, or permission of instructor; corequisite: 304. 3 hrs. lab. {Spring}

****317L. Structural Geology Laboratory. (1)** Mawer
Orthographic, stereographic and map projections: subsurface analysis; strain analysis, field problems in structural geology.
Prerequisites: 105L, Math 162, Physcs 160 or permission of instructor; corequisite 307. 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. Introductory Field Geology.** [Field Geology and Reports] **(4)** Geissman
Principles and techniques of basic field mapping; layout, preparation, and presentation of maps and cross-sections; content of geologic reports.
Prerequisites: 304, 307, 314L, 317L. Usually offered as a 3-week (21 consecutive days) course; occasionally during the Spring Semester with 1 lecture and 1 full day in field each week. {Summer I, Spring}

326. Quaternary Systems. (3) Anderson
(Also offered as Quat 326.) Interdepartmental seminar and readings, addressing Quaternary problems and relationships between modern and ancient environments. {Fall}

****333L. Environmental Geology. (3)** 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. {Offered upon demand}

***401. Seminar. (1)†Δ**
Current topics in geology. **Graded on CR/NC basis.**
Prerequisites: 304, 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: 303, 313L, Math 264; corequisites: 304, 314L. 3 lectures, 3 hrs. lab. {Spring}

***410. Fundamentals of Geochemistry. (3)** Brookins, Yapp
Geochemistry of igneous, metamorphic, and sedimentary rocks. Geochemical methodology.
Prerequisites: 304, 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. 3 lectures, 3 hrs. lab. {Fall}

***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. 3 lectures, 3 hrs. lab. {Spring}

***417L. Advanced Structural Geology. (3)** Mawer
Principles of small-scale deformation, mountain building and structural evolution of the lithosphere.
Prerequisites: 307, 317L and either 426L or 427, or permission of instructor. 2 lectures, 3 hrs. lab. {Spring}

***420L. Advanced Field Geology. (4)** Mawer
Advanced geological field techniques; special field problems concentrating on the Rio Grande Rift tectonism, and its effects on all ages of New Mexico rocks.
Prerequisite: 319L. Usually offered as a 3-week (21 consecutive days) course. {Summer}

***426L. Exploration Geophysics. (4)** Geissman
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 Physcs 327.) Structure, constitution, and deformation of earth as determined by gravity, magnetics, seismology, and heat flow. Related aspects of plate tectonics.
Prerequisites: 101, Math 264, Physcs 262. {Offered upon demand}

***431L. Palynology–*Micropaleontology*. (4)** Anderson
Studies of the morphology, methods of identification, ecology and applications of pollen, spores, nannofossils, foraminifera and other microfossils.
Prerequisite: 105L, some biology strongly recommended. 3 lectures, 3 hrs. lab. {Fall 1989 and alternate years}

***439. Paleoclimatology. (3)** Anderson, Yapp
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 1989 and alternate years}

***441L. Advanced Sedimentology. (4)** Wright
Provenance, dispersal, deposition, diagenesis, and classification of sediments; depositional systems and basin analysis.
Prerequisite: 304, 314L. 3 lectures, 3 hrs. lab. {Fall}

***442. Petroleum Geology. (3)**
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. Subsurface Geology. (3)** Woodward
Pre- or corequisites: 307, 317L. 1 lecture, 6 hrs. lab. {Offered upon demand}

***455L. Photogeology and Air Imagery Analysis. (3)** McFadden
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. {Fall 1990 and alternate years}

***462. Hydrogeology. (3)** 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. {Spring 1990 and alternate years}

***470F. Summer Paleontology Field Session. (3-6)Δ**
Intensive instruction in paleontological field and laboratory techniques and the opportunity for independent student research.
Prerequisite: permission of instructor. {Summer 1990 and alternate years}

***471L. Mineral Deposits. (4)** Elston
Origin, classification, occurrence, and exploration of mineral deposits.
Prerequisites: 304, 314L, 307, 317L. 3 lectures, 3 hrs. lab. {Fall}

***472. Quantitative Hydrogeology. (3)**
Handling of quantitative hydrologic data needed for analysis of ground-water systems under induced stress.
Prerequisite: 462. 3 lectures. {Offered upon demand}

***481L. Geomorphology and Surficial Geology. (4)** Wells
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}

***482L. Geomorphology of the United States. (3)** Wells
Detailed study of the geomorphic evolution of physiographic provinces 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, arid and, tectonic terrains. Emphasis on quantitative treatment of field data and application to environmental problems.
Prerequisite: 481L or permission of instructor. 1 lecture, 4 hrs. lab. {Spring 1990 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 1990 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 hrs. lab. {Fall 1989 and alternate years}

***486L. Introduction to X-ray Mineralogy. (2)** Ewing, Klein
Theory and practice of x-ray powder diffraction. Film and diffractometer methods and their application to the identification and characterization of minerals.
Prerequisites: 301, 311L.

***487L. Advanced Mineralogy. (4)** Ewing, Klein
Crystallographic principles; structure, chemistry, physical properties of rock forming minerals.
Prerequisites: 301, 302, 311L, 312L, Chem 122L. 3 lectures, 3 hrs. lab. {Spring on alternate years}

***490. Geologic Presentation. (1)**
Student reviews of geologic literature and critique.
Prerequisite: senior standing. {Fall, Spring}

491-492. Problems. (1-3, 1-3)

493. Independent Study. (3)
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) Crossey
Pre- or corequisites: 304, 314L. 3 lectures. {Fall 1989 and alternate years}

502L. High-temperature Geochemistry. (3) Kudo, Yapp
Pre- or corequisites: 304, 314L, 405L. 2 lectures, 3 hrs. lab. {Spring 1990 and alternate years}

504. Geochronology. (3) Brookins
Prerequisite: 304, 314L; 405L recommended. {Fall 1989 and alternate years}

505L. Stable Isotope Geochemistry. (3) Yapp
Prerequisite: permission of instructor. {Spring 1989 and alternate years}

506L. Mathematical Crystallography. [Structure Analysis by X-ray Crystallography] **(4)** Ewing
Prerequisites: Math 314. 3 lectures, 3 hrs. lab. {Fall}

508L. Paleomagnetism and Applications to Geological Problems. (3) Geissman
Prerequisites: 311, 417, Physcs 152. {Spring}

509. Environmental Geochemistry. (3) Brookins
Prerequisite: permission of instructor. {Spring 1990 and alternate years}

510. Advanced Mineral Deposits. (3) Elston
Prerequisite: 471L. {Spring 1990 and alternate years}

512L. Petrography of Opaque Ores. (3) Keil
Prerequisites: 303, 313L, 471L. 1 lecture, 6 hrs. lab. {Offered upon demand}

513L. Meteoritics and Cosmochemistry. (3) Keil
Prerequisites: 304, 314L or permission of instructor. 2 lectures, 3 hrs. lab. {Offered upon demand}

514. Precambrian Geology. (3) Grambling
Prerequisites: 303, 304, 307. {Fall 1990 and alternate years}

516. Selected Topics in Geomorphology. (3) McFadden, Wells
{Offered upon demand}

517L. Instrumental Methods in Geochemistry. (2-4)†Δ
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. (3) Keil
Prerequisite: permission of instructor. 2 lectures, 3 hrs. lab. {Fall}

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519L. Selected Topics in Geochemistry. (2-4)Δ
Prerequisite: permission of instructor. {Spring}

520. Selected Topics in Geobiology. (3)†Δ Kues, Lucas
Prerequisite: permission of instructor. {Offered upon demand}

521L. Metamorphism. (4) Grambling
Prerequisites: 304, 314L, 405L, or permission of instructor. 3 lectures, 3 hrs. lab. {Spring 1989 and alternate years}

522. Selected Topics in Geophysics. (3) Geissman, Huestis
Prerequisite: permission of instructor.

523. Topics in Tectonics. (3)
Prerequisite: permission of instructor. {Offered upon demand}

525L. Comparative Tectonics. (4) Woodward
Prerequisites: 307, 317L. 2 lectures, 3 hrs. lab. {Fall}

528. Regional Tectonics. (3) Woodward
{Spring 1990 and alternate years}

531L. Igneous Petrology. (4) Kudo
Prerequisites: 303, 313L. 3 lectures, 3 hrs. lab. {Fall}

537L. Stratigraphic Analysis. (3)
Prerequisites: 307, 317L, 441L. 2 lectures, 3 hrs. lab. {Offered upon demand}

538L. Analytical Electron Microscopy. (3)
Prerequisites: 486, 487 and 518L, or permission of instructor. {Spring}

539. Quaternary Field Methods. (4) Wells
(Also offered as Quat 539.) {Fall}

540. Advanced Stratigraphy–Sedimentology. (3) Anderson
Prerequisite: permission of instructor. {Spring}

544L. Sedimentary Petrology. (4)
Prerequisites: 304, 314L and 441L. 2 lectures, 6 hrs. lab. {Offered upon demand}

545. Hazardous Waste Disposal. (3) Brookins
Prerequisite: permission of instructor. {Fall 1990 and alternate years}

547-548. Seminar. (2-3, 2-3)

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

Jonathan Porter, Chairperson
Mesa Vista 1104, 277-2451

PROFESSORS:

Peter J. Bakewell, Ph. D., Cambridge University
Michael L. Conniff, Ph. D., Stanford University
Richard N. Ellis, Ph. D., University of Colorado
Richard W. Etulain, Ph. D., University of Oregon
Linda Hall, Ph. D., Columbia University
Robert W. Kern, Ph. D., University of Chicago
David R. Maciel, Ph. D., University of California (Santa Barbara)
Charles McClelland, Ph. D., Yale University
Gerald D. Nash, Ph. D., University of California (Berkeley)
Howard N. Rabinowitz, Ph. D., University of Chicago
Janet Roebuck, Ph. D., University of London
Ferenc M. Szasz, Ph. D., University of Rochester

ASSOCIATE PROFESSORS:

Richard M. Berthold, Ph. D., Cornell University
Paul A. Hutton, Ph. D., Indiana University
John L. Kessell, Ph. D., University of New Mexico
Steven P. Kramer, Ph. D., Princeton University
Noel H. Pugach, Ph. D., University of Wisconsin
Richard G. Robbins, Ph. D., Columbia University
Donald E. Skabelund, Ph. D., University of Utah
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
Melvin Yazawa, Ph. D., Johns Hopkins University

ASSISTANT PROFESSORS:

Daniel M. Feller, Ph. D., University of Wisconsin (Madison)
Patricia Ann Risso, Ph. D., McGill University

PROFESSOR EMERITI:

Donald C. Cutter, Ph. D., University of California (Berkeley)
William Dabney, Ph. D., University of Virginia
Frank W. Ikle', Ph. D., University of California (Berkeley)

MAJOR STUDY

A history major is especially well suited to prepare a student for graduate study or work in the professions. The Department encourages those students who have a firm idea of their career goals to specialize at the undergraduate level, taking courses which will support their career objectives. Others study history because it gives a general background which will prepare them intellectually for advanced study in business, law, theology, archival management, editing, public administration, or similar careers that require a liberal arts background with a research emphasis. The Department encourages such students to take a broad range of courses covering the history of the various regions of the world.

MAJOR STUDY REQUIREMENTS

The history program for general majors, as outlined below, is designed to provide some of the cultural background necessary for intelligent and responsible living and lifelong intellectual growth. It also helps to prepare students for a variety of professions and careers. The lower-division requirement includes Hist 101 and 102, and one of the following pairs: 161-162, 251-252, 281-282, for a total of 12 hours. The upper-division requirement includes a minimum of eight 300-400 level semester courses (24 hours), including Hist 309 (Historiography). A minimum of two courses in each of three fields is necessary, ie. 2 in U.S., 2 in Latin America, 2 in Europe, etc. Consult the undergraduate advisor for variations possible in this program.

Hist 410, 411, 491 can be used as electives for undergraduate majors, but not as field requirements.

MINOR STUDY REQUIREMENTS

The planned program outlined below is designed to supplement a student's work in his/her major field. In total it requires a minimum of 7 semester-long courses (21 hours) at the lower and upper division. The lower-division requirement includes a minimum of two semester courses (6 hours) from the following: Hist 101, 102, 161, 162, 251, 252, 281, 282.

The upper-division requirement includes a minimum of five semester courses (15 hours), at least three of which must be concentrated in one field, ie. U. S., Europe, etc.

PERIOD MINOR REQUIREMENTS

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 advisor. 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. Details are available in the Department.

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. Western Civilization. (3) Berthold, Kern, Kramer, McClelland, Robbins, Roebuck, Skabelund, Slaughter, Steen, Spidle, Sullivan
Ancient times to 1648. {Summer, Fall, Spring}

102. Western Civilization. (3) Berthold, Kern, Kramer, McClelland, Robbins, Roebuck, Skabelund, Slaughter, Steen, Spidle, Sullivan
1648 to present. {Summer, Fall, Spring}

108. History of the Americas. (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. History of the Americas. (3)
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.

111. Western Civilization - Ancient Times to 1648 - Discussion. (1)
{Fall}

112. Western Civilization - 1648 to Present/Discussion. (1)
{Spring}

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 Soc, Pol Sc, M Lang 150.) An interdisciplinary 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 prerequisite.

161. History of the United States. (3) Connell-Szasz, Etulain, Feller, Hutton, Nash, Pugach, Rabinowitz, Szasz, Yazawa
Survey of the economic, political, intellectual, and social development of the United States, including the place of the U.S. in world affairs from 1607 to 1877. {Summer, Fall, Spring}

162. History of the United States. (3) Connell-Szasz, Etulain, Feller, Hutton, Nash, Pugach, Rabinowitz, Szasz, Yazawa
Survey of the economic, political, intellectual, and social development of the United States, including the plase of the U.S. in world affairs from 1877 to the present. {Summer, Fall, Spring}.

163. History of the United States. (3) Feller, Hutton, Nash, Pugach, Rabinowitz, Szasz, Yazawa
Survey of the economic, political, intellectual, and social development of the United States, including the place of the U.S. in world affairs from 1607 to 1877. For students with ACT scores of 25 or higher.

164. History of the United States. (3) Feller, Hutton, Nash, Pugach, Rabinowitz, Szasz, Yazawa
Survey of the economic, political, intellectual, social development of the United States, including the place of the U.S. in world affairs from 1877 to the present. For students with ACT scores of 25 or higher.

171. History of United States to 1877/Discussion. (1)

172. History of United States, 1877 to the Present/Discussion. (1)

220. Studies in History. (1-3)Δ
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}

230. USSR Today -- People, Politics, Culture. (3)
(Also offered as Russ, Pol Sc, Econ 230.)

251. Traditional Eastern Civilizations. (3) Porter, Risso
The orgin and development of the traditional societies and cultures of Indian, Southeast Asia, China, Japan and the Middle East.

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252. Modern Eastern Civilizations. (3) Porter, Risso
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.

270. The American West: A Survey. (3) Connell-Szasz
An introduction to the major periods and themes of frontier and western history. From Indian and Spanish experiences through the frontier era and on to the contemporary West. The emphasis will be on a broad sweep of the subject.

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 from1848 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, Hall
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
(Also offered as Relig 301.) Survey of Jewish history in Ancient and Medieval times, stressing major religious, intellectual, political and social developments. Traces the transformation of the Hebrews into the Jews and Israelite religion into Judaism, Highlights the Rabinic era and the diaspora experience in the Islamic and Christian worlds. {Fall}

***302. Modern History of the Jewish People.** (3) Pugach
(Also offered as Relig 302.) Survey in ethnic history stressing political, religious, and social developments from the expulsion from Spain (1492) to the present. 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)
(Also offered as Relig 305.) 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
(Also offered as Relig 306.) 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) 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 milennium 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 seventeeth 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)
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.

***325. Reformation Era, 1500-1600. (3)** Sullivan
(Also offered as Relig 325.) 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 "lossir" sciences, the preternatural-neglected episodes in Western civilizations.

***327. History of Technology. (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, Kramer, Roebuck
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 CRP and Soc 338.) Overview of development of urban forms, throughout history, with emphasis on modern times, which examines the causes of urban growth and change and ways in which cities have affected course of development of Western society.

***340. Military History of Modern Europe. (3)**

***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)** Steen
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)**
Social, political, and economic institutions from historical beginnings to modern times.

***353. Southeast Asia. (3)**
Early civilization, the impact of colonialism and nationalism to the present.

***354. Diplomatic History of East Asia. (3)**
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. The Islamic Middle East to 1800. (3)** Risso
The political, social and economic development of the Islamic world through the Ottoman and Safavid eras. Arab, Persian and Turkish elements of Islamic civilization will be included.

Symbols - See page 379

***357. History of Africa since 1800. (3)** Spidle
Survey of the African continent during colonial and national periods.

***358. The Modern Middle East from 1800. (3)** Risso
Topics include nineteenth century reform attempts, the transition from empire to nation-states, the gap between ideology and practice, the Arab-Israeli conflict, and revolutionary Iran.

***359. India. (3)** Risso
History of South Asia with emphasis on cultural development, social groups and religious communities, and the establishment of the modern nation-state of India.

***360. History of New Mexico. (3)** Kessell
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)** Feller
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)**
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)** Yazawa
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)** Connell-Szasz
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)** Connell-Szasz, Hutton
Anglo-American expansion from the seventeenth century to the 1890s.

***374. The Trans-Mississippi West. (3)** Connell-Szasz, Hutton

***375. Military History of the United States. (3-4)** Hutton
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)**
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)**
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)** Kessell
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
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.

***386. Western Films. (3)** Etulain
Intended to complement courses in the history of the American West. It will deal with the role of Westerns in the development of the American film industry. The approach will be interdisciplinary and utilize approaches from the fields of history, literature and film. {Fall}

387. Blacks in Latin America. (3)
Survey of the history and assimilated culture of the black man in Latin America since colonial times.

***389. Latin American Philosophy. (3)**
(Also offered as Soc, Phil 389) pre Columbian thought through independence ideologies.

***390. Latin American Philosophy. (3)**
(Also offered as Soc, Phil 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) Hall

***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. 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 decandent period and the crisis in values, scientific revolution; existentialism; Dostoevski, Nietzsche, Heinsenberg, Freud, Bergson, Kierkegaard, Sarte, 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. Asian Studies Senior Thesis. [Interdisciplinary Asian Studies] (3)
(Also offered as Phil, Geog, Pol Sc 453.) Supervised research in one or more disciplines leading to an undergraduate thesis for the major in Asian Studies.

456. Islam. (3) Risso
(Also offered as Relig 456.) Topics include the development of: Islamic law and theory; philosophy and mysticism; ritual and art. The political, social and economic ramifications of Islam will be emphasized.

***461. The American Colonies, 1607-1763.** (3) Yazawa
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) Yazawa
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 Age of Jackson.** [The Era of Sectional Conflict, 1820 to 1860] (3) Feller
The United States from 1815 to 1848, emphasizing economic growth, social transformation, westward expansion, political democratization, nationalism and sectionalism, and the rise of the slavery controversy.

***466. The Civil War Era.** (3) Feller
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)
Economic development, social change, and political crises since 1850.

***482. The Mexican Revolution.** (2-3) Hall
Emphasis upon theory and interpretation. 3 hrs. credit with term paper.

***483. Twentieth-Century Social Revolutions in Latin America.** (2-3)
3 hrs. credit with term paper.

***484. The Cuban Revolution, 1959 to Present.** (3)
(Also offered as Soc 484.) Background to revolution since 1898; emphasis on period since 1959.

***485. Intellectual History of Latin America.** (3)

***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.

Symbols - See page 379

***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 Bragance Empire, the Populist Era, and the Future World Power.

***491. Internship.** (3-9)
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 advisor.

494. Senior Thesis. (3)
Prerequisite: 493.

495. Undergraduate Honors Colloquium. (3)
Prerequisite: permission of instructor.

496. Undergraduate Readings in History. (1-3)Δ
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)† Hall, Herron, T. Holzapfel, Nason, Tomlins
(Also offered as Ib-Am, Port, 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 CIMTE 549.)

****550. Seminar in History Education.** (3)
(Also offered as CIMTE 550.)
Prerequisite: 549.

551-552. Problems. (1-3, hrs. per semester)

554. Seminar and Studies in Far Eastern History. (3) Porter, Risso

555. Interdisciplinary Seminar: Asia. (3)
(Also offered as Geog, Pol Sc 555.)

562. Seminar and Studies in Early American History. (3) Yazawa
Pre- or corequisite: 462.

563. Seminar and Studies in U. S. Urban History. (3) Rabinowitz

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)Δ

566. Seminar and Studies in Civil War Period. (3) Feller

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) Etulain, Hutton

574. Seminar in American Indian History. (3) Connell-Szasz

579. Seminar in Southwest History. (3)

581. Seminar in Colonial Latin American History. (3) Bakewell

582. Seminar in Recent Latin American History. (3) Hall

584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Merkx, Needler, Schwerin
(Also offered as Econ, Pol Sc, 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

Garland Bills, Director
Latin American Institute
801 Yale N. E., 277-2961

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.

NOTE: A change in this PH. D. program to a multidisciplinary degree in Latin American Studies has been proposed and it is anticipated the process will be completed during the 1988-

1989 academic year. Students in this program would select a major area of concentration from one of six disciplines (history, anthropology, political science, sociology, Spanish American literature or Brazilian literature, and Hispanic linguistics), and a minor field of concentration in a second discipline which can be selected from a list of eleven fields. Consult the graduate advisor for additional details.

IBERO-AMERICAN (IB-AM)

***504. Seminar in Ibero-American Studies. (3)Δ**
(Also offered as Port, Span 504, Hist 504 and 589.) {Fall, Spring}

584. Interdisciplinary Seminar on Problems of Modernizationin Latin America. (3)Δ Gregory, Merkx, Remmer
(See Econ, Hist, Pol Sc, Soc 584.) {Spring}

651-652. Problems. (1-3, 1-3 hrs. per semester)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

ITALIAN

See *Modern and Classical Languages.*

INTERNATIONAL STUDIES

ASIAN STUDIES

Patricia Risso, Chairperson
Mesa Vista 1111, 277-5807/277-2451

ADVISORY COMMITTEE:

Jonathan Porter, History
Rodman Snead, Geography
Fred Gillette Sturm, Philosophy
Pearl Wu, Modern Languages

UNDERGRADUATE MAJOR

The interdepartmental major requires 36 hours from the approved Asian Studies course list (below). Of these, 21 must be 300-level or above. 36 credit hours total: 3 hrs Senior Thesis (Hist, Geog, Phil, Pol Sc 453); 6 hrs History; 6 hrs Philosophy or Religious Studies; 3 hrs Geography, Anthropology, Economics, Political Science or Sociology; 12 hrs an Asian language; 6 hrs elective; 453 may not be counted twice. Each student will be required to declare a regional concentration and to have the proposed course distribution approved by the Asian Studies Committee at the beginning of the junior year. Regional concentrations are: East Asia, South Asia, and the Middle East. A Senior Thesis is required. The student may choose a topic within a single discipline or culture or may elect an interdisciplinary and/or cross-cultural approach. The Asian Studies Committee will appoint two thesis readers, normally the primary supervisor and another Committee member from an appropriate field. Two copies of the thesis must be submitted. Modification of the language requirement may be made on an individual basis with the approval of the Committee Chair.

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):

Anth 321, 391; Art Hi 303, 429 when the topic is appropriate; Econ 450, 478; Gn Hon 302; Geog 336, 337, 478; Hist 251, 252, 301, 302, 311, 350, 351, 352, 353, 354, 355, 356, 358, 359, 370, 371, 450, 456, plus 495 and 496 when topic is appropriate; Chin 101, 102, 201, 202, 301, 302; Japan 101, 102, 201, 297; Phil 107, 263, 334, 335, 336, 337, 341/441, 342/442, 348; Pol Sc 450,478; Relig 107, 109/110, 230, 231, 263, 301, 302, 347, 456; Soc 221, 478; W St 331 when topic is appropriate. For information about Arabic and Persian, see the Asian Studies Committee Chair.

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 and art history; 3 hours in philosophy and literature (English, comparative literature, and modern and classical languages philosophy); 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, Management, and Law.)

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RUSSIAN AND EAST EUROPEAN STUDIES

Gregory Gleason, Chairperson
2064 Social Sciences, 277-5447

COMMITTEE IN CHARGE

PROFESSOR:

Paul Jonas, Ph. D., Columbia University, (Economics)

ASSOCIATE PROFESSORS:

Natasha Kolchevska, Ph. D., University of California (Berkeley), (Modern Languages)
Richard Robbins, Ph. D., Columbia University, (History)
Gerald Slavin, Ph. D., University of New Mexico, (Advisement)

ASSISTANT PROFESSORS:

Gregory Gleason, Ph. D., University of California (Davis) (Political Science)
Byron Lindsey, Ph. D., Cornell University, (Modern Languages)

AFFILIATED FACULTY:

Fritz Cocron, History/Political Science
Bruno Hannemann, Modern Languages
Vera John-Steiner, Educational Foundations/Linguistics
Robert Kern, History
Charles McClelland, History
Jay Sorenson, Political Science

MAJOR STUDY

The combined major in Russian Studies is administered by the interdepartmental committee listed above. The goal of the program is to provide the student with a broad knowledge of modern Russia and Eastern Europe through the study of humanities, language, literature, and the social sciences. Study of the Russian language beyond a reading knowledge is required. The major does not require a minor for graduation, though one is offered.

MAJOR STUDY REQUIREMENTS

The major in Russian Studies requires 56 semester hours. (No minor is required of the student majoring in Russian Studies). Majors must complete the Core Courses and one field specialization in consultation with a Russian Studies advisor.

The Core--(35 semester hours)

Russian Language--(20 hours)
- Russ 101-102. Elementary Russian. (3-3)
- Russ 201-202. Intermediate Russian. (3-3)
- Russ 203. Russian Conversation (Intermediate). (2)
- Russ 301. Advanced Russian. (3)
- Russ 302. Advanced Russian. (3)

Russian Civilization--(3 semester hours from the following):
- Russ 338. Russian Literature in Translation. (3)OR
- Russ 345. Russian Civilization. (3)OR
- Russ 343. Soviet Literature in Translation.

Russian History--(6 semester hours)
- Hist 348. Romanov Russian to 1855. (3)
- Hist 349. Russian in the Era of Reform and Revolution, 1855 to present. (3)

The Contemporary Soviet System--(6 semester hours from the following):
- Econ 455. The Soviet Economic System. (3)
- Pol Sc 357. Government and Politics of the Soviet Union. (3)
- Pol Sc 449. Soviet Foreign Policies. (3)

Field Specialization. --21 semester hours in one of the following areas:

I. *Russian Language and Civilization*

II. Soviet Studies

III. Soviet Studies/International Security Affairs

IV. Soviet Studies/International Commerce

V. East European Studies

MINOR STUDY REQUIREMENTS

The minor in Russian Studies requires 23 semester hours: 14 hours of Russian language and 9 hours of Russian History, Political Science, Civilization and/or Economics.

JOURNALISM

Fred V. Bales, Chairperson
Journalism 208, 277-2326

ASSOCIATE PROFESSORS:

Fred V. Bales, Ph. D., University of Texas
Charles K. Coates, B. A., University of Virginia
D. Clark Edwards, M. A., University of Missouri
Robert H. Lawrence, M. A., University of New Mexico

ASSISTANT PROFESSORS:

Bob M. Gassaway, Ph. D., University of Missouri

MAJOR STUDY

All Journalism majors must complete 33 hours of course work, 24 hours in required courses and 9 in electives. Majors are encouraged to minor in other departments in the College of Arts and Sciences, although minors in other colleges, such as Fine Arts, or in the Anderson School of Management, may be appropriate in individual cases. Also, Journalism majors may want to consider a distributed minor after consultation with the chairperson.

MAJOR STUDY REQUIREMENTS

Students wanting to concentrate on News-Editorial must complete 33 hours, including 251, 252, 301, 312, 322, 375, 475, and 494.

Students wanting to concentrate on Television-Radio must complete 33 hours, including 251, 252, 301, 322, 340, 341, 470, and 494.

Students wanting to concentrate on advertising are encouraged to consider a joint M. B. A. program, combining journalism and appropriate business courses. Interested students should consult an advisor in Journalism.

Students may not take more than 33 hours without special permission.

MINOR STUDY REQUIREMENTS

A minor consists of 21 hours, including 251, 252, 494, and 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. {Summer, Fall, Spring}

110. Mass Media and Society. (3)
(Also offered as Comm, T A 110.) The development of the mass media with emphasis on television in the areas of programming, policy, regulations, economics, and technology. Examination of the social, cultural, and political impact of the mass media on contemporary society. Does not count toward a major. {Fall}

111. Technical Introduction to Television. (3)
(Also offered as Comm, T A 111.) 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. Course fee required.
Prerequisite or corequisite: T A/Journ/Comm 110.

251. News Writing. (3)
Emphasizes writing, usage and style elements for print, broadcast and teletext news. Language skills, typing ability required. Open to students with 24 hours of university credit or declared majors with 15 hours, GPA of at least 2.0 who have passed Engl 102 or equivalent. {Summer, Fall, Spring}

252. News Reporting. (3)
Continues 251 with greater emphasis on gathering news from original sources and improved writing skills for all media.
Prerequisite: Grade of C or better in 251. {Fall, Spring}

253. Newspaper Practice. (1)Δ
Open to staff members of The Lobo. May be taken three times. {Fall, Spring}

254. Broadcast Practice. (1)Δ
Open to staff members of KUNM-FM. May be taken three times. {Fall, Spring}

261. News Photography. (3)
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. {Fall, Spring}

277. Graphic Design I. (3)
(Also offered as Art St 277.) An exploration of the history, techniques, and imagery of visual communication.
Prerequisites: Art St 106, 121, 187. {Fall}

280. Critical Thinking and Writing. (3)
Evaluation of information presented in the mass media and how such information is written, understood and used in daily life. Requires written microthemes about the mass communication media and presentation of short oral reports for discussion.
Prerequisite: Permission of instructor. {Spring}

288. Spanish for Professionals. (3)
(See Span 277-278.)

301. History of Journalism in the United States. (3)
American journalism from the pre-colonial beginnings through modern times.
Prerequisite: permission of instructor. {Fall}

302. Persuasive Writing. (3)
Writing the editorial essay, the column, and other interpretive matters.
Prerequisites: 252 and permission of instructor. {Spring}

312. Copy-Editing and Makeup. (3)
Practice in editing and presenting news copy by headlines, typography, page makeup and video display terminal.
Prerequisite: 252 with grade of C or higher. 2 lectures, 2 hrs. lab. {Fall, Spring}

322. Law of the Press. (3)
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)
How to write and sell non-fiction and fiction to magazines today.
Prerequisite: permission of instructor. {Fall,Spring}

340. Broadcast News I. [Broadcast News Programs] (3)
Reporting for the broadcast media, primarily radio. Students cover events, develop beats, and produce radio reports which are offered to KUNM-FM. Includes practice in field recording, sound mixing and program production.
Prerequisite: 252 with grade of C or higher. {Fall, Spring}

341. Broadcast News II. [Television News Programs] (3)
Emphasis is on television news. Students learn use of ENG cameras and editing equipment, learn studio procedures, and produce, write and anchor short news programs.
Prerequisite: 340. {Fall, Spring}

361. Photojournalism II. (3-6)
Continues 261 with greater emphasis on camera reporting, color photography, weekly news assignments, scaling photos for reproduction, advanced black and white darkroom techniques. For majors only. {Offered upon demand}

375. Intermediate Reporting. (3)
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. (1, 3)
Supervised internship with a medium of mass communications. Prerequisites: permission of instructor and 9 hours of journalism, including 375 for print media, 340 for broadcast media or 401 for advertising. May be repeated for 1 hour. {Fall, Spring}

401. Advertising. (3)
Theory, strategy, and techniques of advertising and advertising campaigns. Prerequisite: permission of instructor. {Fall, Spring}

402. Advertising Campaigns. (3)
Theory, strategy, and techniques applied to advertising campaigns.
Prerequisite: 401 or permission of instructor. {Spring}

405. Public Affairs Programming. (3)
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}

Symbols - See page 379

406. Special Programming. (3)
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}

***455. Microcomputers in Journalism. (3)**
The course is designed to teach the contemporary usage of microcomputers in the journalistic profession. No prior computer experience is expected. The course applies off-the-shelf software toward solving problems encountered by journalists in daily work life.
Prerequisite: Open to journalism majors and minors. {Fall, Spring}

469. Media Management. (3)
The functions of management in the communication field, with emphasis on departmental problems, laws, personnel, and changing technology.
Prerequisites: 312, 322. {Offered upon demand}

470. News Documentaries. (3)
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. {Fall, Spring}

475. Advanced Reporting. (3)
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)
The power and the problems of the communications media with emphasis on evolving ethical standards. {Fall, Spring}

***496. Individual Study. (1-3 hrs. per semester, to a maximum of 6)**

***499. Public Affairs Seminar. (1-3)**
Domestic/foreign news developments, practice and criticism. Content varies with instructor.
Prerequisites: senior standing and/or permission of instructor. {Offered upon demand}

LATIN

see *Modern and Classical Languages.*

LATIN AMERICAN STUDIES

Garland Bills, Director
Latin American Institute
801 Yale N. E.
277-2961

PROFESSORS:

Peter Bakewell, History
Elinore M. Barrett, Geography
Garland Bills, Linguistics
Philip Bock, Anthropology
Sanford Cohen, Economics
Michael Conniff, History
Ronald Cummings, Economics
Pedro David, Sociology
Peter Evans, Sociology
Dick Gerdes, Modern Languages
Peter Gregory, Economics
Linda Hall, History
Fred Harris, Political Science
Tamara Holzapfel, Modern Languages
George Huaco, Sociology
Robert Kern, History
Robert Lenberg, Management
David Maciel, History
Gilbert Merkx, Sociology
Marshall R. Nason, Modern Languages (Emeritus)
Martin C. Needler, Political Science
Karen Remmer, Political Science
Gustavo Sainz, Modern Languages
Karl Schwerin, Anthropology
Frederick Sturm, Philosophy
Jon M. Tolman, Modern Languages
John A. Yeakel, Management

ASSOCIATE PROFESSORS:

Anita Alvarado, Anthropology
Richard Barrett, Anthropology
Garth Bawden, Anthropology
John J. Bergen, Modern Languages
Flora Clancy, Art History
Erlinda Gonzales-Berry, Modern Languages
Mary Grizzard, Art History
Tey Diana Rebolledo, Modern Languages
Rowena Rivera, Modern Languages
Mari Lyn Salvador, Anthropology
Robert Santley, Anthropology
Donald Tailby, Economics
Susan Tiano, Sociology
Nelson P. Valdes, Sociology

ASSISTANT PROFESSORS:

Raul de Gouvea, Management
Larry George, Political Science
Claudia Issac, Community and Regional Planning
Enrique LaMadrid, Modern Languages
David McGrath, Geography
Enylton de Sa' Rego, Modern Languages

INTERDISCIPLINARY COMMITTEE ON LATIN AMERICAN STUDIES

Garland Bills, Linguistics, Chairperson
Erlinda Gonzales-Berry, Modern Languages
Peter Gregory, Economics
Linda Hall, History
Robert A. Lenberg, Management
Karen Remmer, Political Science
Mari Lyn Salvador, Anthropology
Susan B. Tiano, Sociology,
Jon M. Tolman, Modern Languages

MAJOR STUDY

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 REQUIREMENTS

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 coursework related to the major.

A. Languages of Latin America: A Student may choose one of the following to develop language proficiency. Spanish concentration, Portuguese support skill: Spanish 301-302, Portuguese 101, 102. Portuguese concentration, Spanish support skill: Portuguese 201, 202-307 or 250-307, Spanish 101,102.

B. Students will complete four of the following core courses: Anth 314, Econ 421, Geog 301 or 302, Hist 281 or 282, Pol Sc 356, Phil 389 or 390, Soc 350 or 450, Span 357
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.

BRAZIL STUDIES CONCENTRATION

A new option within the undergraduate major provides for a Certificate of Concentration in Brazilian Studies. Students electing to concentrate in Brazilian Studies will complete the Portuguese language concentration requirement and five of the following courses: Port 200, Soc 223, Port 335, Pol Sc 340, Soc 352, Pol Sc 358, Phil 388, Port 401. Students interested in the Brazilian Studies Concentration are encouraged to take a minor in the discipline of their choice.

DUAL MAJOR

Under the "Three-Two" MBA Program a student may take a dual major in Latin American studies and economics and continue for a MBA, 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 Latin American Institute.

Master of Science in Nursing (MSN) and M. A. in Latin American Studies (MA/LAS). The purpose of the Degree is to prepare nurses for leadership roles in health care delivery systems serving populations in Latin America or Hispanic populations in the United States. The application deadlines for the M. A. Program are: Fall Semester: February 15 (with financial aid) or June 30 (without financial aid); Spring Semester: November 15; Summer Session: April 15.

A dual degree with the Juris doctorate is presently under consideration. Please contact the department for details. Students applying to any dual degree program are required to meet entrance and other requirements of both programs.

MINOR STUDY

A minimum of 24 hours, including Span 301-302 (or Span 357) or Port 201, 202-307 or 250-307 3 courses selected from Anth 314, Econ 421, Geog 301 or 302, Hist 281 or 282, Pol Sc 356, Phil 389 or 390, Soc 350 or 450, 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)

250. Latin America Through Film. (3) Merkx, Remmer
(Also Offered as Soc, Pol Sc 250.) Interdisciplinary introduction to Latin American studies through documentary films, lectures, reading discussion.

355. Governments and Politics of Latin America. (3) Needler
(Also offered as Soc, Pol Sc 355.) The political dynamics of the Latin American republics, considered on a country-by-country basis. Recommended preparation: Hist 282.

497. Independent Studies. (1-3 hrs., 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 on Latin American Politics. (3) Needler
(Also offered as Soc, Pol Sc 525.)

551-552. Problems. (1-3, 1-3 hrs. each semester)

578. Latin American Development & Planning. (3)
(Also offered as Soc 508 and CRP 578.)

584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Remmer, Merkx, Gregory
(See Econ, Hist, Pol Sc, Soc 584.)

599. Masters Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

Approved Electives

Anth 284, 306, 313, 337, 361, 384, 420, 430; Art Hi 343, 411, 412, 450, 483; Econ 420, 421, 423; Geog 301, 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, 457, 458, 461; Soc 221, 361, 450, 484; Span 357, 371, 430, 431, 435, 436, 438, 439.

LINGUISTICS

Alan Hudson-Edwards, Chairperson
Humanities Bldg. 526, 277-6353

PROFESSORS:

Garland D. Bills, Ph. D., University of Texas (Austin)
Joan L. Bybee, Ph. D., University of California (Los Angeles)
Vera P. John-Steiner, Ph. D., University of Chicago
John W. Oller, Jr., Ph. D., University of Rochester

ASSOCIATE PROFESSORS:

Larry P. Gorbet, Ph. D., University of California (San Diego)
Alan J. Hudson-Edwards, Ph. D., Yeshiva University
Jean E. Newman, Ph. D., University of Toronto

ASSISTANT PROFESSORS:

Eduardo Hernandez-Chavez, Ph. D., University of California (Berkeley)
Sherman Wilcox, Ph. D., University of New Mexico
MaryAnn Willie, M. A., Stanford University

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LECTURERS:

Christine Monikowski, M. A., Gallaudet University
Dennis Muchisky, Ph. D., University of New Mexico
Phyllis Wilcox, M. S., Eastern New Mexico University
Roseann Willink, M. A., University of New Mexico

PROFESSOR EMERITUS:

Robert W. Young, Honorary LL. D., University of New Mexico

Associated faculty in other departments.

MAJOR STUDY

The Department of Linguistics offers a BA major and minor in Linguistics and a BS major in Sign Language Interpreting in the College of Arts and Sciences, and contributes to linguistics-related degree programs in other departments and colleges. The Department offers a range of courses in the core areas of phonetics, phonology, syntax, and semantics as well as in the interdisciplinary fields of applied linguistics, psycholinguistics, and sociolinguistics. Heavy emphasis is placed upon the role of language in culture and society, particularly in the Southwest, and upon the educational applications of the language sciences.

MAJOR STUDY REQUIREMENTS IN LINGUISTICS

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 courses in other departments approved by the Department of Linguistics. Ling 470 is strongly recommended for those planning to pursue graduate study in linguistics.

MAJOR STUDY IN SIGN LANGUAGE INTERPRETING

For sign courses, see p.176

The B.S. major in Sign Language Interpreting *requires* a minimun of 36 hours in Sign numbered above 200: Sign 201, 202, 210, 211, 212, 214, 310, 410, 411, 412, 418, 419. Students majoring in Sign Language Interpreting must be approved by the department.

MINOR STUDY REQUIREMENTS

The minor in Linguistics requires at least 21 hours of linguistics courses numbered above 200: Ling 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, and the composite minor in bilingual education, see "Department of Curriculum and Instruction in Multicultural Teacher Education" in the College of Education section of this catalog.

LINGUISTICS (LING)

101. Introduction to the Study of Language. (3) Bills, Hernandez-Chavez, Newman, Oller
(Also offered as Anth 110.) 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}

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
(see Anth 292L.) 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) Bybee, Hudson-Edwards, Riensche
(Also offered as Comm and Com Ds 303.) An introduction to the physiological mechanisms underlying speech production, the linguistic classification and transcription of speech sounds, the acoustic properties of speech sounds, the relationship between phonetics and phonology, and applications to speech pathology. {Fall, Spring}

***317. Phonological Analysis.** (3) Bybee, Hernandez-Chavez
(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) Gorbet, Hudson-Edwards, Willie
(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) Bills, Hernandez-Chavez, 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) Hernandez-Chavez
(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
(See Anth 310.) {Spring}

°Normally offered through Continuing Education

***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. Psychology of Language.** (3) Newman
(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 265. {Fall}

***405. North American Indian Languages.** (3) Gorbet
(See Anth 415.)

***410. Topics in Anthropological Linguistics.** (3)Δ
(See Anth 410.)

***413. Linguistic Field Methods.** (3) Gorbet
(See Anth 413.)

***417. Phonological Theory.** (3) Bybee
(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, Willie
(Also offered as Anth 418.) Survey of theoretical grammar including cognitive approaches. Topics range from syntax to pragmatics.
Prerequisite: 318. {Fall}

***430. Development of Speech and Language.** (3) Butt, Marvin
(See Com Ds 430.) {Fall}

***440. Introduction to Linguistics.** (3) Oller
(Also offered as Engl 440.) Broad overview of the field 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}

***441. English Grammars.** (3)
(Also offered as Engl 441.)
Prerequisite: Engl 440 or permission of instructor.

***446. Introduction to Comparative Linguistics.** (3) Bybee
(Also offered as Anth 416.) Theories and methods of comparative and historical linguistics, emphasizing change in English, Indo-European, and Native American languages.
Prerequisite: 317.

***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) Hernandez-Chavez, 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.

***470. History of Linguistics.** (3) Bills, Hudson-Edwards
(Also offered as Anth 419.) 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, 318.

***475. Comparative Romance Phonology.** (3)
(Also offered as M Lang 475.) Historical study of the sound changes from Latin into the ten Romance languages. **Offered on CR/NC basis only.**

***480. Second Language Pedagogy.** (3) Carrillo
(See CIMTE and M Lang 480.) {Fall}

***482. Teaching English as a Second Language.** (3) White
(See CIMTE 482.)
Pre- or corequisites: 292L or 440 and permission of instructor. {Spring}

***490. Topics in Linguistics.** (1-3)Δ
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.

501. Mathematical Theory of Formal Languages. (3)
(See C S 501.)

510. Topics in Anthropological Linguistics. (3)Δ
(See Anth 510.)

552. Seminar in Multilingual Education. (3)Δ
Prerequisite: 353.

554. Seminar in Linguistic Theory. (3)Δ
(Also offered as Anth 514.)

555. Seminar in Educational Linguistics. (1-3)Δ
(Also offered as Ed Fdn 555. See M Lang 555.) {Offered upon demand}

559. Seminar in Sociolinguistics. (3)Δ 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.

569. Seminar in Psycholinguistics. (3)Δ Newman
(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)
See the Graduate Programs Bulletin for total credit requirements.

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MATHEMATICS AND STATISTICS

Frank L. Gilfeather, Chairperson
Humanities Building 419, 277-4643

PROFESSORS:

Charles P. Boyer, Ph. D., Pennsylvania State University
Robert F. Cogburn, Ph. D., University of California (Berkeley)
Ralph E. DeMarr, Ph. D., University of Illinois
James A. Ellison, Ph. D., California Institute of Technology
Roger C. Entringer, Ph. D., University of New Mexico
Archie G. Gibson, Ph. D., University of Colorado
Frank L. Gilfeather, Ph. D., University of California (Irvine)
Richard J. Griego, Ph. D., University of Illinois
Reuben Hersh, Ph. D., New York University
Lambert H. Koopmans, Ph. D., University of California (Berkeley)
Walter T. Kyner, Ph. D., University of California (Berkeley)
Cornelis W. Onneweer, Ph. D., Wayne State University
Pramod K. Pathak, Ph. D., Indian Statistical Institute
Clifford R. Qualls, Ph. D., University of California (Riverside)
Stanly L. Steinberg, Ph. D., Stanford University
Alexander P. Stone, Ph. D., University of Illinois
Carla Wofsy, Ph. D., University of Wisconsin
William J. Zimmer, Ph. D., Purdue University

ASSOCIATE PROFESSORS:

Michael A. Buchner, Ph. D., Harvard University
Ronald R. Christensen, Ph. D., University of Minnesota
Evangelos A. Coutsias, Ph. D., California Institute of Technology
Jeffrey R. Davis, Ph. D., Washington University
Howard D. Fegan, Ph. D., Oxford University
Richard M. Grassl, Ph. D., University of New Mexico
Liang-Shin Hahn, Ph. D., Stanford University
Wojciech Kucharz, Ph. D., University of Katowice (Poland)
Richard C. Metzler, Ph. D., Wayne State University
Ronald M. Schrader, Ph. D., Pennsylvania State University

ASSISTANT PROFESSORS:

Edward J. Bedrick, Ph. D., University of Minnesota
Lane H. Clark, Ph. D., University of New Mexico
Pedro F. Embid, Ph. D., University of California (Berkeley)
Jay Epperson, Ph. D., Princeton University
Michael W. Frazier, Ph. D., University of California (Los Angeles)
Nancy Gonzales, Ph. D., Harvard University
Deborah L. Sulsky, Ph. D., Courant Institute of Mathematical Sciences

LECTURERS III:

Laura M. Cameron, M. A., University of Texas
Frank J. Kelly, Ph. D., University of Oklahoma

LECTURERS II:

Philip P. Herlan, M. S., State University College of New York (Buffalo)
Timothy B. Straney, M. S., Youngstown State University, M. Ed., Bowling Green State University, M. S., Computer Science, University of New Mexico

EMERITI:

Donald W. Dubois, Ph. D., University of Oklahoma
Bernard Epstein, Ph. D., Brown University
Abraham P. Hillman, Ph. D., Princeton University
James V. Lewis, Ph. D., University of California (Berkeley)
Merle Mitchell, Ph. D., George Peabody College of Teachers
Art Steger, Ph. D., University of California

New appointments to be made.

High School Students: High school students planning to take mathematics courses at UNM must take two years of algebra and one year of geometry in order to satisfy the University admission requirements. Those planning to take calculus should take more advanced mathematics courses, in particular trigonometry, while in high school. It is strongly recommended that mathematics be taken during the senior year of high school. All students are required to take the mathematics placement exam before their first course in mathematics.

FLOW CHART FOR BEGINNING COURSES

Student's preparation determines starting course in any sequence.

Remedial sequence

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121--->)
120--->)---> 123
150--->)
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Elementary education students not prepared for Math 111 will begin with Math 100.

Business sequence

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121---> 180
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Calculus for biological and social sciences

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123---> 180--->181
```

Mathematics major sequence

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162---> 163---> 264---> See below for
                        advanced courses
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Engineering sequence

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                    {264
162--->    163--->  {314
                    {316
```

Elementary education sequence

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111--->112--->215
```

PLACEMENT EXAMINATION

A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course.

MAJOR STUDY

Mathematics is the language of science. The increasingly technological and specialized nature of contemporary society makes it imperative for persons in a wide variety of fields and disciplines to be conversant with this language. The curriculum of the Department of Mathematics and Statistics is designed to prepare students to understand and use mathematics and statistics in the context of their own particular fields of interest.

MAJOR STUDY REQUIREMENTS

The following is required of all Mathematics and Statistics majors:

a. 162, 163, 264, 295 (a 1 hour course), 321 (linear algebra),-361 (advanced calculus); 321 and 361 are not required in Mathematics Education.
b. Assignment of an advisor. As soon as you decide on mathematics or statistics as your major come to theDepartment of Mathematics & Statistics and you will be assigned an advisor. A program of studies will be designed in conjunction with your advisor.

c. Knowledge of a computing language. Either Math 155L (C S 155L) or Engr-F 120L will satisfy this requirement. These should be taken as early in your program as possible.
d. Completion of 27 hours in courses numbered above 300. (with a grade of C or better)
e. Completion of one of Options I, II, III, IV or V below.

Option I (Pure Mathematics): Requires 322, 311 or 362, 345 or 441, at least one of 362, 421, **plus** completion of **at least one** of the following five combinations:

1. Analysis sequence: two of 362-431-460-481.
2. Algebra and number theory sequence: two of 421-319-419.
3. Applied mathematics sequence: two of 313-316-375.
4. Combinatorics and graph theory sequence: two of 317 318-417-418.
5. Probability and statistics sequence: 441 and 445.

The remaining hours required under d) are at the student's option but **must** be approved by the advisor. **At least 6** hours **must** be in courses numbered above 400.

Option II (Applied Mathematics): The program must include 316, 311 or 362, 375, 345 or 441,312 & 313 (one of 462, 463, 464. may be substituted for 312 & 313).

Option III (Statistics): The program must include 345, 347, 348, 445, and at least one of 340, 441, 444, 447, 448, 449, 452, 453 or 550. For students planning on graduate study in statistics, 362 and 441 are recommended.

Option IV (Math Education): Undergraduates seeking secondary certification in mathematics may be enrolled in either the College of Arts and Sciences or the College of Education. Mathematics major and minor requirements differ somewhat between the two colleges. The requirements for an A&S major are: 321 or 314, 305, 306, 338, 345 and at least twelve hours from 307, 308, 310, 311, 317, 319, 322, 331,375, 406 or other upper division courses approved by the mathematics education advisor. (Supporting courses must also be taken in the College of Education.)

Option V (Mathematics of Computation): The program must include: 317, 318, 375, and/or one of 340, 345 or 441; two of 319, 322, 417, 418; and the minor in Computer Science.

The following is recommended for most mathematics majors:

a. Several Honors Seminars are available to those students interested in challenging problems, and problem solving in general. These would be especially important for those majors planning a graduate career in mathematics. The courses are:
   1. Math 191-192 Introductory Seminar
   2. Math 391 Advanced Seminar

   Algebra, geometry, theory of equations, and calculus are used as vehicles for sharpening problem solving skills.
b. Each Mathematics major should be in regular contact with the advisor assigned, to discuss his or her program of studies.
c. Since most graduate schools require a reading knowledge of one or two foreign languages, it is desirable that, as an undergraduate, you take three semesters of at least one of the following: French, German, Russian.

The above program, including the requirements and options,is designed to provide clear guidelines yet be flexible enough to handle a variety of student needs. These are universal requirements which, when followed, will provide a student with the necessary skills and experience to be a successful mathematics major. These include knowledge of a computing language, some statistics or probability plus at least two courses requiring mastery of mathematical reasoning. The remaining requirements in the various options should be considered as basic requirements, which will insure that a student has studied some area in a more than superficial manner.

MINOR STUDY REQUIREMENTS

Math 264 and 12 hours in courses numbered above 300. A student who wishes to enroll in any course requiring a prerequisite must earn a minimum grade of C in the prerequisite course. The credit/no credit option may not be used for minor study. A distributed minor is not allowed.

RESTRICTIONS

1. Students are not allowed credit for both Math 121 and Math 150.
2. Students are not allowed credit for both Math 162 and Math 180.
3. Students are not allowed credit for both Math 163 and Math 181.
4. Students are not allowed credit for both Math 314 and Math 321.
5. Students who have credit for any courses numbered Math 121 and above may not take Math 100 or 120 for credit.
6. Students who have credit for any courses numbered 162 and above may not take Math 120, 121, 123, or 150 for credit.
7. A student may not take an exam to validate credit in Math 120, 121, 123, 129, 130, 145, 150, 155, 245, 305, 316, and 338. 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 Introductory Studies Program procedures (see also the Mathematics Placement procedures in the current schedule of classes). Offered by University College only. (Fall, Spring)

120. Intermediate Algebra. (3) §
As preparation for Math 121 or Math 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 in the College of Arts and Sciences. **Grade of CR/NC only.** (Summer, Fall, Spring)

121. College Algebra. (3) §
Algebra as preparation for Math 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. (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 or Math 120 or 121. (Summer, Fall, Spring)

§See restrictions

Symbols - See page 379

129. [101] Mathematics, A Survey. [Mathematics, A Survey of the Art] (3)
An introduction to some of the great ideas of mathematics. May consist of various topics in modern mathematics or it may deal with the history and philosophy of mathematics.
Prerequisite: adequate score on placement test or a grade of C or better in Math 120. {Fall, Spring}

130. Historical Survey of Mathematical Ideas. (3)
A historical overview of some of the main ideas of mathematics. Babylonian arithmetic and algebra; Greek geometry, the appearance of set theory, controversies about foundations, Turing machines and Godel's incompleteness theorem are among topics that might be discussed. {Offered upon demand}

145. An Introduction to Probability and Statistics. (3)
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}

150. Advanced College Algebra. [Algebra and Trigonometry] (3) §
Algebra as preparation for Math 162. Includes study of functions with emphasis on graphs, equations, inequalities, exponential and logarithmic functions.
Prerequisite: adequate score on appropriate placement test or C or better in Math 120. {Summer, Fall, Spring}

155L. Introduction to Computer Programming. (4)
(Also offered as C S 155L.) 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.

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, mean value theorem.
Prerequisite: adequate score on Algebra and Trigonometry Placement Test or C or better in Math 150. {Summer, Fall, Spring}

163. Calculus II. (4) §
Applications of the definite integral, transcendental functions, techniques of integration, improper integrals, numerical methods of integration, and infinite series.
Prerequisite: C or better in Math 162 or permission of department chairperson. {Summer, Fall, Spring}

180. Elements of Calculus 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 Math 121 or 150. {Summer, Fall, Spring}

181. Elements of Calculus II. (3)§
Includes the definite integral, multivariate calculus, simple differential equations, basic review of trigonometry and its relation to calculus.
Prerequisites: C or better in 180 and some knowledge of trigonometry or 123 (123 can be taken simultaneously with 181). {Fall, Spring}

191-192. Freshman Seminars. (2, 2)
An honors course consisting of background and supplementary material with emphasis on the notion of proof, logic, problem solving, writing math. Especially valuable for students enrolled in Math 162-163. {Fall}

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: Math 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.
Prerequisite: C or better in 163 or permission of department chairperson. {Summer, Fall, Spring}

291-292. Sophomore Seminars. (1-3 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.
Prerequisite: One year of Calculus. {Spring} **Offered on CR/NC basis.**

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. (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 appropriate placement test or C or better in Math 100. {Summer, Fall, Spring}

112. Mathematics for Elementary and Middle 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: C or better in Math 111. {Summer, Fall, Spring}

215. Mathematics for Elementary and Middle School Teachers III. (3)
Topics from probability and statistics, geometry, and algebra; some applications of mathematics; elements of logic; enrichment topics for the classroom. Introduction to BASIC and Logo.
Prerequisites: C or better in Math 111 and 112. {Summer, Fall, Spring}

300. Computing in the Mathematics Curriculum. (3)¶
Microcomputer use in the public school classroom. Introduction to hardware and commercial software. Video cassette and modem use. Elementary BASIC and Logo programming.
Prerequisite: 121 recommended. {Offered upon demand}

¶ These courses are available for graduate credit for the Masters in Education.
§ See restrictions

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) ¶
An axiomatic approach to fundamentals of Euclidean geometry. Highlights of non-Euclidean geometry. {Spring}

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. (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. Partial Differential Equations for Engineering.** [Advanced Engineering Mathematics I] **(3)**
Solution methods for partial differential equations; science and engineering applications; heat and wave equations; separation of variables; Fourier series and transforms; special functions.
Prerequisites: 264, 316. {Summer, Fall, Spring}

****313. Complex Variables for Engineering.** [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) §**
Systems of linear equations, matrices, linear transformations, determinants, eigenvalues and eigenvectors. Also application to problems in the physical sciences.
Prerequisite: one year elementary calculus. {Summer, Fall, Spring}

****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. Nonmathematics graduate students will be required to complete a term project to receive graduate credit.
Prerequisites: 163 and knowledge of FORTRAN or Pascal. 264 and Engr-F 120L are recommended. {Summer, Fall, Spring}

****317. Elementary Combinatorics. (3)**
Basic enumeration including combinations, permutations, set and integer partitions, distributions, and derangements, binomial and multinomial theorems together with pigeon-hole and inclusion-exclusion principles, mathematical induction principles. Discrete probability, elementary ordinary generating functions, recurrence relations, and sorting algorithms.
Prerequisite: one year of calculus. {Fall, Spring}

****318. Graph Theory. (3)**
Trees, connectivity, traversability, planarity, colorability, digraphs; algorithms and models involving these concepts.
Prerequisite: permission of instructor. {Once a year}

****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, inner product spaces.
Prerequisite: 264. {Fall, Spring}

***322. Abstract Algebra. (3)**
Groups and rings, homomorphisms, permutation groups, quotient structures, ideal theory, fields.
Prerequisite: 264. {Fall}

****327. Discrete Structures. (3)**
For computer engineers, this course studies sets, relations, functions, induction, graph theory, isomorphisms, posets, lattices, Boolean algebra, and a little group theory.
Prerequisite: one year of calculus. {Fall, Spring}

****331. Survey of Geometry. (3)**
Topics from affine, projective, Euclidean, and hyperbolic geometries.
Prerequisites: 163 and 314, or 321. {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 or 181 or equivalent. {Summer, Fall, Spring}

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§ See restrictions
¶ These courses are available for graduate credit for the Masters in Education.

Symbols - See page 379

****347. Data Analysis. (3)**
An introductory course covering such topics as exploratory data analysis, one-way ANOVA, multiple comparisons, nonparametric techniques, regression, cluster analysis, and discriminant analysis. Emphasis placed on the use of the statistical packages, SAS, SPSS, and BMDP.
Prerequisite: 145 or 245 or 345, or equivalent. {Fall}

***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, algebraic topology.
Prerequisite: 361. {Fall}

***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}

***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 involving the analysis of data sets.
Prerequisite: an introductory statistics course such as Math 345 or permission of instructor. {Alternate Falls}

***445. Applied Regression Analysis. (3)**
Simple regression and multiple regression. Residual analysis and transformations. Matrix approach to general linear models. Stepwise procedures, nonlinear least squares, robust regression, ridge regression. Computer applications.
Prerequisite: 345 or permission of instructor. {Fall}

***447. Methods of Multivariate Analysis. (3)**
(Also offered as Psych 402.) Properties of the multivariate normal and related distributions. Tests of hypotheses based on these distributions. Multivariate analysis of variance, discriminant analysis, principal 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. Tolerance intervals and nonparametric estimation. Relative efficiency of nonparametric inference.
Prerequisites: 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 Box-Jenkins methods. Topics such as multivariate models; linear filters; linear prediction; forecasting and control.
Prerequisite: 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: 345. {Offered upon demand}

***454. Introduction to Stochastic Methods in Computer Science. (3)**
(Also offered as C S 406.) Introduction to stochastic processes and Markov chains. Applications to queueing, networking, performance analysis, availability and reliability analysis, and system testing.
Prerequisite: 340. Recommended: C S 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.
Prerequisite: permission of instructor. {Offered upon demand}

***460. Introduction to Analysis. (3)**
Metric spaces, completeness. Distribution theory on [0,1[. Complex function theory.
Prerequisites: 321, 362. {Offered upon demand}

***462. Introduction to Ordinary Differential Equations. (3)**
Physical origins of differential equations, elementary methods of solution, existence theorems, series and asymptotic solutions, perturbation and numerical methods, phase-plane analysis, and elements of Sturm-Liouville theory.
Prerequisites: 314, 316 or 321, 361 or 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.
Prerequisites: 321, 313, 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. {Spring}

***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 Falls}

***466. Mathematical Methods in Science and Engineering.**
[Methods of Theoretical Physics] (3)Δ
Topics from selected areas of applied mathematics.
Prerequisites: 311, 312, 313, 316 or permission of instructor {Offered upon demand}

***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}

***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}

§ See restrictions

***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}

***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

504. Numerical Analysis I. (3)
(Also offered as C S 575.)
Prerequisites: 314, some knowledge of FORTRAN programming; recommended: 375 and/or 464. {Fall}

505. Numerical Analysis II. (3)
(Also offered as C S 576.)
Prerequisites: 316 or 361 or equivalent and some knowledge of FORTRAN programming. {Spring}

518. Selected Topics in Combinatorics and Graph Theory. (3)

519. Selected Topics in Number Theory. (3)†

522. Structure Theory of Fields. (3)
Prerequisite: 421. {Offered upon demand}

523. Commutative Algebra. (3)
Prerequisite: 421 or 522. {Offered upon demand}

529. Selected Topics in Algebra. (3)†

533. Algebraic Topology. (3)
Prerequisites: 431 and/or permission of instructor.

534. Introduction to Differential Geometry. (3)
Prerequisite: 311 or 362. {Offered upon demand}

536. Differential Geometry. (3)
Prerequisites: 322, 430 or 534.

539. Selected Topics in Geometry and Topology. (3)†

540. Applied Markov Models. (3)
Prerequisite: 441 or permission of instructor. {Spring}

541. Probability Theory. (3)
Prerequisite: 563.

542. Statistical Inference. (3)
Prerequisite: 441. {Spring}

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: 542 or 545.

547. Multivariate Analysis and Advanced Linear Models.
[Multivariate Analysis] (3)
Prerequisites: 542, 545.

548. Statistical Laboratory. (1)
Prerequisite: 445.

549. Selected Topics in Probability Theory. (3)†

550. Sampling Theory and Practice. (3)
Prerequisite: 345 or permission of instructor. {Every third semester}

551-552. Problems. (1-3, 1-3 hrs. per semester)†

554. Stochastic Optimization in Computer Science. (3)
(Also offered as C S 506.)
Prerequisite: C S 406; recommended: C S 504.

555. Time Series Analysis, Theory & Application. (3)
Prerequisites: 441 and 345, or equivalent. {Fall}

556. Reliability Theory. (3)
Prerequisites: 441, 540, 542.

557. Selected Topics in Numerical Analysis. (3)†
(Also offered as C S 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)
Prerequisite: 563.

566. Pattern Recognition. (3)
(See C S 531.)

568. Stochastic Differential Equations. (3)
Prerequisites: 316, 441 and some familiarity with elementary PDE's. {Spring}

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. Numerical Linear Algebra. (3)
Prerequisites: 504-505 and 464 or equivalent. {Offered upon demand}

577. Numerical Ordinary Differential Equations. (3)
Prerequisites: 504, 505, 462. {Offered upon demand}

578. Numerical Partial Differential Equations. (3)
Prerequisites: 504-505 and 463 or equivalent. {Offered upon demand}

579. Selected Topics in Applied Mathematics. (3)†

581-582. Functional Analysis. (3, 3)
Prerequisite: 362; recommended: 460 or 481. {Offered upon demand}

583-584. Linear Analysis. (3, 3)
Prerequisites: 361, 312, 314, 316, or equivalent with permission of instructor. {Offered upon demand}

589. Selected Topics in Functional Analysis. (3)†

598. Practicum. (1-6)

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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

Dick Gerdes, Chairperson
Ortega Hall 235, 277-5907 and 7362

PROFESSORS:

Garland D. Bills, Ph. D., University of Texas
Pelayo H. Fernandez, Ph. D., Salamanca University
Dick Gerdes, Ph. D., University of Kansas
Angel Gonzalez, M. A., Universidad de Oviedo
Bruno Hannemann, Ph. D., University of California (Berkeley)
Tamara Holzapfel, Ph. D., University of Iowa
Peter K. Pabisch, Ph. D., University of Illinois (Urbana-Champaign)
George F. Peters, Ph. D., Stanford University
Alfred Rodriguez, Ph. D., Brown University
Gustavo Sainz, National Autonomous University of Mexico
Claude M. Senninger, Ph. D., University of Paris
Warren S. Smith, Ph. D., Yale University
Jon M. Tolman, Ph. D., University of New Mexico
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)
Erlinda Gonzales-Berry, Ph. D., University of New Mexico
Robert Holzapfel, Ph. D., University of Iowa
Natasha Kolchevska, Ph. D., University of California (Berkeley)
Lawrence Lynch, Ph. D., University of Iowa
Tey Diana Rebolledo, Ph. D., University of Arizona
Rowena Rivera, Ph. D., University of Colorado
Diana Robin, Ph. D., University of Iowa

ASSISTANT PROFESSORS:

Rosa Fernandez, Ph. D., University of New Mexico
Enrique R. Lamadrid, Ph. D., University of Southern California
Byron T. Lindsey, Ph. D., Cornell University
James L. Martin, Ph. D. University of California (Los Angeles)
Walter Putnam, Ph. D., University of Paris
Enylton de Sa Rego, Ph. D., University of Texas (Austin)

LECTURER:

Roseann Willink, M. A., University of New Mexico

MAJOR IN LANGUAGES

An interdisciplinary major offered through the Department of Modern and Classical Languages in conjunctions with the Department of Linguistics. Students electing this major do not need a minor.

Requirements: 54 hours of course work, to be distributed as follows:

1. Latin or Greek 101 and 102 (6 hours)
2. Ling 101 or 292L or Latin 351 (3 hours)
3. 12 hours of course work above 300 in each of two of the following languages: (24 hours)
   French (301, 302, 305 407)
   German (301, 302, 405, 446)
   Portuguese (307, 457, 458, 451)
   Russian (301, 302, plus 6 hours of 401, 402, 407, or 408)
   Spanish (301, 302, 342, 340, or any other upper division course in linguistics or literature)
4. 6 hours of course work in another language, either an additional language under 3 above, Latin or Greek, or Navajo, Chinese, Italian, or Swahili. These hours may be at the lower division level. (6 hours)
5. 15 additional hours of course work to be taken in Linguistics and/or the languages chosen under points 1, 3 (upper-division only) and 4 above or Engl 449 or 450. (15 hours)

GROUP REQUIREMENTS

Literature courses in translation are not accepted for fulfillment of foreign language group requirements.

LANGUAGE LABORATORY

Work in the Language Laboratory is assigned in connection with the lower division language courses and does not carry extra credit.

ADVANCED PLACEMENT

Students who have had previous exposure to a language and plan to continue the study of the same language are required to take a placement examination in that language. Normally, 101 courses are reserved for students who have not previously studied the language in which they plan to enroll. 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.

TO CHALLENGE A COURSE

Students can obtain credit hours in language courses (101, 102, 201, 202) without taking an examination by earning a grade of A or B in a course numbered higher than the course(s) challenged. CR/NC is assigned now to all challenged courses (s). Students may not challenge 101 and 102 courses in the language they presented for the entrance requirements.

PERIOD MINOR

Students majoring in any foreign language may take the period minor described under Comparative Literature offerings on page 104.

MODERN LANGUAGES (M LANG)

No major or minor study offered.

101. Elementary Topics in Foreign Languages. (1-4)Δ

102. Elementary Topics in Foreign Languages. (3)Δ

105. Reading and Writing Kereaan. (3)
For native speakers of the particular language only. (Note: Normally offered through Continuing Education only.)

106. Elementary Arabic I. (3)
A course in elementary modern standard Arabic.

109-110. Biblical Hebrew. (4, 3)
(See Relig 109-110.)

150. Introduction to Latin America. (3)
(Also offered as Hist, Soc, Pol Sc 150.) An interdisciplinary 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)Δ

223-224. Literary Questions. (3,3)
(See Comp L 223-224.)

292L. Introduction to Linguistic Analysis. (3)
(See Ling 292L.)

***457. Special Topics in Languages Studies. (3)Δ**

***475. Comparative Romance Phonology. (3)** White
(Also offered as Ling 475.) Historical study of the sound changes from Latin into the ten Romance languages. **Offered on a CR/NC basis only.**

***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 CIMTE 480.)

497. Undergraduate Problems. (1-6, to a maximum of 6)
Permission of instructor required.

515. Medieval Paleography. (3) White

516. Old Provencal-Old Catalan. (3) White

551. Graduate Problems. (1-6 hrs. per semester)
Permission of instructor required.

555. Seminar in Educational Linguistics. (3)Δ Oller

580. Seminar in Modern Languages and Literature. (1-6)Δ
(Also offered as Comp L 580.)

601. Literary Theory. (3)
(Also offered as Port, Span 601.)

631-632. Latin American Vanguard Poetry. (3, 3)
(Also offered as Port, Span 631-632.) {Fall, Spring}

635-636. Latin American Regionalism. (3, 3)
(Also offered as Port, Span 635-636.) {Fall, Spring}

AMERICAN INDIAN LANGUAGES

APACHE (APACHE)

105-106. Reading and Writing Apache. (3, 3) §§
For native speakers of Apache only. Emphasis on development of literary skills and use of Apache language and culture in the classroom. (Offered through Continuing Education and on-site Teacher Training Project.)

NAVAJO (NAVAJO)

No major or minor study offered.

101-102. Elementary Navajo. (3, 3)
{101--Fall, 102--Spring}

103-104. Basic Medical Navajo. (3, 3) §
Fundamentals of Navajo for students in the medical profession. Does not satisfy language requirement of College of Arts and Sciences. {Offered upon demand}

105. Written Navajo. (3)
Introduction to Navajo writing and reading; for native speakers of Navajo only. 101 and 105 may not both be counted for credit.

201-202. 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) §**
301--May be repeated for a maximum of 6 hours for upper level students and more advanced students who want to continue their language skills in Navajo.
Prerequisite: 202 or 206 or equivalent.

***401. Navajo Linguistics. (3)Δ** Willie
Study of selected aspects of the structure of the Navajo language. Emphasis on individual research.
Prerequisite: 202 or permission of instructor.

495. [497.] Undergraduate Problems. (1-6, to a maximum of 6) Willie
Permission of instructor required.

595.[551.] Graduate Problems. (1-6 hrs. per semester) Willie
Permission of instructor required.

QUECHUA (QUECHU)

No major or minor study offered.

***311-312. Introduction to Quechua. (3, 3)**
Emphasis on the grammatical structure of Bolivian or Ecuadorian Quechua. Working knowledge of Spanish is desirable. {Fall}

§ Offered at the University of New Mexico Gallup Branch only and on-site Teacher Training Project.
§§ Offered through Continuing Education at Dulce.

Symbols - See page 379

ZUNI (ZUNI)

No major or minor study offered.

105. Reading and Writing Zuni. (3) §
For native speakers of Zuni.

CHINESE (CHIN)

No major or minor study offered.

101. Elementary Chinese. (3)
{Fall}

102. Elementary Chinese. (3)
{Spring}

201. Intermediate Chinese. (3)
{Fall}

202. Intermediate Chinese. (3)
201 or equivalent is prerequisite for 202. {Spring}

203. Chinese Conversation. (1)
Extra practice in speaking Chinese for students enrolled in Chinese 201 and 202. {Fall, Spring}

297. Intermediate Chinese. (1-6, to a maximum of 9)
For 4th semester students of Chinese and more advanced students who want to continue their language skills in Chinese. {Spring}

301-302. Advanced Chinese. (3, 3)
Emphasizes reading and techniques of translating, especially in modern Chinese writing.

CLASSICAL CIVILIZATION

A new major and new courses in ancient civilization are currently under consideration. For details, consult the Classics advisor in Modern and Classical Languages.

CLASSICS

MAJOR STUDY REQUIREMENTS

The total number of *required course hours is 33. Anyone planning* to major in Classics should consult as soon as possible with the Classics advisor to work out a projected schedule of courses; the advisor'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 REQUIREMENTS

Not offered.

COMPARATIVE LITERATURE

The major in comparative literature is an interdepartmental major administered by the Department of English. See p. 105..

FRENCH

MAJOR STUDY REQUIREMENTS

30 hours in French courses numbered above 290, including 301, 302, 305, 345, 346, 351, 352 and one 400 level literature course, and two years of college work in another foreign language (or reading knowledge).

SECOND MAJOR STUDY REQUIREMENTS

Students who present two majors (French and another field) are required to take 24 hours in French courses numbered above 290, *including 301, 302, 305, and either 345-346 or* 351-352.

MINOR STUDY REQUIREMENTS

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), 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 courses or demonstrate equivalent preparation.

§ Offered at the University of New Mexico Gallup Branch only and on-site Teacher Training Project.

FRENCH (FRENCH)

101-102. Elementary French. (3, 3)
(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.

201. Intermediate French I. (3)
Review of grammar and sound structure, conducted mostly in French.

202. Intermediate French II. (3)
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.

207. Introduction to Translation. (3)
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. Accelerated Beginning French. (3)
Encompasses the work of 101-102. 101-102 and 275 may not both be counted for credit.

276. Accelerated Intermediate French. (3)
Encompasses the work of 201-202. 201-202 and 276 may not both be counted for credit.

French 202 or the equivalent is prerequisite to all courses listed below, except 335.

****301. Advanced Composition and Conversation. (3)**
Complete grammar review. Weekly composition to improve skill and accuracy. Advanced conversation on various topics covering contemporary France. Taught entirely in French.
Prerequisite: 202 or the equivalent.

****302. Beginning Stylistics and Translation. (3)**
Stylistic study of selected pieces of prose and poetry. Study of versification. Introduction to translation. A stepping stone to the literature courses. Taught entirely in French.
Prerequisite: 301.

****305. French Phonology. (3)**
Phonetic and phonemic system of French. Required for the undergraduate major.

****335. French Literature in Translation. (3)**
Does not count for the French major or minor.

****345. French Civilization. (3)**
Origins to French Revolution. In French.
Prerequisite: 202 or the equivalent.

****346. French Civilization. (3)**
French Revolution to the present. In French.
Prerequisite: 202 or the equivalent.

****351. Survey of French Literature. (3)**
Origins to 1800. Conducted in French.

****352. Survey of French Literature. (3)**
1800 to present. Conducted in French.

***365. French Reading for Graduate Students. (3)**
Accelerated course for graduate reading requirements. 365 emphasizes fundamentals of grammar. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor. (Does not carry graduate credit for French language students.)

***366. French Reading for Graduate Students. (3)**
Accelerated course for graduate reading requirements. Emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates may not enroll without permission of instructor. (Does not carry graduate credit for French language students.)

***407. Translation. (3)**
Study of principles and techniques of translating through comparative stylistics.
Prerequisites: 301, 302.

French 351 or 352 prerequisite for all courses below.

***411. The Early Renaissance. (3)**
The early renaissance: Villon and Rabelais.

***412. The Late Renaissance. (3)**
The late Renaissance: Montaigne and the Pleiade.

***431. French Literature of the Eighteenth Century. (3)**
Through 1750, emphasis on Montesquieu and Voltaire.

***432. French Literature of the Eighteenth Century. (3)**
Since 1750, emphasis on Diderot and Rousseau.

***440. Teaching of French. (3)**
(Also offered as CIMTE 440.) Practicum; observation and criticism of classroom methods in use. **Offered on a CR/NC basis only.** (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)**
Survey of the theatre from the melodrama and neoclassicism through the theatre d'art of Paul Fort.

***443. Practicum in Nineteenth-Century French Theatre. (1-3)**
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. 443 and 453 may not both be counted toward the French major.

***450. Contemporary France. (3)**
Study of the social, political, economic, intellectual, literary, and artistic environment in France today.

***451. French Prose of the Twentieth Century. (3)**
Selected novels from Gide and Proust through the nouveau roman.

***452. Twentieth-Century Theater. (3)**
Study of the major plays written in French which have shaped the modern theater throughout the world. The plays are read and discussed in French.

***453. Practicum in Twentieth-Century French Theatre. (1-3)**
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.

Symbols - See page 379

***460. Survey of French Poetry. (3)**
To 1800.

***461. Survey of French Poetry. (3)**
Since 1800.

***475. Comparative Romance Phonology. (3)**
(See M Lang 475.)

***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. (1-6, 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)
Required of all new teaching assistants in French; others by permission of instructor only. {Fall}

501. History of the French Language. (3)
Required for the M. A. degree.

502. Readings in Mediaeval French Literature. (3)

503. Proseminar in Mediaeval French Genres. (3)

504. French Stylistics and "Explication de Textes." (3)
Exceptional undergraduates may enroll with permission of instructor and Graduate Dean. Required for the M. A. Degree.

505. Introduction to Research Methods. (3)
Required for the M. A. degree.

515. Mediaeval Palaeography. (3)
(See M Lang 515.)

516. Old Provencal-Old Catalan. (3)
(See M Lang 516.)

520. French Thought. (3)

522. French Dramatic Literature of the Classical Period. (3)

523. French Non-Dramatic Literature of the Classical Period. (3)

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)
See the Graduate Programs Bulletin for total credit requirements.

610. History of French Literary Criticism. (3)
Required for the Ph. D. degree.

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

COURSES OFFERED AT THE FRENCH SUMMER SCHOOL OF NEW MEXICO

The courses listed below are offered only through the French Summer School. Credits earned for these courses may be counted toward the French major. For information about the Summer School contact the French Section office.

370. Advanced Language Instruction and Conversation. (2-4)
Intensive language work at an advanced level, stressing controlled conversation. May replace French 301 or 302 for French major or minor.

380. Lectures and Discussions on French Studies. (1-4)
Topic will vary. Team taught course presenting a multidisciplinary approach to aspects of French literature and culture.

385. 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. Topics will deal with specific aspects of French literature, culture, and language.

390. Workshop in French Studies. (1-2)
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)**
Intensive study of French prose styles. Extensive writing practice.

***485. Advanced 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. Topics will deal with specific aspects 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 REQUIREMENTS

A student may select one of the following three options:

1. **Regular Option.** 30 hours of coursework which must include the following: German 301, 302, 307, 308, and 405. The remaining hours may be selected from German courses above 300; 6 of these hours may consist of **approved** German Studies courses in other departments.

2. **Second Language Option.** Two years, or the equivalent, of college level work in another foreign language. 27 hours of coursework in German, to include the following: 301, 302, 307, 308, 405. The remaining hours may be selected from German courses above 300; 3 of these hours may consist of **approved** German Studies work in another department.

3. **Second Major Option.** Completion of a second major program at UNM. 24 hours of coursework in German, to include the following: 301, 302, 307, 308, 405. The remaining hours may be selected from German courses above 300.

NOTE:
1. 370, 410, or 470 taken at the German Summer School may substitute for either 301 or 302, but not both.
2. Under all three options at least 12 hours must be earned in courses offered on the UNM campus.

MINOR STUDY REQUIREMENTS

15 hours in German courses numbered above 300.

ADVISEMENT AND PLACEMENT

Students who have had previous exposure to German in high school or elsewhere are required to take the departmental placement exam in German and then consult with a member of the German faculty for placement advisement. Normally German 101 is reserved for students who have not studied German.

GERMAN (GERMAN)

FIRST-YEAR PROGRAM

All beginning students should enroll in Basic German 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)
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)
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)
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. **Offered on CR/NC basis only.**

SECOND-YEAR PROGRAM

All second-year German students should enroll in Intermediate German which continues the development of reading, writing, speaking, and listening. 201 and 202 may each be supplemented by a 2-hour conversation course (203-204) and/or a reading course (207-208) for either 1 or 2 hours credit. The supplemental courses are intended for students who wish more intensive practice in a specific language skill than the intermediate course alone permits. They are taught as parallel courses to 201-202 but are open in special cases to any student with a first-year foundation or equivalent preparation. Those intending to go beyond the second year are encouraged to take the conversation course (203-204) in addition to 201-202. Transfer students and those who have studied German in high school must take the placement test and seek advice from a member of the German staff.

201-202. Intermediate German. (3, 3)
Continues development of reading, writing, speaking, and listening at the second-year level.

203-204. Intermediate German Conversation. (2, 2)
Supplemental course to 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 201-202 for students desiring additional practice in reading. Stresses individual study, using a variety of advanced reading texts. Open to all students with a first-year foundation or equivalent preparation.

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)
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)**
Written and oral work for the third-year student, using a variety of literary and cultural material.

***303. Advanced German Conversation. (1)Δ**
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. Theater Workshop. (2)
Production of a play in German.

305. Germany Today. (3)
Study of present-day life and culture in Germany. Aimed at non-majors who wish to improve their language skills by studying specific aspects of German society. Does not count towards major or minor.
Prerequisite: 202 or equivalent.

365-366. German 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.

***405. Advanced Grammar and Phonology. (3)**

***445. Teaching of German. (3)**
(Also offered as CIMTE 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 German major or minor.
Prerequisite: permission of instructor.

***446. The Art of Translating. (3)**
Study of methods of translating from German into English. Practical work in translation.

LITERATURE COURSES

307. Introduction to German Literature. (3)
It is recommended that 307 be taken before the other literature courses listed below.

Symbols - See page 379

***336. Special Topics in German Literature in Translation. (3)Δ**
Topics will deal with individual authors, genres, or periods. May be counted only once toward the major and not at all toward the minor.

***451. The Age of Goethe. (3)**

***452. Nineteenth-Century German Literature. (3)**

***453. Twentieth-Century German Literature. (3)**

CULTURE COURSES

***308. Introduction to German Culture. (3)**
Introduction to life and culture in the German speaking areas of Europe.
***401. Contemporary German Cultures. (3)**
Study of present-day society and culture in the German-speaking countries using current materials.

GENERAL COURSES

450. Special Topics in German Studies. (3)Δ
Topics will deal with specific problems in German language, literature, or culture.

480. Senior Colloquium in German. (1)Δ
One-hour informal courses for advanced students, dealing with special topics relating to language, literature, or culture.

497. Undergraduate Problems. (1-6, 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.

550. Special Topics in German Studies. (3)

551. Problems. (1-6 hrs. per semester)
Prerequisite: permission of instructor.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

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)
Intensive language work at an advanced level, stressing controlled conversation.

***380. Lectures and Discussions on German Studies. (2-4)**
Topic will vary. Team-taught course presenting a multidisciplinary approach to problems relating to German literature and culture.

385. Seminars in German Studies. (2-4)
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)
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)**
Intensive language work designed to introduce students to the complexities of oral and written style.

***470. Advanced German Stylistics. (2-4)**
Intensive study of German prose styles. Extensive writing practice.

***485. Advanced Seminars in German Studies. (1-4)**
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. (1-4)
Each section in this course will focus on a different topic. Titles of individual sections will vary as content varies.

GREEK (GREEK)

MAJOR STUDY REQUIREMENTS

See *Classics*.

MINOR STUDY REQUIREMENTS

12 hours in courses numbered above 200, including 301 and 302.

101. Elementary Greek. (3)
Introduction to Classical Greek. (Alternate yearly with 301-302) {Fall}

102. Elementary Greek. (3)
Readings from simple prose. (Alternate yearly with 301-302) {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. **Offered on a CR/NC basis only.**

104. New Testament Greek. (1-6)Δ
(Also offered as Relig 104.) Introduction to New Testament Greek. Most of the work will be done independently by the student working with a Terak computer. Students may repeat the course for credit up to a maximum of six hours. Six hours is the equivalent of one year of Greek.

107. [*341] Greek Mythology. (3)
Introduction to mythology; primary readings in stories about the gods and heroes, usually including Homer, Hesiod, and Ovid. All texts will be in English.

***301-302. Classical Greek. (3, 3)††**
Readings in Homer, Sophocles, Euripides, Plato, and the New Testament, depending on the level and interests of the class.
Prerequisite: Greek 101 and 102 or their equivalents.

***345. Topics in Greek Literature in Translation. (3)Δ** Smith
Topic will deal with individual authors, genres, or periods.

497. Undergraduate Problems. (1-6, to a maximum of 6)
Prerequisite: permission of instructor.

551. Graduate Problems. (1-6 hrs. per semester)
Prerequisite: permission of instructor.

ITALIAN (ITAL)

MINOR STUDY REQUIREMENTS

24 hours of course work distributed as follows: 6 hours above the 275-276 Italian language level; 9 hours in history; 9 hours in art history.

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 the Twentieth Century. (3)**
Prerequisite: 276 or equivalent.

***475. Dante in Translation. (3)**
Principally the Vita Nuova and the Divine Comedy.

497. Undergraduate Problems. (1-6, to a maximum of 6)
Prerequisite: permission of instructor.

498. Reading and Research for Honors. (6)
Open for Juniors and Seniors approved by Honors Committee.
Prerequisite: permission of 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.

JAPANESE (JAPAN)

No major or minor offered.

FIRST-YEAR PROGRAM

All beginning students should enroll in Basic Japanese (101-102), which provides a foundation in language skills for all subsequent courses.

SECOND-YEAR PROGRAM

All second-year Japanese students should enroll in Intermediate Japanese (201-297), which continues the development of all language skills. Students intending to go beyond the second year should sign up for 297. Transfer students and those who have studied Japanese in high school should seek advice from a member of the Japanese staff. May be repeated up to 9 credit hours. {Spring}

101. Basic Japanese. (3) Santistevan
Foundation course for all beginning students, whether they are primarily interested in speaking, writing or reading. {Fall}

102. Basic Japanese. (3) Santistevan
Foundation course for all beginning students, whether they are primarily interested in speaking, writing, or reading. {Spring}

201. Intermediate Japanese. (3) Santistevan
Continues development of language skills at the third semester level. {Fall}

297. Intermediate Japanese. (3) Santistevan
Continues development of language skills at the fourth semester level; it is also open to students with more advanced skills, but it cannot be taken as a problems course on an individual basis. May be repeated up to 9 credit hours. {Spring}

LATIN (LATIN)

MAJOR STUDY REQUIREMENTS

See Classics.

MINOR STUDY REQUIREMENTS

12 hours in courses numbered above 200.

PLACEMENT--ELEMENTARY AND INTERMEDIATE COURSES

Students who have previously studied Latin should determine their entry level at UNM by arranging with the secretary, Modern and Classical Languages, to take a placement exam.

101. Elementary Latin. (3)
Introduction to the Latin language; grammar, syntax, and readings in Roman authors. {Fall, Spring}

102. Elementary Latin. (3)
Introduction to the Latin language; grammar, syntax, and readings in Roman authors. {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. **Offered on a CR/NC basis only.**

105. Vocabulary Building. (3)
To assist the students in improving their vocabulary and knowledge of English through a study of the derivation of English from Greek and Latin roots.

106. Scientific Terms. (3)
To assist the students in their ability to analyze and understand scientific and medical terminology, by tracing English technical vocabulary to its Greek and Latin roots.

201-202. Intermediate Latin. (3, 3)
Systemic review of Latin grammar and syntax; readings in simple prose authors such as Cicero and Caesar; introduction to Latin poetry and scansion.
Prerequisites: 101-102 or the equivalent.

***303-304. Readings in Latin Literature. (3, 3)††**
Readings in Classical authors such as Plautus, Catullus, Vergil, Horace, and Ovid. Occasional composition in Latin.
Prerequisite: 201-202 or the equivalent.

***344. Topics in Latin Literature in Translation. (3)Δ**
Topic will deal with individual authors, genres, or periods.

Symbols - See page 379

***351. Accelerated Latin. (3)** White
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. (1-6, 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 REQUIREMENTS

30 hours in Portuguese courses numbered 200 or above. Required courses: Either 250 or 201-202, 401 (up to 6 hours), Brazilian literature, and two years college work in another foreign language (or reading knowledge).

SECOND MAJOR STUDY REQUIREMENTS

24 hours in Portuguese. Any courses numbered 200 or above can be counted toward the second major.

MINOR STUDY REQUIREMENTS

18 hours in Portuguese courses.

101-102. Beginning Portuguese. (3, 3)
Beginning Portuguese for students with no previous experience in the language. Development of all four language skills within a communication-oriented approach. {101-Fall; 102-Spring}

103-104. Portuguese Drill. (1, 1)
Corequisite: 101-102. **Offered on a CR/NC basis only.**

200. Introduction to Brazilian Culture. (3)
An interdisciplinary introduction to the humanities in Brazil. Focuses on aspects of history, literature, music, thought, art, *architecture and popular culture that make Brazil unique in the* western hemisphere. (Taught in English.)

201-202. Intermediate Portuguese. (3, 3)
Intermediate Portuguese for students who have completed one year of beginning language study or its equivalent. Review of grammar and expansion of conversational and composition skills. {201-Fall; 202-Spring}

250. [*301] Intensive Accelerated Portuguese. (3)

***307. Advanced Composition and Conversation. (3)**
Emphasis on oral and written expression.
Prerequisite: 301 or equivalent experience.

335. Brazilian Popular Culture. (3)
Through the lens of Brazilian popular music, cinema, and ritual expressions such as soccer and carnival, this course provides the non-Portuguese speaking student with an introduction to Brazilian history, culture, and society.

***401. Topics in Luso-Brazilian Literature and Culture. (3)Δ**
An advanced language course emphasizing interdisciplinary themes in Luso-Brazilian literature and culture. Course may be repeated with a change of topic.
Prerequisite: 301 or equivalent experience.

***421. Modern Brazilian Drama. (3)**
Representative plays from the eighteenth century to the present.

***451. Survey of Portuguese Literature. (3)**
Representative readings from the medieval Cancioneiros to Modernism and later trends.

***457. Brazilian Literature Survey. (3)**
Brazilian prose and poetry from colonial period to late *Nineteenth-century.*

***458. Brazilian Literature Survey. (3)**
Contemporary Brazilian prose and poetry, with emphasis on Modernism and Post-Modernism.

***461. Topics in Brazilian Literature. (3)Δ**
Individual authors, genres, and periods of Brazilian Literature. May be repeated for credit with a change of content.

***475. Comparative Romance Phonology. (3)**
(See M Lang 475.)

497. Undergraduate Problems. (1-6, to a maximum of 6)
Prerequisite: permission of instructor.

501. History of the Portuguese Language. (3)
Required for the M. A. degree.
Prerequisite: Latin 351 or equivalent.

504. Seminar in Ibero-American Studies. (3)
(Also offered as Hist, Ib-Am, Span 504.)

515. Medieval Paleography. (3)
(See M Lang 515.)

516. Old Provencal-Old Catalan. (3)
(See M Lang 516.)

551. Graduate Problems. (1-6 hrs. per semester)
Prerequisite: permission of instructor.

560. Seminar in Portuguese Literature. (3)Δ

570. Seminar in Brazilian Literature. (3)Δ

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

601. Literary Theory. (3)
(Also offered as M Lang, Span 601.)

631-632. Latin American Vanguard Poetry. (3, 3)
(Also offered as M Lang, Span 631-632.)

635-636. Latin American Regionalism. (3, 3)
(Also offered as M Lang, Span 635-636.)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

RUSSIAN

MAJOR STUDY REQUIREMENTS

Not offered. See Russian Studies.

MINOR STUDY REQUIREMENTS

Eighteen hours in Russian courses beyond the 200-level. One course in Russian literature in translation may be counted toward the minor.

ADVISEMENT AND PLACEMENT

Students who have studied Russian previously should take the Placement Exam and seek advice from the Russian staff. Students enrolling in 101-102 and 201-202 are urged to enroll in the conversational courses 103-104 and 203 as supplements of these basic courses.

RUSSIAN (RUSS)

101. Elementary Russian. (3)
{Fall}

102. Elementary Russian. (3)
{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)
For intermediate students who wish to improve speaking skills. May be repeated to a maximum of three hours credit.
Pre- or corequisites: 201-202.

230. USSR Today – People, Politics, Culture. (3)
(Also offered as Hist, Pol Sc, Econ 230.) An introduction to Russian Studies. In English. A team-taught course with lectures by members of the Inter-departmental committee on the important issues of contemporary Soviet life, their historical origins and political and cultural implications. Recommended for all majors and minors.

253. Practicum in Russian Theater. (3)Δ
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)
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.

290. Workshop on Russian Language and Culture. (1-6)
Intensive practical training in Russian language and culture. Cannot be substituted for core courses in Russian Studies or Russian language.
Prerequisite: one year of Russian.

***301. Advanced Russian. (3)** Kolchevska, Lindsey
Vocabulary building, basic grammar review, and special attention to idiomatic Russian.
Prerequisite: 202 or equivalent.

***302. Advanced 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)Δ**
Intensive practice in Russian conversational patterns and vocabulary building. Discussion topics focus on Soviet society. 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)** Kolchevska, Lindsey
A survey of pre-revolutionary classics with an emphasis on prose: Pushkin, Gogol, Turgenev, Tolstoy, Dostoevsky, Chekhov.

***340. Topics in Russian Literature in Translation. (3)Δ**
Kolchevska, Lindsey
(Also offered as Comp L 340.) Topics will deal with individual authors, genres, or periods.

***343. Soviet Literature in Translation. (3)** Kolchevska, Lindsey
(Also offered as Comp L 343.) Readings in Russian literature since the Revolution: Sholokhov, Mayakovsky, Babel, Pasternak, Solzhenitsyn.

***345. Russian Civilization. (3)** Kolchevska, Lindsey
An overview of the major creative works in literature, music, art, and architecture from Kievan times to the present. In English.
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
Readings in contemporary Russian fiction and non-fiction with emphasis on translation. Conducted in Russian.

***407. Introduction to Russian Literature. (3)** Lindsey, Kolchevska
Selections from classical Russian literature. Emphasis on increased reading comprehension in Russian and on major aspects of the writers. Conducted in Russian.

***408. Russian Poetry. (3)** Lindsey
A study of the development of the Russian poetic tradition with an emphasis on Pushkin.

***490. Seminar in Russian Literature. (3)Δ** Kolchevska, Lindsey
Topic will deal with individual authors, genres, or periods. Taught in English and/or Russian.

497. Undergraduate Problems. (1-6, 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 as approved by Russian Studies honors committee. Students will study one aspect of the field with a member of the Faculty Committee.

SPANISH

MAJOR STUDY REQUIREMENTS

30 hours in Spanish courses numbered 300 or above. Required courses: 301, 302, 340, 405 and 400, plus at least 9 additional hours in literature courses from sections II, III, IV and V below. (A student may follow a general course of studies or emphasize one of the following areas: Spanish Peninsular Literature, Spanish American Literature, or Southwest Hispanic Studies.) In addition, work in another foreign language at the 202 or 276 level (or equivalent) must be completed. Students planning to major in Spanish should consult with the Chairperson of the Department and arrange to be assigned an undergraduate advisor.

Symbols - See page 379

SECOND MAJOR STUDY REQUIREMENTS

24 hours in Spanish. Any courses numbered 300 or above can be counted toward the second major.

MINOR STUDY REQUIREMENTS

18 hours in courses numbered 300 or above.

PLACEMENT AND ADVISEMENT

Students who have had previous exposure to Spanish in high school or elsewhere should 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.

SPANISH FOR BILINGUALS

Sections numbered in the 150's in first and second year Spanish are reserved for students who grew up in a Spanish speaking environment. The objective of these classes is to build upon the language base which the students already possess. All four language skills, listening, speaking, reading, and writing, are stressed, but time is not wasted drilling aspects with which students are already familiar. All students who speak or understand some Spanish as a result of having heard it at home or from grandparents, are urged to enroll in these sections. A placement test is required before entering the program. (See semester Schedule of Classes for times and dates.)

SPANISH (SPAN)

(Numbers below not for native speakers.)

101. Elementary Spanish. (3)
Beginning Spanish for students with no previous exposure to Spanish. Development of all four language skills, with emphasis on listening comprehension and speaking.

102. Elementary Spanish. (3)
Beginning Spanish for students who have completed 101 or equivalent. Continued development of all four skills.

103-104. Elementary Spanish Conversation. (1, 1)
Supplementary courses to Spanish 101-102 for students interested in additional practice in speaking. **Offered on CR/NC basis only.**

120. Workshop in Conversational Spanish. (1-3) #
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)
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.

202. Intermediate Spanish. (3)
Intermediate Spanish for students who have completed 201 or equivalent. Continued conversational activities with emphasis on reading and writing skills.

203. Spanish Conversation. (3)
For students who have completed or are currently enrolled in Spanish 201, 202 or 276. Small classes designed to increase skills in speaking Spanish. Not for native speakers.

205. Spanish Commercial Correspondence. (2) #

207. Conversational Spanish. (3) #

275-276. Accelerated Beginning Spanish. (3, 3)
Intensive one year course designed especially for language majors and enthusiasts. The sequence 275-276 and 101-102-201-202 may not be counted for credit.

277-278. Spanish for Professionals. (3, 3) #
Specially designed course for professionals in the fields of medicine, law, business, office management. Attention given to specialized professional vocabularies.

I. LANGUAGE

****301. Topics in Hispanic Culture.** [Themes in Advanced Composition and Conversation] (3)Δ
Taught in Spanish (required for major study). May be repeated for credit as topic changes. A maximum of 9 hours may be applied to the major in Spanish. Emphasis on oral and written expression based on a theme (literature, culture, civilization, contemporary events, etc.)
Prerequisite: 202 or 275 or equivalent.

****302. Topics in Language Study.** [Advanced Composition and Conversation] (3)
Taught in Spanish. Emphasis on oral and written expression based on a language-related topic (translation, commercial, writing Spanish etc.)
Prerequisite: 301 or equivalent.

***342. Advanced Grammar. (3)**
Required for Spanish majors, taught in Spanish. Analysis of syntactic structure.
Prerequisites: 302 {Fall, Spring}

365. Spanish Reading for Graduate Students. (3)
Accelerated course for graduate reading requirements. Emphasizes fundamentals of grammar. Will not satisfy A&S language requirement. Undergraduates must have permission of instructor to enroll.

366. Spanish Reading for Graduate Students. (3)
Accelerated course for graduate reading requirements. Emphasizes readings in sciences and humanities. Will not satisfy A&S language requirement. Undergraduates must have permission of instructor to enroll.

***367. Spanish for Legal Personnel. (3)**
An advanced course for legal personnel. Extensive reading and translation of legal texts, discussion of legal proceedings in Latin America.
Prerequisite: two years of college Spanish or the equivalent. {Spring}

***401. Spanish Stylistics. (3)**
Literary style, figurative language, literary genres and versification, aesthetics, text analysis. Good command of Spanish essential.
Prerequisite: 302 or equivalent.

II. LINGUISTICS, PHILOLOGY, AND METHODOLOGY

***311. Spanish of the Southwest. (3)**
Attention to its formal aspects (phonology, analysis of Spanish of U. S. Southwest, expecially New Mexico: syntax, lexicon, morphology) as well as to historical and social factors affecting its status.
Prerequisite: 302 or equivalent.

***340. Spanish Phonology. (3)**
A study of the Spanish sound system and an identification of the pronunciation problems of non-native speakers.
Pre- or corequisite: 302. {Fall, Spring}

 # Offered only through Continuing Education.

341. Spanish Linguistics for Teachers. (3)
Selected aspects of Spanish phonology, morphology, and syntax; theory and application to classroom teaching (all levels). Taught in Spanish. Does not count toward Spanish major and minor. (Spring)

***441. Teaching of Spanish. (3)**
(Also offered as CIMTE 441.) 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.

***443. Spanish Morphology. (3)**
Word structure, the gender system, and the verb system from the viewpoint of modern lingustic theory. (Fall)

***475. Comparative Romance Phonology. (3)**
(See M Lang 475.)

500. Teaching Practicum. (1)Δ
Required of all new teaching assistants in Spanish; others by permission of instructor only.

515. Medieval Paleography. (3)
(See M Lang 515.)

516. Old Provencal-Old Catalan. (3)
(See M Lang 516.)

540. Latin American Dialectology. (3)

541. Recent Research on the Teaching of Spanish. (3)

542. History of the Spanish Language. (3)
Required of all candidates for graduate degrees.

543. Spanish Syntax. (3)

544. Structure of Spanish. (3)
Suggested prerequisite: 443.

546. Seminar in Hispanic Sociolinguistics. (3)
Approval of instructor advised.

547. Seminar in Southwest Spanish. (3)

548. Old Spanish. (3)
Prerequisite: 542.

549. Seminar in the Language of Spain or Spanish America. (3)Δ

III. LITERATURE

A. PENINSULAR LITERATURE

307. Introduction to Hispanic Literature. (3)
Examination of selected Spanish and Spanish-American literary texts representing old and new literary currents. Special attention will be given to stylistics, and the analysis of style and literary language.

***337. Spanish Literature in Translation. (3)**
Does not count for the Spanish major or minor.

370. Topics in Spanish Literature. (3)Δ
Variable topics will deal with individual periods or genres.

***405. Literary Genres. (3)** Gonzalez
A study of Hispanic literary genres from the Middle Ages through the seventeenth century.

406. Literary Genres. (3) Gonzalez.
A continuation of the study of Hispanic literary genres from the seventeenth century to the present.

***416. Nineteenth-Century Spanish Literature. (3)**
Neo-Classicism; Romanticism; Realism; Naturalism.

***418. Spanish Novel Since the Civil War. (3)**
Major novelists of the post-Civil War and contemporary generations.

***419. Poetry since Civil War. (3)**
An analysis of the poetry written in Spain after the Civil War, including the Generation of 1936, and the so-called "Generation of the Mid-Century".

***420. Modern Spanish Drama. (3)**
Development of Spanish theatre in nineteenth and twentieth centuries, since Romanticism, with major stress on contemporary drama.

***421. Drama of the Golden Age. (3)**
Study of selected works; Spanish dramatists of the Golden Age.
Prerequisite: 351.

***423. Cervantes: The Quijote. (3)**
Detailed analysis of the Quijote and treatment of its place in world literature.

***429. Special Topics in Spanish Literature. (3)Δ**
Topic will deal with individual authors, genres, or periods.

514. Major Figures from 1898 to 1936. (3)

519. Medieval Literature. (3)

520. Seminar in the Spanish Picaresque Novel. (3)

522. Seminar in Spanish Poetry. (3)

523. Renaissance Poetry. (3)

524. Baroque Poetry. (3)

529. Seminar in Spanish Literature. (3)Δ

B. SPANISH AMERICAN LITERATURE

***334. Spanish American Literature in Translation. (3)**
Does not count for the Spanish major or minor.

***357. Great Works of Spanish America. (3)**
Reading and analysis of the major genres of contemporary Latin American literature.

371. Topics in Spanish American Literature. (3)Δ
For undergraduates only.

***405. Literary Genres. (3)**
A study of Hispanic literary genres from the Middle Ages through the seventeenth century.

***406. Literary Genres. (3)**
A continuation of the study of Hispanic literary genres from the seventeenth century to the present.

***430. Spanish American Short Story. (3)**
Short story as a genre; its diverse forms in contemporary Spanish America.

***431. Modern Spanish American Poetry. (3)**
Main trends from Modernism to the present.

***434. Writers Workshop. (3)Δ**
Participants write essays, stories, poems, plays and even chapters of novels.

Symbols - See page 379

***435. Modern Spanish American Fiction. (3)**
Major trends in Spanish American fiction, 19th and 20th centuries.

***438. Mexican Literature. (3)**
A survey of Mexican Literature from the colonial period to the present.

***439. Special Topics in Spanish American Literature. (3)Δ**
Topic will deal with individual authors, genres, or periods.

504. Seminar in Ibero-American Studies. (3)Δ
(Also offered as Hist, Ib-Am, Port 504.)

530. Seminar in Spanish American Drama. (3)

531. The Modernist Movement in Spanish American Poetry. (3)

532. Seminar in Twentieth-Century Spanish American Fiction. (3)Δ

536. Colonial Literature. (3)

539. Seminar in Spanish American Literature. (3)Δ

601. Literary Theory. (3)
(Also offered as M Lang, Port 601.)

631-632. Latin American Vanguard Poetry. (3, 3)
(Also offered as M Lang, Port 631-632.) {Fall, Spring}

635-636. Latin American Regionalism. (3, 3)
(Also offered as M Lang, Port 635-636.)

IV. SOUTHWEST HISPANIC STUDIES

315. Southwestern Hispanic Folklore. (3)
Folkways of Spanish-speaking people of American Southwest: language, customs, beliefs, music, folk sayings.

316. Southwest Hispanic Folktales. (3)
Theory, analysis, and collection of traditional oral narratives, including cuentos, casos, and leyendas.

317. Southwestern Hispanic Folk Ballads and Songs. (3)
Narrative and lyric musical traditions from the Romancero Nuevomexicano to the contemporary corrido and nueva cancion.

320. Survey of Chicano Literature. (3)
Study of the major genres of Chicano literature (novel, short story, essay, poetry and drama), with emphasis upon post-1960s literature. {Spring}

***379. Creative Writing. (3)**
Students will be required to produce original essays, short-stories and poems in Spanish under the direction of the instructor. Prerequisite: 301-302 or equivalent. {Spring}

***436. Chicano Popular Culture. (3)**
The study of Southwest Chicano culture, as expressed in popular media: literature, art, music, the press, film, television. {Fall}

***437. Chicano Literature and Thought. (3)**
Study of Chicano works in Spanish. Analysis of formal techniques and world views.

V. GENERAL

497. Undergraduate Problems. (1-6, 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 the Graduate Programs Bulletin for total credit requirements.

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

SWAHILI (SWAHIL)

No major or minor study offered.

101. Elementary Swahili. (3)
{Fall}

102. Elementary Swahili. (3)
{Spring}

201-202. Intermediate Swahili. (3, 3)
Prerequisite: Afro A 102 or equivalent.

203. Intermediate Swahili Conversation. (3)
Prerequisite: Afro A 102. {Offered upon demand}

497. Undergraduate Problems. (1-6, to a maximum of 6)
Prerequisite: permission of instructor.

PEACE STUDIES MINOR

Committee Members:

McAllister Hull (Physics)
Don Lee (Philosophy)
Fred Sturm (Philosophy)
Jay Sorenson (Political Science)
Jane Hood (Sociology)
Lee Zink (Economics)

Introduction

The principal factors contributing to international conflict are at the same time philosophical, geographical, biological, psychological, cultural, sociological, economic, and political. These factors, through their respective disciplines, have been the focus of scholarly analysis for centuries; yet the key principles that would promote peaceful settlement of many conflicts seem to elude us. The imperative for a broader understanding of conflict evolution and resolution is heightened by the fact that the instruments of warfare have become so efficient that past codes of international behavior may bring us dangerously close to ultimate global destruction.

Because the issues concerning world peace and conflict are so complex and broad in scope, no single profession or academic discipline can claim to offer all of the answers. Hence, an appreciation for basic principles that address evolving human needs can best be supplied through an interdisci-

plinary educational program drawing from a range of academic disciplines representing the Humanities, Social Sciences, and Natural Sciences. Such a program is designed to broaden the perspective of participating students, thereby strengthening their potential as informed citizens, while enhancing their professional capabilities as well.

Program Goals

The minor in Peace Studies is an interdepartmental and interdisciplinary program designed to introduce students within the College of Arts and Sciences to the basic causes, technological principles, and potential consequences of conflict. More important, the program will afford students the opportunity to examine alternatives to war, and to reflect upon the nature of peace as a sustainable condition at the individual as well as collective level.

In order to satisfy these broader goals, the following specific objectives have been identified:

- ground students in the concepts and applications of methodologies from relevant disciplines with regard to issues of war and peace;
- assist students in integrating theory and practice through field and/or research experience; and
- encourage dialogue and collaboration among students and faculty in the on-going development of the peace studies curriculum.

Ultimately, the goals of the Peace Studies minor reinforce the overall goals of liberal arts education--to inform, to enrich and to strengthen humanistic values in our society. The minor offers a unique, interdisciplinary addition to existing programs in the College of Arts andSciences.

Program Requirements

The minor in Peace Studies will require successful completion of 24 credit hours: 12 hours of required courses, with the remaining 12 hours taken from four groups of electives, one course from each group (see course listing below).

Required Courses - 12 credit hours

Entry - Pol Sc 240 International Politics (3)
Physcs 105 Physics and Society (3)
Context - Independent Study* - Internship (1 or 2)*
Phil 498 Reading & Research (1 or 2)*
Closure - Phil 441 Philosophical Movements (3)
(Peace Studies Seminar)
(*Independent study performed under appropriate professor appointed by the administrative committee. Note also that these two courses together must total, but cannot exceed 3 credits.)

Elective Courses - 12 credit hours.

One course required from each of the following groups. These are suggested courses; substitution of courses of similar nature will be permitted with approval of the advisory committee.

Group I--Thought, Ideology, and Ethics

Suggested courses:

Econ 485 Phil Fdn of Econ Theory (3)
Phil 255 Contemporary Moral Issues (3)
Phil 358 Ethical Theory (3)
Pol Sc 260 Political Ideas (3)
Pol Sc 362 Modern Political Theory (3)

Group II-- Principles and Methodological Approaches

Suggested courses:

Anth 130 Cultures of the World (3)
Comm 325 Intercultural Communication (3)
Geog 201 World Regional Geography (3)
Biol 402 Consequences of Nuclear War (3)
Physcs 104 Physics and Society (3)
Pol Sc 220 Intro Comparative Politics (3)

Group III--Conflict and Conflict Resolution at the National and International Level

Suggested courses:

Econ 229 Radical vs. Conservative Econ (3)
Soc 221 Rich and Poor Nations (3)
Hist 304 Revolution in History (3)

Any course in Sociology, Political Science, or History dealing specifically with one nation or region, for example

Hist 349 Russia in Era of Reform & Revolution (3)
Pol Sc 357 Gov & Pol of Soviet Union (3)

Any 300 or 400 level Political Science course in comparative governments or international relations, for example

Pol Sc 300 Political Topics (3)
Pol Sc 357 Government & Politics of the Soviet Union (3)
Also - Pol Sc 321, 342, 475, 496

Group IV--Conflict and Conflict Resolution at the Sub-National Level

Suggested courses:

Soc 216 Race & Ethnic Relations (3)
Soc 331 Collective Behavior (3)
Hist 330 History of Women's Rights (3)
Pol Sc 307 Politics of Ethnic Groups (3)
Psych 373 Cross-Cultural Psychology (3)
Afro A 294 Institutional Racism (3)
W St 353 Women Abuse (3)

PHILOSOPHY

Fred Gillette Sturm, Chairperson
Humanities Building 517, 277-2405

PROFESSORS:

Paul F. Schmidt, Ph. D., Yale University
Fred Gillette Sturm, Ph. D., Columbia University

ASSOCIATE PROFESSORS:

Andrew Burgess, Ph. D., Yale University
Russell Goodman, Ph. D., John Hopkins University
Donald Lee, Ph. D., University of California (San Diego)
George Fredrick Schueler, Ph. D., University of California (Berkeley)
Howard N. Tuttle, Ph. D., Brandeis University

ASSISTANT PROFESSORS:

Abraham Anderson, Ph. D., Columbia University
John Bussanich, Ph. D., Stanford University
Rose-Mary Sargent, Ph. D., University of Notre Dame
John Taber, Ph. D., Universitat Hamburg
Andrzej Zabludowski, Ph. D., University of Warsaw

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PROFESSORS EMERITI:

Hubert G. Alexander, Ph. D., Yale University
Archie J. Bahm, Ph. D., University of Michigan
Helena Eilstein, Ph. D., University of Warsaw
Melbourne G. Evans, Ph. D., University of California (Berkeley)

MAJOR STUDY

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 advisor the role philosophy courses might play in specific programs of study.

MAJOR STUDY REQUIREMENTS

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 REQUIREMENTS

18 hours including either 156 or 257; at least 2 of the following: 110, 201, 202; with 9 additional hours 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.

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-Philosophy major. Descriptions of these programs are given under the headings of Economics-Philosophy, and English-Philosophy.

INTERDISCIPLINARY MAJORS AND MINORS

The Philosophy department participates fully in the following interdisciplinary programs which offer undergraduate minors and/or majors within the College of Arts and Sciences: Asian Studies (see International Studies); European Studies (see International Studies); Latin American Studies, Period Minor (see Comparative Literature), Peace Studies, Religious Studies; and Science Technology and Society.

DEPARTMENTAL HONORS

Students desiring to read for honors in philosophy should (1) discuss requirements of the program with the departmental honors advisor, (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.

ADVANCED STUDY

The Philosophy Department offers both the M. A. and Ph. D. degrees. More information on the graduate programs can be found in the Graduate Programs Bulletin.

PHILOSOPHY (PHIL)

107. Living World Religions. (3)
(Also offered as Relig 107.) Introduction to major living world religions, such as Buddhism, Christianity, Hinduism, Islam, and Judaism.

110. Introduction to Philosophical Problems. (3)
Philosophical issues and methodology illustrated through selected problems concerning values, knowledge, reality; and in social, political, and religious philosophy. {Summer, Fall, Spring}

111-112. Humanities I - II. (3, 3)
Comparative introduction to the development of human civilizations emphasizing philosophic thought, religious practice, and artistic expression. {Fall, Spring}

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. {Summer, Fall, Spring}

201. Ancient European Philosophy. (3)
An historical study, especially of Greek philosophy. {Summer, Fall, Spring}

202. Modern European Philosophy. (3)
An historical study from the Renaissance through Kant. {Summer, Fall, Spring}

241. Philosophic Problems. (3)Δ
Topic to vary. An elementary treatment of some major philosophic issue.

242. Great Thinkers. (3)Δ
Figure will vary. A study of the thought of some major world thinker.

244. Introduction to Existentialism. (3)
An examination of the works of writers like Kierkegaard, Nietzsche, Kafka, and Sartre who emphasize such issues as death, decision, rebellion, and faith.

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.

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 instructor.

255. Contemporary Moral Issues. (3)
Ethical issues arising in contemporary society, e. g. sexual morality, preferential treatment, racism, punishment, war, world food distribution.

257. Introduction to Symbolic Logic. (3)
Methods and techniques of modern logic. {Summer, Fall, Spring}

263. Eastern Religions. (3)
(Also offered as Relig 263.) A study of major Asian traditions, such as Taoism, Hinduism and Buddhism.

264. Western Religions. (3)
(Also offered as Relig 264.) A study of major Western traditions, such as Christianity, Islam, and Judaism.

275. Philosophy of Correction. (3)
Philosophical issues which underlie social institutions of law and corrections.

280. Moral Problems in Great Literature. (3)
Selected literary masterpieces (mostly fiction) from ancient to modern times, and from various cultural traditions, taken as a basis for discussions about some of the most persistent and significant moral problems.

301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)
(See Am St 301-302.) May be taken for departmental credit only with the permission 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)Δ**

***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)Δ**

***336. Chinese Philosophy I - II. (3)**
The development of Chinese thought from pre-Confucian times through the T'ang dynasty. {Fall, Spring}

***337. Chinese Philosophy II (3)**
Chinese thought from the Sung dynasty to the present. {Fall, Spring}

341. Philosophic Questions. (1-3)Δ
An investigation of some important philosophic debate.

342. Selected Philosophers. (3)Δ
A treatment of the thought of a major philosopher.

***344. Nineteenth Century Philosophy. (3)**
From Kant through Hegel, Marx, Schopenhauer, Kierkegaard, Mill, Nietzsche.

***345. Contemporary Continental Philosophy. (3)**
A survey of main themes in Dilthey, Husserl, Scheler, Heidegger, Merleau-Ponty, Sartre, Hermeneutics, Structuralism, Deconstruction and the Frankfurt School.

***346. Twentieth-Century Philosophy. (3)†**
Twentieth-century philosophies.
Prerequisite: 110 or 202 or 257 or 356 or permission of instructor.

***347. Contemporary Anglo-American Philosophy. (3)**
A discussion of central issues and controversies in the twentieth century British and American philosophy (appearance and reality; the notion of scientific method; the relation between the physical and the mental; causality and freedom; the nature of morality).

***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 instructor.

***352. Theory of Knowledge. (3)**
Problems and theories of epistemology.
Prerequisite: 110 or 156 or 202 or 356 or permission of instructor.

***354. Metaphysics. (3)**
Theories of reality.
Prerequisites: 156, 201 or 202 or permission of instructor.

***356-357. Symbolic Logic. (3, 3)**
Methods and techniques of modern logic.
Prerequisite for 356: 257 or permission of instructor; for 357: 356 or permission of instructor.

***358. Ethical Theory. (3)**
Inquiry concerning goodness, rightness, obligation, justice, and freedom.
Prerequisite: one previous philosophy course.

***360. Christian Classics. (3)**
(Also offered as Relig 360.) A study of major writings in the Christian tradition, written by such persons as Augustine, Aquinas, Pascal, Luther, and Teresa of Avila.

***361. Modern Christian Thought. (3)**
(Also offered as Relig 361.) 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)**
(Also offered as Relig 365.) 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 of instructor. {Fall}

***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.

***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)**
(Also offered as Relig 387.) Religious currents in Latin American thought, concentrating on the contemporary period, with special attention to the movement called "liberation theology".

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***388. Topics in Brasilian Thought. (3)**
A philosophical analysis of selected topics from Brasilian intellectual history and contemporary Brasilian thought in the areas of art, economics, literature, philosophy, politics, religion, theatre, and society.

***389. Latin American Philosophy. (3)**
(Also offered as Hist, Soc 389.) Pre-Columbian thought through independence ideologies. {Fall, Spring}
***390. Latin American Philosophy. (3)**
(Also offered as Hist, Soc 390) Positivism through contemporary thought {Fall, Spring}

***415. Foundations of Mathematics. (3)**
(Also offered as Math 415.) Questions and topics such as: 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. Lectures and discussions on specific topics in the Philosophy of Art and Aesthetics. *May be repeated to a maximum of 3 hours.*

***441. Philosophical Movements. (3)Δ**
Topic varies.

***442. Individual Philosophers. (3)Δ**
Figure varies.

***443. Problems in Space, Time, and Causality. (3)Δ**
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 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.

***453. Interdisciplinary Asian Studies. (3)**
(Also offered as Geog, Hist, Pol Sc 453.) Cross-cultural and interdisciplinary investigations of problems and methodologies current in Asian studies.

***455. Philosophy of the Natural Sciences. (3)Δ**
Critical examination of methods and concepts of physical and biological sciences. Topic 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 Eng-Ph 480.) May be repeated for credit as subject matter varies, with permission of 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 Ec-Ph 485.)
Prerequisites: Econ 200, 201.

497. Honors Seminar. (3)†
For departmental honors in philosophy. {Offered upon demand}

498. Reading and Research. (1-3)†

499. Senior Thesis. (3)†
For departmental honors. {Offered upon demand}

501. Interdisciplinary Seminar in U. S. Culture. (1-3)Δ
(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)Δ

541. Seminar in Philosophical Movements. (3)Δ

542. Seminar in Individual Philosophers. (3)Δ

543. Seminar on the Problems of Space, Time and Causality. (3)Δ
Prerequisite: 156 or 253 or 254 or 257 or 350 or permission of the instructor.

551. M. A. Problems. (1-3 hrs. per semester)Δ

580. Philosophy of Literature. (3)

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

651. Ph. D. Problems. (1-3)Δ

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)Δ
See the Graduate Programs Bulletin for total credit requirements.

PHILOSOPHY-ECONOMICS

See Economics-Philosophy.

PHILOSOPHY-ENGLISH

See English-Philosophy.

PHYSICS AND ASTRONOMY

Daniel Finley, 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
Steven R. J. Brueck, Ph. D., Massachusetts Institute of Technology

Howard C. Bryant, Ph. D., University of Michigan
Colston Chandler, Ph. D., University of California (Berkeley)
Jean-Claude Diels, Ph. D., University of Brussels
Byron D. Dieterle, Ph. D., University of California (Berkeley)
Daniel Finley, Ph. D., University of California (Berkeley)
McAllister H. Hull, Jr., Ph. D., Yale University
Charles A. Kelsey, Ph. D., Notre Dame University
V. M. Kenkre, Ph. D., State University of New York (Stony Brook)
David S. King, Ph. D., Indiana University
Christopher P. Leavitt, Ph. D., Massachusetts Institute of Technology
John A. Panitz, Ph. D., Pennsylvania State University
R. Marcus Price, Ph. D., Australian National University
Marlan O. Scully, Ph. D., Yale University
Derek B. Swinson, Ph. D., University of Alberta
B. Hobson Wildenthal, Ph. D., University of Kansas
David M. Wolfe, Ph. D., University of Pennsylvania
Michael Zeilik, II, Ph. D., Harvard University

ASSOCIATE PROFESSORS:

Bernd Bassalleck, Ph. D., University of Karlshruhe
Wilhelm Becker, Ph. D., Technical University of Munich
Jack O. Burns, Ph. D., Indiana University
Kevin E. Cahill, Ph. D., Harvard University
Stephen A. Gregory, Ph. D., University of Arizona
John K. McIver, Ph. D., University of Rochester
Marek Osinski, Ph. D., Polish Academy of Sciences

ASSISTANT PROFESSORS:

Belva G. Campbell, Ph. D., University of Arizona
Nebojsa Duric, Ph. D., University of Toronto
Daniel J. McGraw, Ph. D., University of Utah
Sudhakar Prasad, Ph. D., Harvard University

RESEARCH PROFESSOR:

John Linsley, Ph. D., University of Minnesota

RESEARCH ASSOCIATE PROFESSORS:

Ahmet Elci, Ph. D., Massachusetts Institute of Technology
Gerald Moore, Ph. D., Brandeis University

LECTURER:

James A. Carlisle, M. S., Naval Postgraduate School

Prerequisite to major and minor study in physics and in astrophysics (and all 300-level and higher physics and astronomy courses) are the basic courses Physcs 160, 161, 163L§, 262, 264L§, and Math 264, 311; astrophysics majors also take Astr 270, 271.

MAJOR STUDY

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.

Students are not allowed to receive credit for both Physcs 151 and 160 nor for both Physcs 152 and 161.

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, and 498L.

MAJOR STUDY PHYSICS REQUIREMENTS

Physcs 301, 302, 303, 304, 307L, 308L, 405, 406, 491, 492, 493L; Math 312, 316, or 361, 362; Chem 121L-122L or 131L-132L.

MINOR STUDY PHYSICS REQUIREMENTS

Four courses selected from Physcs 301, 302, 303, 304, 330, 405, 406; Math 316 or 361.

MAJOR STUDY ASTROPHYSICS REQUIREMENTS

Physcs 301, 302, 303, 304, 330, 405; 9 hours of astronomy courses numbered above 399; Math 312, 316 or 361, 362. Chem 121L-122L or 131L-132L.

MINOR STUDY ASTROPHYSICS REQUIREMENTS

Physcs 302, 330 and two of 301, 303, 405; Astr 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, Campbell, Duric, Gregory, King, Price, Zeilik
The theme 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 109. Selected topics in Astronomy (3) Campbell, Gregory, Zeilik
Designed as a follow-up course to 101. This course will focus on one topic in astronomy for an in-depth investigation of its core concepts and implications.
Prerequistes: 101 and permission of the instructor. {Offered upon demand.}

Astr 111L. Astronomy Laboratory. (1) Burns, Campbell, Duric, Gregory, King, Price, Zeilik
Intended as an adjunct to Astr 101, this course deals with elementary techniques in astronomical observations. 2 hrs.
Pre- or corequisite: Astr 101. {Fall, Spring}

Physcs 102. Introduction to Physics. (3) Ahluwalia, Alpert, Beckel, Bryant, Chandler, Hull, Panitz, Price, Wolfe
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 ele-

§ Not required for the minor study in astrophysics.

ARTS & SCIENCES

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mentary 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. {Summer, Fall, Spring}

Physcs 104, 105. Physics and Society. (3, 3) Hull
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) Becker, Bryant, King, Leavitt, 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}

Physcs 108. Introduction to Musical Acoustics. (3) Leavitt
Designed 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. {Spring}

Physcs 112L. Physics Laboratory. (1) Alpert, Beckel, Bryant, 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 116L. Light and Color Laboratory. (1) Becker, Bryant, King, Leavitt, 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}

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. {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, and pre-optometry students. Only 151 and 152 are required of pharmacy students.
Prerequisite: A working knowledge of algebra at the level of Math 150, and of trignometry. {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. **Offered on a CR/NC basis only.**
Corequisite: 151. {Fall, Spring}

158. Problems in General Physics. (1)
Problem solving and demonstrations related to 152. **Offered on a CR/NC basis only.**
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. **Offered on a CR/NC basis only.**
Corequisite: 160. {Fall, Spring}

168. Problems in General Physics. (1)
Problem solving and demonstrations related to 161. **Offered on a CR/NC basis only.**
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. **Offered on a CR/NC basis only.**
Corequisite: 262. {Fall, Spring}

****301. Heat and Thermodynamics.** (3) Ahluwalia, Alpert, Beckel, Bryant, Carlisle, Kenkre, Leavitt
Classical thermodynamics; heat transport by conduction, convection and radiation; changes of state; kinetic theory. {Fall}

****302. Optics.** (3) Ahluwalia, Alpert, Bryant, Finley, Leavitt, Price
Geometrical optics; wave theory of light; Fresnel and Fraunhofer diffraction; polarization; dispersion, absorption, and scattering. {Spring}

****303. Analytical Mechanics.** (3) Alpert, Beckel, Bryant, Chandler, Finley, Leavitt
Statics and dynamics of particles and rigid bodies, mechanics of continuous media, Lagange's and Hamilton's equations, small vibrations.
Pre- or corequisites: Math 316 for 303; Math 312 for 304. {Fall}

****304. Analytical Mechanics.** (3) Alpert, Beckel, Bryant, Chandler, Finley, Leavitt
Statics and dynamics of particles and rigid bodies, mechanics of continuous media, Lagange's and Hamilton's equations, small vibrations.
Pre- or corequisites: Math 316 for 303; Math 312 for 304. {Spring}

****307L. Junior Laboratory.** (3,3) Alpert, Bassalleck, Beckel, Bryant, Dieterle, Leavitt, McGraw, Wolfe
Experimental methods of physics. 1 lecture, 3 hrs. lab. each semester. {Fall}

308L, Junior Laboratory. (3)
Alpert, Bassalleck, Beckel, Bryant, Dieterle, Leavitt, McGraw, Wolfe
Experimental methods of physics. 1 lecture, 3 hrs. lab. each semester. {Spring}

****327. Solid Earth Geophysics.** (3) Huestis
(Also offered as Geol 427.) Structure, constitution, and deformation of earth as determined by gravity, magnetics, seismology, and heat flow. Related aspects of plate tectonics.
Prerequisites: Math 264, Physcs 262. {Offered upon demand}

****330. Atomic and Nuclear Physics.** (3) Ahluwalia, Alpert, Bassalleck, Beckel, 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. {Spring}

***400. Seminar. (1 hr. per semester)**
Student presentations, both extemporaneous and prepared, of undergraduate physics problems {Fall, Spring}

****405.** [**305-306] **Electricity and Magnetism.** (3) Ahluwalia, Alpert, Beckel, Bryant, Cahill, Dieterle, Wolfe
Electrostatics, theory of dielectric materials; magnetostatics, theory of magnetic materials; direct and alternating circuit theory; Maxwell's equations; propagation, reflection and refraction of plane waves; wave guides and cavity resonators.
Pre- or corequisites: Math 316. {Fall}

****406.** [**305-306] **Electricity and Magnetism.** (3) Ahluwalia, Alpert, Beckel, Bryant, Cahill, Dieterle, Wolfe
Electrostatics, theory of dielectric materials; magnetostatics, theory of magnetic materials; direct and alternating circuit theory; Maxwell's equations; propagation, reflection and refraction of plane waves; wave guides and cavity resonators.
Pre- or corequisites: Math 312. {Spring}

***430. Physics of Matter.** (3) Chandler, Leavitt, McIver, Prasad
Free electron gas, energy bands, crystals, semiconductors, metals, elementary excitations, superconductivity.
Prerequisite: 330 or equivalent. {Spring}

***432. Introduction to Hydrodynamics.** (3) Ahluwalia, Chandler, King
(Also offered as Astr 432.) Basic concepts and principles, rotational and irrotational flows, momentum equation, stability, turbulence, flowpatterns, shocks, applications. {Offered upon demand}

***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}

***437. Introduction to Solar Terrestrial Physics.** (3) Ahluwalia
(Also offered as Astr 437.) The sun as a star, solar activity, acceleration of particles on the sun and in interplanetary space, dynamics of the solar wind and he interplanetary magnetic field, magnetosphere of the earth, ring current, radiation belts, solar-terrestrial effects. {Offered upon demand}

***445. Introduction to Cosmic Radiation.** (3) Ahluwalia, Swinson
(Also offered as Astr 445.) Primary cosmic radiation, Stormer theory, production and detection of secondary cosmic radiation, meteorological and environmental effects, temporal variations, heliospheric transport, extensive air showers and origin of cosmic rays. {Offered upon demand}

***451. Problems. (1-3 hrs. per semester, to a maximum of 6)**
Offered on a CR/NC basis only.

***452. Research Methods. (1-3 hrs. per semester, to a maximum of 6)**

***466. Methods of Theoretical Physics.** (3) Alpert, Beckel, Becker, Chandler, Finley, McIver, Scully
Complex variables; ordinary and partial differential equations; special functions; integral transforms. {Fall}

***467. Methods of Theoretical Physics.** (3) Chandler, McIver
Linear spaces; complex variables - asymptotic methods; elements of group theory, generarors applications. {Spring}

***471. Advanced Optics I.** (3) Jungling, Prasad
Advanced treatment of Maxwell's equations, eikonal theory, interferometry, interference and diffraction; introduction to aberrations. {Fall}

***472. Laser Physics I.** (3) Jungling, Prasad, Scully
Quantum theory of radiation, introduction to two-level systems, spontaneous and stimulated emission; gas, semiconductor and solid state lasers.
Prerequisite: 406 or EECE 362. {Fall}

***476L. Experimental Techniques of Optics.** (3) Diels
Diffraction, interference, optical detectors, lens aberrations, lasers, spectra, scattering, optical testing. 1 lecture, 3 hrs. lab. {Fall}

477L. Experimental Techniquest of Optics. (3) Diels
Diffraction, interference, optical detectors, lens aberrations, lasers, spectra, scattering, optical testing. 1 lecture, 3 hrs. lab. {Spring}

***491. Contemporary Physics.** (3) Ahluwalia, Bassalleck, Bryant, Cahill, Dieterle, Finley, Leavitt, Swinson, Wolfe
Special theory of relativity, introduction to quantum mechanics with applications to atomic, nuclear and solid state physics. {Fall}

Symbols - See page 379

***492. Contemporary Physics. (3)** Ahluwalia, Bassalleck, Bryant, Cahill, Dieterle, Finley, Leavitt, Swinson, Wolfe
Special theory of relativity, introduction to quantum mechanics with applications to atomic, nuclear and solid state physics. {Spring}

***493L. Contemporary Physics Laboratory. (3)** Bassalleck, Bryant, Dieterle
Spectrographic methods; lasers, atomic structure; high Tc superconductivity; natural and artificial radioactivity; cosmic rays. 1 lecture, 5 hrs. lab. {Fall}

***495. Theory of Special Relativity. (3)** Ahluwalia, Finley
Relativistic kinematics and dynamics, relativistic electromagnetism, application to nuclear physics and astrophysics. {Offered upon demand}

496. Contemporary Physics Honors. (3) Ahluwalia, Bassalleck, Bryant, Cahill, Dieterle, Finley, Leavitt, Swinson, Wolfe
(see Physics 491) {Fall}

497. Contemporary Physics Honors. (3) Ahluwalia, Bassalleck, Bryant, Cahill, Dieterle, Finley, Leavitt, Swinson, Wolfe
(see Physics 492) {Spring}

498L. Contemporary Physics Honors Laboratory. (3) Bassalleck, Bryant, Dieterle
(see Physics 493L) 1 lecture, 5 hrs. lab. {Fall}

500-501. Advanced Seminar. (1-3, 1-3)
{Fall, Spring}

503. Classical Mechanics I. (3) Beckel, Bryant, Cahill, Chandler, Finley
{Fall}

504. Classical Mechanics II. (3) Chandler, Finley
{Offered Upon Demand}

505. Statistical Mechanics and Thermodynamics. (3) Chandler, Kenkre, Leavitt, McIver
{Fall}

506. Statistical Mechanics II. (3) Kenkre
{Spring}

511. Electrodynamics I. (3) Alpert, Becker, Cahill, Chandler, Finley
{Fall 1989 and alternate years}

512. Electrodynamics II. (3) Becker, Cahill, Chandler, Finley
{Spring 1990 and alternate years}

521. Quantum Mechanics I. (3) Alpert, Beckel, Cahill, Chandler, Finley, Leavitt, McIver
{Spring}

522. Quantum Mechanics II. (3) Beckel, Cahill, Finley, Leavitt, McIver
{Fall}

523. Quantum Field Theory I. (3) Becker, Cahill, Chandler, Finley, Scully
Prerequisites: 521 and 522. {Offered upon demand}

524. Quantum Field Theory II. (3) Cahill
{Offered upon demand}

530. Selected Topics in Solid State Physics. (3) Kenkre, McIver, Prasad, Scully
Prerequisite: 521. {Spring}

531. Atomic Structure. (3) Beckel, Bryant
Prerequisite: 521. {Offered upon demand}

532. Molecular Structure. (3) Beckel
Prerequisite: 521. {Offered upon demand}

534. Plasma Physics I. (3) Ahluwalia, Duric, Roderick
(Also offered as Ch-NE, Astr 534.) {Fall}

535. Plasma Physics II. (3) Ahluwalia, Roderick
(Also offered as Ch-NE 535.)
Prerequisite: 534 or equivalent. {Spring}

537. Selected Topics in Astrophysics and Space Physics. (3) Ahluwalia, Burns, Duric
(Also offered as Astr 537.) {Offered upon demand}

538. Advanced Methods of Theoretical Physics. (3) Beckel, Cahill, Finley
{Offered upon demand}

540. Introduction to Nuclear Physics. (3) Bassalleck, Dieterle, Leavitt
{Offered upon demand}

542. Selected Topics in Theoretical Nuclear Physics. (3) Chandler, Finley, Leavitt, Scully
Prerequisites: 521, 540. {Offered upon demand}

543. Selected Topics in High-Energy Physics. (3) Bassalleck, Chandler, Dieterle, Finley, Leavitt
Prerequisite: 521. {Offered upon demand}

551-552. Problems. (1-4 hrs. each semester)
Offered on a CR/NC basis only.

554. Advanced Optics II. (3) Jungling, Prasad
Prerequisite: 471. {Spring}

555. Nonlinear Optics. (3) Scully
Prerequisites: 554, 564. {Fall}

556. Optical Coherence Theory. (3) Prasad, Scully
Prerequisite: 554. {Offered upon demand}

564. Laser Physics II. (3) Prasad, Scully
Prerequisite: 472. {Spring}

565. Resonator Theory. (3)
Prerequisites: 554, 512 or EECE 562. {Offered upon demand}

566. Quantum Optics. (3) # Scully
Prerequisite: 564. {Fall}

569. Advanced Topics in Modern Optics. (3) # Diels
Possible topics include dye lasers, solid-state lasers, novel lasers, interaction between intense lasers and matter, advanced nonlinear optics. {Offered upon demand}

570. Theory of Relativity. (3) Finley
Prerequisite: 503. {Offered upon demand}

580. Advanced Plasma Physics. (3) Roderick
(Also offered as Ch-NE 580.)
Prerequisites: 534, 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.

ASTRONOMY (ASTR)

For Astr 101 through 111L see the General Interest courses described above.

270. General Astronomy. (3)
The solar system, stellar astronomy, the galaxy, extra-galactic systems, cosmology.
Pre- or corequisites: Math 150 or 162, and any physics course numbered 150 or higher. {Fall}

271. General Astronomy. (3)
The solar system, stellar astronomy, the galaxy, extra-galactic systems, cosmology.
Pre- or corequisites: Math 150 or 162, and any physics course numbered 150 or higher. {Spring}

272L. General Astronomy Laboratory I and II. (1)
Observations of the moon, planets, and stars.
Pre- or corequisites: 270-271. 3 hrs. lab. {Fall}

273L. General Astronomy Laboratory I and II. (1)
Observations of the moon, planets, and stars.
Pre- or corequisites: 270-271. 3 hrs. lab. {Spring}.

***421. Concepts of Astrophysics. (3)** Burns, Campbell, Duric, Gregory, King, Price, Zeilik
Radiation processes, interaction of radiation with matter, simple applications to a variety of astrophysical problems.
Prerequisites: Physcs 330 or 491, 492 or their equivalent. {Spring}

***422. Stellar Structure. (3)Δ #** King
Equations of stellar structure, stellar birth to death, comparison with observations; stellar atmospheres, spectra, mass loss from stars. (Emphasis in alternate semesters will be on stellar interiors or stellar atmospheres.)
Prerequisites: Physcs 330 or 491, 492 or their equivalent. {Offered upon demand}

***423. Radio Astronomy. (3)** Burns, Price
Single dish and aperture synthesis radio observations; emission processes at radio wavelengths: synchrotron radiation, thermal bremsstrahlung.
Prerequisites: Physcs 330 or 491, 492 or their equivalent. {Offered upon demand}

***424. Extragalactic Astronomy and Cosmology. (3)** Gregory
Distribution, properties, and interactions of galaxies and quasars; large scale clusterings of matter, formation and evolution of the universe; physical cosmology. {Offered upon demand}

***425. Galactic Astronomy. (3)** Campbell, King, Price, Zeilik
The observed and infrared structure, kinematics and macroscopic time-dependent properties of our galaxy. Considerable emphasis placed on the use and interpretation of actual observations. {Offered upon demand}

***426. Observational and Computational Techniques. (3)** Burns, Gregory, Zeilik
Visual and infrared photography, photometry and spectroscopy; digital data acquisition and processing; astronomical image processing; theoretical problem solving using micro and mainframe computers. {Offered upon demand}

***427. Selected Topics in Planetary Astronomy. (3)**
Planetary physics; planetary investigation using space vehicles; optical properties of planetary atmospheres. {Offered upon demand}

***432. Introduction to Hydrodynamics. (3)** Ahluwalia, Chandler, King
(Also offered as Physcs 432.) Basic concepts and principles, rotational and irrotational flows, momentum equation, stability, turbulence, flowpatterns, shocks, applications. {Offered upon demand}

***437. Introduction to Solar Terrestrial Physics. (3)** Ahluwalia
(Also offered as Physcs 437.) The sun as a star, solar activity, acceleration of particles on the sun and in interplanetary space, dynamics of the solar wind and interplanetary magnetic field, magnetosphere of the earth, ring current, radiation belts, solar-terrestrial effects. {Offered upon demand}

***445. Introduction to Cosmic Radiation. (3)** Ahluwalia, Swinson.
(Also offered as Physcs 445.) Primary cosmic radiation, Stormer theory, production and detection of secondary cosmic radiation, meteorological and environmental effects, temporal variations, heliospheric transport, extensive air showers and origin of cosmic rays. {Offered upon demand}

***455. Problems. (1-3 hrs. per semester, to a maximum of 6)**

534. Plasma Physics I. (3) Ahluwalia, Duric, Roderick
(Also offered as Ch-NE, Physcs 534.) {Fall}

537. Selected Topics in Astrophysics and Space Physics. (3)Δ Ahluwalia, Burns, Duric
(Also offered as Physcs 537.) {Offered upon demand}

ARTS & SCIENCES

POLITICAL SCIENCE

Paul L. Hain, Chairperson
Social Sciences 2059, 277-5104

PROFESSORS:

F. Chris Garcia, Ph. D., University of California (Davis)
Paul L. Hain, Ph. D., Michigan State University
Fred R. Harris, J. D., University of Oklahoma
Peter A. Lupsha, Ph. D., Stanford University
Martin C. Needler, Ph. D., Harvard University
Karen L. Remmer, Ph. D., University of Chicago
Robert J. Sickels, Ph. D., Johns Hopkins University
Jay B. Sorenson, Ph. D., Columbia University
Harry P. Stumpf, Ph. D., Northwestern University

ASSOCIATE PROFESSORS:

Neil J. Mitchell, Ph. D., Indiana University

ASSISTANT PROFESSORS:

Larry N. George, Ph. D., Princeton University
Gregory Gleason, Ph. D., University of California (Davis)
Hank C. Jenkins-Smith, Ph. D., University of Rochester
Shane Phelan, Ph. D., University of Massachusetts (Amherst)
Christine M. Sierra, Ph. D., Stanford University
Richard W. Waterman, Ph. D., University of California (Davis)

PROFESSORS EMERITI:

Dorothy I. Cline, M. A., University of Chicago
Edwin C. Hoyt, Ph. D., Columbia University

May be repeated up to 6 hours.

Symbols - See page 379

MAJOR STUDY

Political Science is the study of politics, power, and government, including U. S. and foreign governments, as well as relationships among governments, their actions, and policies. Political Science is useful for people seeking careers in law, business, government service, urban planning, education, or journalism, but also is a vital part of a liberal arts education.

MAJOR STUDY REQUIREMENTS

A total of 33 hours is required for a major in political science. These hours must be distributed among the following:

a) 12 hours from the core courses (200, 220, 240, 260, and 280), including at least one course from each of the following groups: (200 or 270), (220 or 240), and (260 or 280);
b) 15 hours from courses numbered 300 or above;
c) 6 additional hours from any level.

MINOR STUDY REQUIREMENTS

A total of 21 hours, including at least three of the core courses and three courses numbered 300 or above 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.

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}

215. Law in the Political Community. (3)
(Also offered as Am St 215.) Introduction to the role of law and legal institutions in politics and society.
Prerequisite for 315 and 415. {Fall, Spring}

230. USSR Today -- People, Politics, Culture. (3)
(Also offered as Russ, Econ, Hist 230.)

291. Internship. (1-6)
Provides supervised work experience in the practical application of political science skills.
Prerequisites: permission of instructor and department chairperson.

***300. Political Topics. (3)Δ**
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}

495. Junior Honors Seminar. (3)
Prerequisite: permission of instructor.

496. Undergraduate Seminar. (3)Δ
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) Mitchell, Needler, Remmer
Designed to give students the ability to understand and evaluate political regimes by focusing on the political history, socio-economic structure, and contemporary political institutions and behavior. Includes consideration of European, communist, and developing systems. {Fall, Spring}

221. European Politics. (3)
Political systems of Western European countries. {Fall, Spring}

240. International Politics. (3) George, Gleason, 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) Phelan
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) Jenkins-Smith
Introduces public policy and bureaucracy, including decision-making and implementation.

280. Introduction to Political Analysis. (3)
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)** Jenkins-Smith
Foundations and applications 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)** Jenkins-Smith
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

***301. The Government of New Mexico. (3)** 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, Sierra
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, Sierra
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, Sierra
The status, role, and activities of Mexican/Spanish Americans in the American political system. Recommended preparation: 200 or 307.

309. Black Politics. (3)
(Also offered as Afro A 309.) Focus will be on political actions and thoughts 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.
Prerequisites: 200 and 215 {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.
Prerequisites: 215; 315.

***419. Seminar in Contemporary Legal Issues. (3)** Sickels, Stumpf

COMPARATIVE POLITICS

150. Introduction to Latin America. (3)
(Also offered as Hist, Soc, M Lang 150.) 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 half hour discussion session each week. {Spring}

250. Latin America Through Film. (3) Remmer, Merkx
(Also offered as Soc, Lt-Am 250.) Interdisciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion.

***320. Topics in Comparative Politics. (3)Δ**
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.

***351. Western European Politics. (3)** Mitchell, Needler
Government and politics of selected West European countries.
Prerequisite: 220 {Spring}

***355. Governments and Politics of Latin America. (3)** Needler
(Also offered as Soc, Lt-Am 355.) The political dynamics of the Latin American republics, considered on a country-by-country basis.
Recommended preparation: Hist 282. {Fall}

Symbols - See page 379

***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)** Gleason, Sorenson
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, 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

245. National Security Forces in Contemporary American Society. (3)
(Also offered as AF ASP 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 AF ASP 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. {Spring}

***340. Topics in International Politics. (3)**
Selected problems of international politics.
Prerequisite: 240.

***342. American Foreign Policy. (3)** George, Sorenson
Prerequisite: 240. {Fall, Spring}

***345. Inter-American Relations. (3)** George
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)**
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, 240.

***443. International Law and Organization. (3)**
Prerequisite: 240. {Spring}

***449. Soviet Foreign Policies. (3)** Gleason
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 Lang, 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.

POLITICAL THEORY

***361. Classical Political Theory. (3)** Phelan
Prerequisite: 200 or 260 recommended. {Fall}

***362. Modern Political Theory. (3)** Phelan
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)** Phelan
Recommended preparation: 200, 260 {Offered upon demand}

PUBLIC POLICY

204. The Environmental Problem. (3) Sorenson
Multidisciplinary introduction to the environmental problem. {Spring}

***350. Public Finance. (3)** Therkildsen
(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 level. {Spring}

***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. (3)
(Also offered as Pub Ad 500.)

501. Interdisciplinary Seminar in U. S. Culture. (3)
(See Am St 501.) {Fall, Spring}

502. Analytical Methods for Planning. (3)
(Also offered as CRP 511, Econ 502.) Students should have taken a basic statistics course prior to enrollment. {Fall}

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)Δ
May be repeated for credit. {Fall}

520. Proseminar: 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. Proseminar on Latin American Politics. (3)
(Also offered as Lt-Am, 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 permission 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, Merkx, Needler, Remmer, 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.

PSYCHOLOGY

Douglas Peter Ferraro, Chairperson
Psychology 180, 277-4121

PROFESSORS:

Henry Carlton Ellis, Ph. D., Washington University
Dennis Michael Feeney, Ph. D., University of California (Los Angeles)
Douglas Peter Ferraro, Ph. D., Columbia University
John Paul Gluck, Jr., Ph. D., University of Wisconsin
William Charles Gordon, Ph. D., Rutgers University
Richard Jerome Harris, Ph. D., Stanford University
Peder Jack Johnson, Ph. D., University of Colorado
Frank Anderson Logan, Ph. D., University of Iowa
William Richard Miller, Ph. D., University of Oregon
Samuel Roll, Ph. D., Pennsylvania State University
Britton Kenneth Ruebush, Ph. D., Yale University

ASSOCIATE PROFESSORS:

Harold D. Delaney, Ph. D., University of North Carolina
Michael J. Dougher, Ph. D., University of Illinois (Chicago Circle)
Gordon K. Hodge, Ph. D., University of California (Los Angeles)
Jean E. Newman, Ph. D., (Linguistics) University of Toronto
Eligio Roberto Padilla, Ph. D., University of Washington

ASSISTANT PROFESSORS:

Gina Eileen Agostinelli, Ph. D., Indiana University
Judith Angelica Arroyo, Ph. D., University of California (Los Angeles)
Timothy E. Goldsmith, Ph. D., New Mexico State University
Karen N. Hayes, Ph. D., University of North Carolina
Robin N. Jacobvitz, Ph. D., University of Massachusetts (Amherst)
Jane Ellen Smith, Ph. D., State University of New York (Binghamton)
Holly Barrett Waldron, Ph. D., University of Utah
Ronald A. Yeo, Ph. D., University of Texas (Austin)

DISTINGUISHED PROFESSOR:

Henry Carlton Ellis, Ph. D., Washington University

PROFESSORS EMERITI:

David Theodore Benedetti, Jr., Ph. D., University of Colorado
G. Robert Grice, Ph. D., University of Iowa
Ralph David Norman, Ph. D., Ohio State University
John Marshall Rhodes, Ph. D., University of Southern California

MAJOR STUDY

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; 8--individual topics in psychology. (The third number has no system-

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atic 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 nterested student in the Department office. **Acceptance of transferred credits toward a major or minor in psychology must be approved by the associate chairperson for undergraduate education.**

MAJOR STUDY REQUIREMENTS

The standard major requires 26 hours credit beyond 8 hours general psychology. The B. A. degree requires that the student take 200 and a laboratory course numbered above 300, and complete a minor in an A&S departments other than biology, chemistry, computer science, mathematics, or physics. The B. S. degree requires 200, 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.

Majors (B.A. only) in psychology who elect to minor in Human Services are required to complete 23 hours in Human Services consisting of the following courses: H S 101, 102, 105, 109 (Psych 310), 150, 201, and 250. Students must apply to the Human Services Worker program for admission. For more information, please call 277-5428.

MINOR STUDY REQUIREMENTS

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 200, 202, 391, 392, 491L, and 492L. The usual requirement for majors of a laboratory course numbered above 300 is waived for honors majors.

PSYCHOLOGY (PSYCH)

101. General Psychology I. (3) Ferraro, Hodge
An introduction to basic processes underlying behavior. Focuses on principles of learning, memory and motivation, as well as areas such as perception, language, states of awareness and biological bases of behavior. {Summer, Fall, Spring}

102. General Psychology II. (3) Dougher, Roll
An introduction to patterns of human behavior. Focuses on the topics of human growth and development, intelligence, personality, social psychology, abnormal behavior and therapy. {Summer, Fall, Spring}

103L. General Psychology I Laboratory. (1) Hodge
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. {Fall, Spring}

104L. General Psychology II Laboratory. (1) Hodge
Laboratory projects relevant to topics covered in 102.
Pre- or corequisite: 102. {Fall, Spring}

109. Coping With College. [Learning/Adjustment Skills] **(1-3)** Miller
Goal is to improve the student's strategies for learning and living in a university environment. Psychological principles are applied to improving memory, reading, listening, taking exams, personal adjustment, motivation, stress-management, habits, and interpersonal relations. {Fall, Spring}

200. Statistical Principles. (3) Delaney, Harris
Presentation of the basic principles of the description and interpretation of data. Provides an acquaintance with statistical principles appropriate to a liberal education, as well as a basis for further work in data analysis. Students planning graduate study in any field are advised to take 202 and 300 as well.
Pre- or corequisite: 101 or 102. {Summer, Fall, Spring}

202. Psychological Research Techniques. (3) Goldsmith
Application of the concepts covered in 200. Includes discussion of basic principles of research design and scientific methodology as applied to psychology.
Prerequisite: 200. {Fall, Spring}

210. Educational Psychology. (3)
The contribution of psychological theory, research and methods to our understanding of the educational process.
Prerequisite: 101 or 102. {Offered upon demand}

211. Applied Psychology. (3) Goldsmith
Topics in applications to everyday life, such as personnel selection, consumer psychology, and environmental problems.
Prerequisites: 101, 102. {Fall}

220. Child Psychology. (3) Hayes, Jacobvitz
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. {Summer, Fall, Spring}

230. Adjustment and Interpersonal Relations. (3)
Processes of normal human adjusting and coping in both personal and interpersonal spheres. Topics include applications of psychology to stress and mood management, self-esteem, social adjustment, communication and relationships.
Prerequisite: 101 or 102. {Fall, Spring}

231. Psychology of Human Sexuality. [Human Sexuality] **(3)** Smith
Exploration of the physiological, cultural, social and individual factors that influence sexual behavior, sex roles, and sex identity. {Offered upon demand}
Prerequisite: 101 or 102.

232. Clinical Psychology. (3) Miller, Padilla
Introduction to clinical psychology as a profession and research area: psychometrics and assessment, systems of prevention and therapy, forensic psychology, program evaluation, professional/ethical issues.
Prerequisite: 102. {Spring}

240. Brain and Behavior. (3) Feeney, Hodge, Yeo
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, Spring}

250. Special Topics in Psychology. (1-3)
Study of any psychological topic not otherwise included in the curriculum upon expression of mutual interest by students and faculty. {Offered upon demand}

260. Psychology of Learning and Memory. (3) Gordon, 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}

265. Cognitive Psychology. (3) Ellis, Johnson
Study of the mental processes involved in the encoding, storage, retrieval, and utilization of knowledge including attention, memory, comprehension, categorization, reasoning, problem solving, language, and motor skills.
Prerequisite: 101. {Fall}

271. Social Psychology. (3) Agostinelli, Harris
Study of social influence: perception of oneself and others, attitudes, conformity, attraction, altruism, aggression, groups.
Prerequisite: 101; 102. {Fall, Spring}

****300. Intermediate Statistics.** (3) Harris
Complex analysis of variance designs (factorial, mixed-model, Latin square, unequal-n) and nonparametric tests.
Prerequisite: 200. {Fall}

310. Psychological Testing. (3) Gangestad
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.
Prerequisites: 200, 232. {Offered upon demand}

321. Introduction to Child Research. (3) Hayes
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, 220. {Offered upon demand}

322L. Child Research Laboratory. (2) Hayes
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. {Offered upon demand}

****325. Psychology of Infancy.** (3) Jacobvitz
An advanced course which presents theory and research on the physical, cognitive, emotional, and perceptual changes in the first two years of life.
Prerequisites: 102, 220. {Spring}

****327. Social Development.** (3) Hayes
An advanced course which integrates theory and research focusing on dimensions of normal social growth from infancy through adolescence.
Prerequisites: 102, 220. {Spring, Summer}

331. Psychology of Personality. (3) Gangestad, 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 232. {Fall, Spring}

332. Abnormal Behavior. (3) Arroyo, Smith
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 or 232. {Summer, Fall, Spring}

333L. Abnormal Behavior Laboratory-Part I. [Abnormal Behavior Laboratory] (2) Smith
Research projects related to topics in 332, particularly in the areas of schizophrenia, eating disorders, and phobias. Focuses on conceptualizing, designing, and conducting clinical research. Special attention devoted to psychophysiological measurements.
Pre- or corequisites: 332 and permission of instructor. Psych 334L must be taken upon completion of 333L. {Fall, Spring}

334L. Abnormal Behavior Laboratory-Part 2. (2) Smith
Provides research experience with actual clinical populations, particularly in the areas of eating disorders, phobias, and schizophrenia. Expands research skills acquired in 333L, and involves students in the preparation of papers for conference presentations.
Prerequisite: 333L & permission of instructor. {Spring}

****337. Family Psychology.** (3) Waldron
Focuses on the major theoretical approaches to family dysfunction and examines family influences on the development and maintenance of deviance, including juvenile delinquency, substance abuse, anorexia nervosa, depression and schizophrenia.
Corequisite: 332 {Spring}

338L. Family Psychology Laboratory. (2) Waldron
Provides research experience with clinical populations of disturbed families. Allows students to develop expertise in social interaction research methods and involves students in the preparation of data for professional dissemination.
Prerequisites: 337 & permission of instructor.

****361. Human Learning and Memory.** (3) Ellis, Johnson
How humans acquire and utilize knowledge. Theoretical and applied issues discussed around the topics of memory structures, attention, forgetting, mnemonics, imagery and individual differences in memory.
Prerequisite: 260 or 265 {Fall}

362L. Human Learning and Memory Laboratory. (2) Ellis, Johnson
Laboratory projects related to topics in 361.
Prerequisite: 200; corequisite: 361. {Fall}

****363. Psychology of Perception.** (3)
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 or 265.

364L. Psychology of Perception Laboratory. (2)
Laboratory projects related to topics in 363.
Prerequisite: 200; corequisite: 363.

****367. Psychology of Language.** (3) Newman
(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: Ling 292L or Psych 265. {Fall}

****368. Sensation.** (3)
Exploration of sense organ operation with emphasis on both behavioral and physiological data.
Prerequisite: 260 or 265.

369L. Sensation Laboratory. (2)
Laboratory topics related to topics in 368.
Prerequisite: 200; corequisite: 368.

****371. Intermediate Social Psychology.** (3) Agostinelli, Harris
In-depth examination of several topics that are the focus of current research among social psychologists.
Prerequisite: 271. {Spring}

372L. Social Psychology Laboratory. (2) Agostinelli, Harris
Laboratory projects relevant to topics in 371.
Prerequisite: 200; corequisite: 371. {Fall, Spring}

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373. Cross-cultural Psychology. (3) Arroyo, 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}

375. Psychology of Women. (3)
Survey of research and theory on gender-role stereotypes and gender differences in such contexts as interpersonal relations, the family, the workforce, mass media, mental and physical health.
Prerequisite: 101 or 102. {Fall, Spring}

391. Junior Honors Seminar. (3) Delaney
Discussion of the history and systems of psychology and the philosophy of science, particularly as related to current topics in psychology.
Prerequisites: 260 or 265, permission of instructor; pre- or corequisites: 200, 202. {Fall}

392. Junior Honors Seminar. (3) Delaney
Continuation of 391. {Spring}

***400. History of Psychology.** (3) Roll
An introduction to the major developments and systems in the history of psychology.
Prerequisite: 101 or 102. {Spring}

***401. Mathematical Psychology.** (3) Delaney
Survey of mathematical descriptions of behavior.
Prerequisite: 200. {Offered upon demand}

***402. Multivariate Statistics.** (3) Harris
(Also offered as Math 447.) Analysis of situations involving more than one dependent variable: discriminant analysis, multivariate analysis of variance, canonical correlation, principal components analysis, factor analysis. Includes use of computer packages.
Prerequisite: 200 or equivalent. 300 advised. {Spring}

***412. Advanced Educational Psychology.** (3)
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. {Offered upon demand}

***413. Industrial and Organizational Psychology.** (3)
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, 102, and 271. {Fall in alternate years}

****414. Human Factors Psychology.** (3)
Application of psychological principles to the design and evaluation of person-environment systems.
Prerequisite: 101, 102 and 260 or 265. {Spring in alternate years}

***415. Environmental Psychology.** (3)
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, 102 and 271. {Spring in alternate years}

****420. Advanced Developmental Psychology.** (3) Hayes, Jacobvitz
Investigation of the theoretical bases and critical issues in the area of developmental psychology. {Spring}

421L. Advanced Developmental Psychology Laboratory. (2) Jacobvitz
Will provide experience with research methods in developmental child psychology. Small projects (4-5), one research proposal on topic of choice.
Pre- or corequisite: 420. {Spring}

428. Cognitive Development. (3) Jacobvitz
Research and theory concerning the development of conceptual, intellectual and linguistic behavior in children.
Prerequisites: 101, 102, 220. {Fall}

***430. Alcoholism.** (3) Miller
Causes, course, prevention and treatment of problem drinking.
Prerequisite: 102. {Fall}

***431L. Alcoholism Laboratory.** (2) Miller
Laboratory projects relevant to topics in 430.
Prerequisite: 200; corequisite: 430. {Fall}

****432. Child Psychopathology.** [Clinical Child Psychology] (3) Waldron
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 Psychopathology Laboratory. [Clinical Child Psychology Laboratory] (2) Waldron
Supervised practicum experience with children manifesting a variety of learning and developmental disturbances in school and treatment settings.
Pre- or corequisites: 432, permission of instructor. {Spring}

***434. Behavior Therapies.** (3) Dougher
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}

435L. Behavior Therapies Laboratory. (2) Dougher
Laboratory projects related to topics in 434.
Prerequisites: 260, 332; corequisite: 434. {Fall}

***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; corequisite: 440. {Spring}

***442. Neural Plasticity and Behavior.** (3) Feeney
Emphasis on experimental studies of behavioral recovery after brain injury.
Prerequisite: 240. {Spring}

***444. Human Neuropsychology.** (3) Yeo
The analysis of brain-behavior relationships regarding affect, higher cognitive functions (language, memory, spatial reasoning) in humans.
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. {Offered upon demand}

446L. Comparative Psychology Laboratory. (2) Gluck
Laboratory projects related to topics in 445.
Prerequisite: 200; corequisite: 445. {Offered on demand}

***447. Psychopharmacology: Drugs of Abuse.** (2-3) Ferraro, Hodge
Study of the pharmacological action and physiological and psychological effects of drugs of abuse including stimulants, depressants, narcotics and hallucinogens. When taught as a

2-hour course, material is condensed, is applied in content, and basic brain systems are only briefly covered.
Prerequisites: 240 and/or permission of instructor. {Summer, 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. {Offered upon demand}

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. {Offered upon demand}

***450. Special Topics in Psychology. (1-3 hrs. per semester)Δ**
Study of any psychological topic not otherwise included in the curriculum upon expression of mutual interest by students and faculty. {Offered upon demand}

****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: 232 or 240 or 260. {Fall}

455L. Health Psychology Lab. (2) Ferraro
Laboratory projects related to topics in 454.
Prerequisite: 200; corequisite: 454. {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, 200; corequisite: 461. 4 hrs. lab. {Spring}

***463. Human Performance. (3)** Goldsmith
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 or 265. {Offered upon demand}

464L. Human Performance Lab. (2) Goldsmith
Laboratory projects related to topics in 463.
Prerequisite: 200; corequisite: 463. 4 hrs. lab. {Offered upon demand}

***465. Learning: Conditioning. (3)** Gordon
Practical application of classical and operant conditioning principles to behavioral modification, behavior therapy, behavioral medicine and behavioral pharmacology.
Prerequisite: 260. {Offered upon demand}

466L. Conditioning Laboratory. (2) Gordon
Laboratory projects related to topics in 465.
Corequisite: 465. 4 hrs. lab. {Offered upon demand}

***467. The Science of Intelligent Systems. (3)** Johnson, Lugar
(Also offered as C S 438.) Concepts of intelligence from psychology and computer science. Areas considered include production systems, expert systems, computer assisted instruction, models for semantics and human cognitive processes from pattern recognition to output systems. Includes a project. Prerequisite: 265 or C S 363L or permission of instructor. Recommended: C S 457. {Spring in alternate years}

****468L. The Science of Intelligent Systems Laboratory. (2)** Johnson, Lugar
Laboratory projects related to topics in 467.
Prerequisite: 200; corequisite: 467. 4 hrs. lab. {Offered upon demand}

***479. Advanced Topics in Social Psychology. (3)** Agostinelli, 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 271 or equivalent introductory social psychology courses. {Spring in alternate years}

491L. Senior Honors Seminar. (3)
Experimental methods and laboratory techniques. Senior thesis based on independent research.
Prerequisite: 392. 3 hrs. lab. {Fall}

492L. Senior Honors Seminar. (3)
Continuation of 491. 3 hrs. lab. {Spring}

499. Undergraduate Problems. (1-3 hrs. per semester, to a maximum of 6)
Prerequisite: permission of instructor.

501. Advanced Statistics. (3) Goldsmith

502. Design and Analysis of Experiments. [Design of Experiments] **(3)** Delaney

503L. Advanced Statistics Laboratory. (1) Goldsmith
Corequisite: 501, or permission of instructor. {Fall}

504L. Design and Analysis of Experiments Laboratory. (1) Delaney
Corequisite: 502 or permission of instructor. {Spring}

506. Seminar in Mathematical Psychology. (3) Delaney

520. Seminar in Developmental Psychology. (3)
Prerequisites: 220, 420. {Fall}

523. Seminar in Social Development of the Child. (3) Hayes

525. Seminar on Infancy. (3) Jacobvitz

528. Seminar in Cognitive Development. (3) Jacobvitz

531. Professional and Cultural Issues in Clinical Psychology. (3) Padilla

532. Seminar in Psychopathology. (3) Smith

533. Psychological Evaluation: Cognitive and Neuropsychology Functions. (3) Yeo

535. Psychological Evaluation: Personality Functions. (3) Gangestad

536L. Practicum in Psychological Evaluation. [Practicum in Assessment of Personality Functions] **(3)**

537. Seminar in Child Psychopathology. (3) Waldron

538. Seminar in Psychoanalytic Ego Psychology. (3) Roll

540. Biological Bases of Behavior. (3) Feeney, Hodge, Yeo
Prerequisite: 440 or permission of instructor. {Spring}

541. Animal Cognition and Complex Processes. (3) Gluck, Gordon

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542. Seminar in Recovery of Function and Epilepsy. (3) Feeney

547. Psychopharmacology: Therapeutic Drugs. (3) Hodge

551. Graduate Problems. (1-3)Δ

560. Seminar in Child Language. (3) Newman

561. Systematic Issues in Psychology. [Theories of Learning] **(3)** Ellis, Gordon, Johnson

563. Seminar in Human Memory. (3) Ellis

564. Seminar in Classical Conditioning. (3) Grice

567. Theories of Perception. (3)

568. Cognitive Processes. (3) Johnson

569. Seminar in Psycholinguistics. (3)Δ Newman
(Also offered as Ling 569.)

571. Seminar in Social Psychology. (3) Agostinelli, Harris

572. Theories of Personality. (3) Roll

573. Seminar on Cross Cultural Research. (3) Padilla

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

600L. Clinical Practicum. (1-3)Δ Clinical Faculty
Prerequisite: *permission of instructor.*

601. Multiple Measures. [Methods of Behavioral Research] **(3)** Harris

630. Seminar in Psychoanalytic Psychotherapy. (3) Roll

631L. Practicum in Psychotherapy with Adults I. (3)Δ

632L. Practicum in Psychotherapy with Adults II. (3)Δ

633. Systems of Psychotherapy. (3) Gluck

634. Seminar in Treatment of Children, Adolescents and Families. (3) Ruebush

637. Family Psychopathology. (3) Waldron
Prerequisite: Permission of instructor.

641. Seminar in Physiological Psychology. (3)Δ Feeney, Hodge

648. Seminar in the Biological Basis of Psychopathology. (3) Yeo
Prerequisite: Permission of instructor. {Spring}

650. Special Topics in Psychology. (1-3)
(Also offered as Med Sc 655.)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

QUATERNARY STUDIES

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)
L. D. McFadden, Ph. D., University of Arizona (Geology)
S. G. Wells, Ph. D., University of Cincinnati (Geology)
Wirt Wills, Ph. D., University of Michigan (Anthropology)
J. C. Winter, Ph. D., University of Utah (Contract Archeology)

Interdepartmental undergraduate and graduate minors in Quaternary Studies are offered to majors in the Departments of Anthropology, Biology, Chemistry, and Geology.

UNDERGRADUATE MINOR REQUIREMENTS

The minor requires 30 hours in courses listed in the "Quaternary Studies Pool", including Quat 301, Chem 121L, 122L, and Math 162 (or 180, 181). 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 for the Quaternary Studies pool (see appropriate departmental listings for course *descriptions* and prerequisites).

Anth 320, 356, 366
Biol 121L, 122L, 221, 350L, 363L, 386L, 495
Chem 253L, 301, 302, 303L, 304L
Geol 101, 105L, 102, 102L, 209, 319L, 333L, 410, 431L, 439, 441L, 481L, 485L
Math 155 or Geol 318, 162, 163, 264, 345
Phyiscs 160, 161, 262
EECE 336

Other courses may be approved upon petition to the committee.

GRADUATE MINOR REQUIREMENTS

Requirements are listed in the Graduate Programs Bulletin.

QUATERNARY STUDIES (QUAT)

326. [*301] Quaternary Systems. (3)
(Also offered as Geol 326.) Interdepartmental seminar and readings, addressing important problems between modern and ancient systems. {Fall}

451-452. Problems in Quaternary Studies. (2, 2)

539. Quaternary Field Methods. (4)
(Also offered as Geol 539.) {Fall}

551-552. Problems. (2-3, 2-3 hrs. per semester)

RELIGIOUS STUDIES

Andrew Burgess, Chairperson
Humanities Building 525, 277-4009

COMMITTEE IN CHARGE:

Andrew J. Burgess, Philosophy
Joyce Rogers, University College
Shlomo Karni, Electrical and Computer Engineering
Patrick H. McNamara, Sociology
Fred Gillette Sturm, Philosophy
Donald D. Sullivan, History

ASSOCIATED FACULTY:

Alfonso Ortiz, Anthropology
Ferenc M. Szasz, History

MAJOR STUDY

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.

MAJOR STUDY REQUIREMENTS

The major requires 33 hours in Religious Studies, of which at least 18 must be at the upper division level. Required are 230 or 231; 232; 263; 264; and 447. In addition to the four lower division required courses, the student must alsotake at least one other course (which may include 447) in each of the four distributional areas--Asian Religions, Western Religions, Biblical Studies, and Religion in America.

DUAL MAJOR REQUIREMENTS

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.

MINOR STUDY REQUIREMENTS

The minor requires 18 hours in Religious Studies, of which at least 9 must be in courses with a Relig prefix.

HONORS IN RELIGIOUS STUDIES

Students wishing to work for Honors in Religious Studies should contact the chairperson of the Religious Studies Program during their Junior year. Honors students sign up for two consecutive semesters of Relig 497, in which they prepare an Honors thesis under the direction of a committee.

DISTRIBUTIONAL AREAS

Courses for the Religious Studies major are divided into four distributional areas. Included in the following list are courses which have been offered or are planned under variable topics numbers:

1. *Asian Religions:* 263, 456; and topics courses: Hinduism, Ch'an and Zen Buddhism, Chinese Buddhism, Indian Buddhism, Mysticism and Philosophy.
2. *Western Religions:* 264, 301, 302, 305, 306, 325, 360, 365; Hist 326; and topics courses: Introduction to Judaism, Aquinas, Kierkegaard, Tillich, C. S. Lewis, Christianity and Literature, Teresa of Avila, Spanish Mysticism, Medieval English Mysticism, the Holocaust in Historical Context.
3. *Biblical Studies:* 104, 109, 110, 230, 231, 232; and topics courses Psalms, Isaiah, Old Testament Wisdom Literature, The Bible and the Greek World, Revelation and Apocalypticism, Jesus and the Gospels, Paul and Early Christianity, Biblical Archeology.
4. *Religion in America:* 308, 333, 387, 422, 501, 532, 536; and topics courses: History of Religion in America, American Sermon, Hispanic Religion in New Mexico, Church and State.

With the permission of the Chairperson of the Religious Studies Program a student may include among courses for a major or minor a limited number of courses in such languages as Chinese, Classical Greek, Latin, Hebrew, and Sanskrit, when these courses include study of religious texts and are integrated with a program of advanced scripture studies.

Except for Relig 333 and 422, Religious Studies undergraduate courses count with Group II (Humanities) in the Arts and Sciences group requirements.

RELIGIOUS STUDIES (RELIG)

104. New Testament Greek. (1-6)Δ
(Also offered as Greek 104.) 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. {Fall}

107. Living World Religions. (3)
(Also offered as Phil 107.) Introduction to major living world religions, such as Buddhism, Christianity, Hinduism, Islam, and Judaism. {Fall}

109-110. Biblical Hebrew. (4, 3)
Introduction to the language of the Hebrew Bible.

230. Old Testament History. (3)
Pentateuch and the historical books of the Old Testament. {Fall}

231. Old Testament Prophets. (3)
Prophetic books and later Old Testament writings. {Spring}

232. New Testament. (3)
New Testament and early Christian history. {Spring}

247. Studies in Religions. (3)Δ
Elementary topics in the study of world religions. Topics to vary. {Fall}

263. Eastern Religions. (3)
(Also offered as Phil 263.) A study of major Asian traditions, such as Taoism, Hinduism, and Buddhism. {Fall}

264. Western Religions. (3)
(Also offered as Phil 264.) A study of major Western traditions, such as Christianity, Islam, and Judaism. {Spring}

*Symbols - See page ****

***301. History of the Jewish People to 1492. (3)**
(Also offered as Hist 301.) Survey of Jewish history in Ancient and Medieval times. {Fall}

***302. Modern History of the Jewish People. (3)**
(Also offered as Hist 302.) Survey in ethnic history stressing political, religious, and social developments from the expulsion from Spain (1492) to the present. {Spring}

***305. History of Christianity to 1517. (3)**
(Also offered as Hist 305.) The history of Christianity from its beginnings in Palestine to the eve of the Protestant Reformation. {Fall}

***306. History of Christianity, 1517 to Present. (3)**
(Also offered as Hist 306.) The development of Christianity from the Protestant Reformation into the modern world. {Spring}

***325. Reformation Era, 1500-1600. (3)**
(Also offered as Hist 325.) Religious revolution and concurrent development in European politics, society, and culture. {Fall}

***333. Ritual Symbols and Behavior. (3)**
(Also offered as Anth 333.) Comparative analysis of ritual processes, symbol systems, and world views in the context of social structure. {Spring}

347. Topics in Religious Studies. (3)Δ
Studies in major religious figures or movements. Topic varies. {Spring}

***360. Christian Classics. (3)**
(Also offered as Phil 360.) A study of major writings in the Christian tradition, written by such persons as Origen, Augustine, Aquinas, Luther, and Teresa of Avila. {Fall}

***361. Modern Christian Thought. (3)**
(Also offered as Phil 361.) Background of the intellectual issues facing Roman Catholic and Protestant traditions today. {Spring}

***365. Philosophy of Religion. (3)**
(Also offered as Phil 365.) Philosophic analysis of some major concepts and problems in religion. {Spring}

***387. Latin American Liberation Theology. (3)**
(Also offered as Phil 387.) Religious currents in Latin American thought, concentrating on the contemporary period, with special attention to the movement called "liberation theology". {Spring}

***422. Sociology of Religion. (3)**
(Also offered as Soc 422.) Structure and functioning of religious institutions in Western and non-Western societies. Prerequisite: Soc 101. {Spring}

***447. Seminar in Religious Studies. (3)Δ**
Major religious figures or movements. Topic varies. {Spring}

456. Islam. (3)
(Also offered as Hist 456.) Topics include the development of: Islamic law and theology; philosophy and mysticism, ritual and art. The political, social and economic ramifications of Islam will be emphasized. {Fall}

497. Independent Studies. (1-3, to a maximum of 9)†
Prerequisite: permission of program chairperson. {Spring}

500. Methods in Religious Studies. (3)
{Spring}

501. Interdisciplinary Seminar in U. S. Culture. (1-3)Δ
(See Am St 501.)

532. Sociology of Religion. (3)
(Also offered as Soc 532.) {Spring}

536. Theories of Symbolic Action. (3)
(Also offered as Anth 536.) {Spring}

547. Advanced Seminar in Religious Studies. (3)Δ
{Spring}

RUSSIAN STUDIES

See *International Studies*.

SIGN

(For major/minor study requirements, see *Linguistics*, p 176

201. Introduction to Signed Language. [Introduction to Sign Language.] **(3)** Monikowski, P. Wilcox, S. Wilcox
Overview of problems and implications related to deafness. Introduction to manual communication systems most frequently used by deaf and hearing-impaired individuals; manual English systems; American Sign Language; dactylology. {Summer, Fall, Spring}

202. Orientation to Deafness. (3) S. Wilcox
Overview of definitions, causes, and scope of deafness; introduction to speech and the hearing mechanism; implications of deafness in the context of personal, family, and community life. {Spring}

203. Signed Language Linguistics. (3) S. Wilcox
Examines linguistic reasearch on signed languages, primarily American Sign Language: phonetics, phonology, morphology, syntax, and semantics. Also covers signed language sociolinguistics, psycholinguistics, language acquisition (first and second), and neurolinguistics.

210. American Sign Language. (3) Monikowski, P. Wilcox
Study of American Sign Lanuguage, 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. {Fall, Spring}

211. American Sign Language II. (3) P. Wilcox, S.Wilcox
A study of American Sign Language (ASL) including sign language idioms and colloquialisms used in conversational signing. Also provides a summary of information currently available dealing with the understanding of ASL grammatical structure and its sociolinguistic usage. {Fall, Spring}

212. Fingerspelling I. [Fingerspelling.] **(3)** P. Wilcox
Assists 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, Spring}

214. Manually Coded English I. [Manually Coded English.] **(3)** Monikowski, P. Wilcox
This 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, prefixes, and syllables are taught, new signs created to help deaf children learn English better are introduced. {Spring}

219. Dynamics for Interpreters. (3)
Cursory theoretical information and extensive practical exercises will be used to develop in the interpreter greater competency in speech production and vocal behaviors in order to achieve optimum speaker effectiveness.
Prerequisite: 410 or permission of instructor. {Spring}

***310. American Sign Language III. (3)** Monikowski
Designed to help students improve their expressive skills and general conversational competence in ASL relative to phonology, lexical items, syntax, and discourse. Focuses on semantic appropriateness and accuracy of particular lexical items, appropriate use of non-manual behaviors, and the use of context to determine meaning. {Fall, Spring}

***352. Language and Culture in the Deaf Community.** [American Deaf Culture.] (3) S. Wilcox
An introduction to deafness and Deaf culture. We will examine the language, education, social and political aspects, and art forms of Deaf people from an anthropological point of view.

***410. Interpreting I. (3)** P. Wilcox
Focuses on mental processes essential to interpretation and transliteration. Drills and exercises will be used to develop interpreting techniques, such as memory retention, message analysis, decalage, etc. Introduction to the Interpreter's Code of Ethics, along with acronyms and abbreviations important to the interpreting profession. {Fall}

***411. Interpreting II. (3)** Monikowski
Extensive drills focusing on the ability to render and comprehend at progressively increasing speeds the specified target or source language. Work with message analysis, memory retention, and decalage will be intensified. {Spring}

***412. Interpreting III. (3)** Monikowski
Specialized training dealin with educational transliteration settings, the preforming arts, and legal and medical situations. Mock evaluations to prepare student for professional certification will be conducted. {Fall}

***418. Seminar in Sign Language Interpreting. (1-3)**
P. Wilcox, S. Wilcox
A detailed study of current trends and practices in Sign Language Interpreting and evaluation, along with similarities and difference between Sign Language and spoken language interpreting. Introduction to interpreting process models and assessment models and discussion of current research in the field of interpreting. Students will conduct a small-scale research project and participate in a debate of issues surrounding the interpreting profession. {Fall}

***419. Practicum in Sign Language Interpreting. (1-3)**
P. Wilcox, S. Wilcox
Supervised practicum interpreting and transliterating in a variety of community and academic settings, including but not limited to: elementary through post-secondary classrooms, medical situations, vocational rehabilitation, platform and television interpreting, and experience at an information and interpreter referral center. Supervised preparation for future employment as a free-lance interpreter. {Upon demand, Fall, Spring}

SOCIOLOGY

Richard M. Coughlin, Chairperson
Social Science Building, #1103, 277-2501

PROFESSORS:

Pedro R. David, Ph. D., Indiana University
Peter Evans, Ph. D., Harvard University
Gilbert W. Merkx, Ph. D., Yale University
George A. Huaco, Ph. D., University of California (Berkeley)
H. Laurence Ross, Ph. D., Harvard University

ASSOCIATE PROFESSORS:

Dodd H. Bogart, Ph. D., University of Michigan
Richard M. Coughlin, Ph. D., University of California (Berkeley)
Jane Hood, Ph. D., University of Michigan
Gary D. LaFree, Ph. D., Indiana University
Philip A. May, Ph. D., University of Montana
Patrick H. McNamara, Ph. D., University of California (Los Angeles)
David Montejano, Ph. D., Yale Univesity
Paul D. Steele, Ph. D., University of Texas
Arthur W. St. George, Ph. D., University of California (Davis)
Susan Tiano, Ph. D., Brown University
Nelson P. Valdes, Ph. D., University of New Mexico

ASSISTANT PROFESSORS:

Beverly Burris, Ph. D., New York University
Robert A. Fiala, Ph. D., Stanford University
Phillip Gonzales, Ph. D., Univesity of California (Berkeley)

The student interested in the discipline of sociology should take both 101 and 380. 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 REQUIREMENTS AND FIELDS OF CONCENTRATION

All sociology majors must complete at least 37 hours of coursework, including the following 19 hours of required courses: 101, 371, 380, 381, 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) **Deviance/Criminology.** 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 advisors in the Department.

MINOR STUDY REQUIREMENTS

At least 18 hours of coursework beyond 101, including 380 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, 400. The remaining 9 or more hours of the minor must be selected from the following courses:

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Soc 213, 216, 230, 308, 310, 312, 313, 316, 321, 345, 351, 414, 488; Psych 220, 230, 331, 332, 373; Anth 308, 315, 345, 348; Econ 331, 335, 341; Pol Sc 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 the General Honors Program for general requirements for departmental honors.

SOCIOLOGY (SOC)

101. Introduction to Sociology. (3)
Basic concepts, topics, and theories of contemporary sociology. Prerequisite for more advanced courses in sociology. {Summer, Fall, Spring}

150. Introduction to Latin America. (3)
(Also offered as Hist, Pol Sc, M Lang 150.) 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
Historical development of social welfare institutions and the welfare state; social indicators and the quality of life.
Prerequisite: 101. {Fall, Spring}

211. Social Problems. (3) Ross
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, Tiano
Theory and research on deviant behavior; types of individual and subcultural deviance.
Prerequisite: 101. {Summer, Fall, Spring}

216. The Dynamics of Prejudice. (3) Gonzales, McNamara, Montejano
The study of prejudice and discrimination, including their historical and contemporary sources and prospects for their reduction, with applications to American institutions.
Prerequisite: 101.

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}

223. Introduction to Brazilian Society. (3)
An introduction to the problems and prospects created by the process of development in contemporary Brazilian society. Will examine social change at both national and community levels.

225. Marriage, Family and Their Alternatives. (3) Hood
Comparative analysis of contemporary family and household forms such as dual-worker, single-parent, and homosexual couple households. Focus on links between large-scale social changes and changing family composition and interaction patterns.
Prerequisite: 101. {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) Merkx, Remmer
(Also offered as Pol Sc, Lt-Am 250.) Interdisciplinary introduction to Latin American studies through documentary films, lectures, reading, and discussion.
Prerequisite: 101. {Spring}

300. Social Welfare: Policies and Programs. (3) Coughlin
Examination of the American social welfare system at federal, state and local levels; the social programs of developed and developing societies.
Prerequisite: 200. {Fall}

***303. Sociology of Political Behavior. (3)** Fiala
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}

***305. Man, Nature, and Society. (3)** St. George
Examination of man and the environment from an ecological perspective. Focusing on industrial and economic growth, natural resource development, environmental values and movement, resource management decision-making, comparative perspective of man's relationship to the environment.
Prerequisite: 101. {Offered upon demand}

308. Sociology of Sex Roles. (3) Bogart, Burris, Hood
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 and the Aged. (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}

316. Sociology of Law. (3) Ross
An introduction to the social science materials on the nature of law, legal institutions, the legal profession, and the impact of law on behavior. Specific topics include theories of law and legality; comparative legal systems; police; lawyers; judges; juries; the effect of law on behavior; and the use of social science in the courts.
Prerequisites: 213, 312, 313, 413 or 414. {Offered once per year}

***321. Sociology of Medical Practice. (3)** Coughlin, May
An introduction to the delivery of health care in the U. S. and selected other countries is pursued with an emphasis on the interaction of patients, professionals and health care institutions. {Offered upon demand}

***322. Social Epidemiology. (3)** May
Examines the influence of social variables on health, illness and death of man. The complex role of lifestyle, socio-economic status, marriage, occupation, culture and other variables are examined as they are related to survival.
Prerequisite: 101. {Offered upon demand}

326. Sociology of New Mexico. (3) 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)**
Gonzales, Montejano
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)** Gonzales
Collective activity in response to social stresses; social behavior in the forms of panics, crazes, hostile outbursts, and social movements.
Prerequisite: 101. {Offered upon demand}

335. Sociology of Mass Communication. (3)
(Also offered as Comm 335.) Mass communication in society 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 CRP, 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}

***352. Social Change in Brazil. (3)**
Emergence and development of economic political and social structures in contemporary Brazil. Focus on change in social class and power relations, occupational and demographic composition in urban- industrial and rural sectors from late 19th century to present.

***355. Governments and Politics of Latin America. (3)**
(Also offered as Lt-Am, Pol Sc 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. (3)**
(Also offered as Anth 380.) The impact of technological and economic change on societal institutions with special attention to underdeveloped societies.
Prerequisite: 101.

371. History of Social Thought. (3) Burris, Huaco
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}

380. Introduction to Research Methods. (3) St. George
A survey of major research methods, both quantitative and qualitative.
Prerequisite: 101. {Fall, Spring}

381. Sociological Data Analysis. (3) Coughlin, Fiala, 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 ,110L, 380. {Fall, Spring}

***389. Latin American Philosophy. (3)**
(Also offered as Hist, Phil 389.) Pre-Columbian thought through independence ideologies.

***390. Latin American Philosophy. (3)**
(Also offered as Hist, Phil 390.) Positivism through contemporary thought.

399. Sociology Honors Seminar. (3)
Restricted to students admitted to departmental honors program. {Offered upon demand}

***400. The Welfare State. (3)Δ** Coughlin
A historical and comparative study of the welfare state. How it functions and its present problems.
Pre- or corequisite: 300. {Spring}

***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. {Fall, Spring}

***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.

***415. Social Stratification. (3)** Burris, Montejano
Structure and dynamics of class, status, and power in society; social consequences of stratification.
Prerequisite: 101. {Fall, Spring}

***420. Race and Cultural Relations. (3)** McNamara, Montejano
Comparative and structural analyses of intergroup relations both in the United States and other countries and regions.
Prerequisite: 101. {Offered upon demand}

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.

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***422. Sociology of Religion. (3)** McNamara
(Also offered as Relig 422.) 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 transcendance.
No prerequisites. {Spring}

***430. Ideology, Literature, and Myth. (3)** Huaco
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 Groups. (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: 381.

***441. Complex Organizations. (3)** Bogart, Burris
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)** Burris, Hood
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)**
The composition of populations; fertility, mortality, migration; sources and evaluation of demographic data.
Prerequisite: 101. {Offered upon demand}

***461. Social Change. (3)** Evans, Montejano
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 Social Sciences. (3)**
(Also offered as Phil 465.) Examination of the structure, methods, and presuppositions of social sciences.

***471. Contemporary Sociological Theory. (3)** Burris, Huaco
Comparative analysis of major contributions to sociological theory since 1900, considering their continuity with older theortical 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 Lang, Pol Sc 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.) Intensive study of one area of social psychology chosen by the instructor; e. g., attribution theory, experimental games, person perception.
Prerequisites: Psych 271 or equivalent introductory social psychology courses.

***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: 380 or Math 145 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: 381 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. (1-4) Coughlin, Steele
A field placement arrangement for students in the social welfare and criminal justice concentrations. Participant observation in local agencies and sociological analysis of this experience.
Prerequisites: core courses in social welfare or deviance/criminology, and permission of instructor. {Fall, Spring}

490. Directed Study. (1-3, to a maximum of 6)Δ
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) Burris, Huaco
Prerequisite: 371 or equivalent, as determined by instructor.

502. Seminar: Social Systems Analysis. (3) Bogart

503. Political Sociology. (3) Fiala, Merkx

504. Deviance. (3) LaFree, Steele, Ross
Prerequisite: 312, 313, or 414.

505. Complex Organizations. (3) Bogart

506. Seminar: Comparing Nations. (3) Coughlin, Evans, Fiala, Merkx

507. Sociological Theory: Selected Topics. (3)

508. Latin American Development & Planning. (3) Merkx, Valdes
(Also offered as CRP, Lt-Am 578.)
Prerequisite: 450 or permission of instructor.

510. Social and Political Movements. (3) Gonzales

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) Burris, Huaco
(Also offered as Phil 514.)

515. Sociology of Law. (3) LaFree, Ross
Prerequisite: 312, 313, 413, or 414.

516. Social Control Institutions. (3)

517. Criminology and Delinquency. (3) LaFree, Steele

518. Social Thought in Latin America. (3) Valdes

519. Sociology of Latin American Legal Systems. (3)

520. Racial and Ethnic Relations. (3) McNamara, Montejano
Prerequisite: 216 or equivalent.

521. Sociology of Education. (3) Bachelor
(Also offered as Ed Fdn 581.)

522. Sociology of the Family. (3)

523. Proseminar in Theory. (3)
Prerequisites: 500, 513. (Soc 514 is prerequisite but can be taken concurrently.)

524. Theories of Social Stratification. (3) Burris, Montejano

525. Proseminar on Latin American Politics. (3)
(Also offered as Lt-Am, Pol Sc 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)

530. Occupations and Professions. (3) Burris, Hood

531. Sociology Teaching Practicum. (1)
For teaching assistants only.

532. Sociology of Religion. (3) McNamara
(Also offered as Relig 532.)

533. Interviewing Seminar. (3)
(Also offered as Anth 533.) (Spring)

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 a member of the graduate faculty. (Fall, Spring)

559. Social Science Research Methods and the Law. (3)
(Also offered as Law 559.)
Prerequisite: 580.

570. Sociological Research: Special Topics. (3)
(Also offered as Law 570.)

580. Methods of Social Research I. (3)
Prerequisite: 481L or equivalent.

581. Methods of Social Research II. (3)
Prerequisite: 480 or equivalent, or permission of instructor. (Offered upon demand)

584. Interdisciplinary Seminar on Problems of Modernization in Latin America. (3) Lieuwen, Merkx, Needler
(Also offered as Econ, Hist, Pol Sc 584.)

588. Seminar in Field Observation and Experience. (1-6)

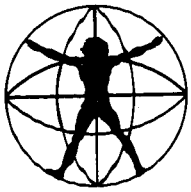
595. Special Topics in Sociology. (3)

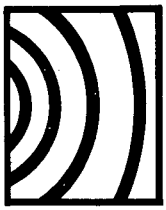
599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements. (Fall, Spring)

699. Dissertation. (3-12)
See the Graduate Programs Bulletin for total credit requirements.

SPEECH COMMUNICATION

See *Communications*





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DIVISION OF DENTAL PROGRAMS

E. B. Yudkowsky D.D.S. Ph.D, 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 fourth 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:

Admission Requirements

1. Graduation from an accreditated 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 submited 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.
   d. Current Application to the Bachelor of Science in Dental Hygiene Degree Program

Bachelor of Science Degree Requirements

1. Satisfactory completion of 12 hours of 400 level Dental Hygiene core courses, to include 6 hours of Field Experience in an area of concentration as approved by the B.S.D.H. Program Coordinator.
2. Satisfactory completion of a minimum of 128 total semester credit hours including 1 and 2 above.
3. At least a 2.0 grade point average in all hours attempted at the University of New Mexico and a 2.5 average in all dental hygiene courses.
4. Written application for graduation to be submitted to the Division of Dental Programs office in Novitski Hall during the semester prior to expected graduation date. This is to be submitted to the Division of Dental Programs office.
5. Unanimous recommendation for graduation 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.

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. An additional short session is also included during the summer between the first and second years of the Dental Hygiene curriculum. 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 of approximately $1600.00 for instruments, dental supplies, clinic and laboratory, uniforms, graduation fees, Student Dental Hygienists' Association membership, professional pin, and class photograph charge. Students are responsible for transportation fees to and from clinical rotations at off campus sites.

Admission Requirements

1. 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 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. Preprofessional courses may be in progress at the time of application providing the courses will be satisfactorily completed at the time of entry into the program.
3. Successful completion of a National Dental Dental Hygiene candidate admission test. (Should be completed

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in the Fall prior to submitting application in February) Applications are available at the Division of Dental Programs.
4. Evidence of recent medical and dental examinations.
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 February 15:

a. official copies of all transcripts and test scores
b. official current enrollment information
c. 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 February 15 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 February 15 deadline. 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.

Associate of Science Degree Requirements

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 during all semesters of the required curriculum.
3. Unanimous recommendation for graduation 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 101	Wrtg/Rdgs	3
Biol 121L	Prin of Biol	4
Chem 111L	Elem of Gen Chem	4
Psych 101	Gen Psych I	3
	or	
Psych 102	Gen Psych II	
Soc 101	Intro to Soc	3
		17

Second Semester

Engl 102	Wrtg/Rdgs	3
Chem 212	Integ Org Chem & Biochem	4
Biol 136	Hum Anat & Physiol	3
Comm 221	Interpersonal Commmunication	3
Biol 239/L	Microbiology	4
		17

Professional Curriculum: Associate of Science

First Year

First Semester

D Hygn 201	Pre Clin DH Lect	2
D Hygn 202L	Pre Clin DH Lab	2
D Hygn 210	Head and Neck Anat	3
D Hygn 211L	Tooth Morphology	2
D Hygn 212L	Oral Radiography	3
D Hygn 230	Prin of Oral Med	2
D Hygn 235	Dent Office Emerg	1
D Hygn 250	Histology	2
		17

First Year

Second Semester

D Hygn 203	Clin DH I (lecture)	2
D Hygn 204L	Clin DH I (lab)	3
FS 125	Intro Nutrition	3
D Hygn 240	Gen & Oral Pathology	3
D Hygn 260	Pharm for Dent Hygienist	3
		14

Summer Session

D Hygn 344	Spec Topics (clinic)	2
		2

Second Year

First Semester

D Hygn 300	Clin DH II (lecture)	2
D Hygn 301L	Clin DH II (lab)	3
D Hygn 320L	Dent Materials	2
D Hygn 322	Comm Dental Health	3
D Hygn 370	Peridontics	3
D Hygn 380	Adv Clinic DH (Anesthesia)	3
		16

Second Year

Second Semester

D Hygn 302	Clin DH III Lect	2
D Hygn 303L	Clin DH III Lab	4
D Hygn 340	Field Experience	1
D Hygn 342	Ethics, Juris, and Prac Mgmt	2
D Hygn 344	Spec Topics in DH	2
D Hygn 352	Adv Dental Procedures	3
		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

D Hygn 400	Seminar	3
D Hygn 440	Student Tchng/Fld Experience	3
Areas of concentration: (education, 6-12 advanced clinic, management, public health, research)		
		12-18

Second Semester

D Hygn 410	Research Methods	3
D Hygn 440	Student Tchng/Fld Experience	3
Areas of concentration: (education, 6-12 advanced clinic, management, public health, research)		
		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 2.0 grade point 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. These additional fees are estimated at $1,000.00.

Admission Requirements

1. Graduation from an accredited high school or successful completion of GED.
2. 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.
3. ACT scores must be submitted with application to UNM and the Division.
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. application
   d. evidence of recent medical and dental examinations

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.

Certificate in Dental Assisting Requirements

1. Completion of all course work and maintenance of 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 D Asst or D Hygn.
3. Unanimous recommendation by the full-time faculty of the Division of Dental Programs.

Curriculum

Summer Session

NUTR 125	Intro Nutrition	3
Comm 221	Interpersonal Communication	3
		6

First Semester

D Asst 121L	Dental Science (D Hygn 320L)	2
D Asst 125T	Basic Dental Sciences	6
D Asst 131LT	Pre-Clin Dental Assisting	4
D Hygn 211L	Tooth Morphology	2
D Hygn 212L	Oral Radiography	3
		17

Second Semester

Psych 101	Gen Psych I	3
Engl 100	Wrtg Standard English	3
	or	
English 101	Wrtg/Rdgs in Expos	
D Asst 132LT	Clin Dent Assisting	2
D Asst 134LT	Extramural Clin Dental Asstng	5
D Hygn 315	Dent Office Mgt	2
D Hygn 330	Dental Specialities	2
		17

4 Week Summer Session

D Asst 138LT	Adv Extramural Clin Asst	3
		3

If the student has completed Nutr 125 and Comm 221 or acceptable equivalents at the time of application, attendance in the first Summer Session is not required.

COURSES OF INSTRUCTION

E. B. Yudkowsky, Director
Novitski Hall, 277-4520

PROFESSOR:

E. B. Yudkowsky, D.D.S., Northwestern University, Ph.D., University of California

ASSOCIATE PROFESSORS:

Paul J. Edwards, M.S., M.P.H., University of Michigan
Glenna B. Taylor, M.A., University of New Mexico

DENTAL

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ASSISTANT PROFESSORS:

Elizabeth A. Kostas, M.S., University of Missouri (Kansas City)
Clara O. Miera, M.Ed., University of New Mexico

INSTRUCTORS:

Linda S. Edwards, B.S., M.S., University of New Mexico
Demetra Logothetis, M.S., University of Missouri (Kansas City)
Jeannie Martinez Welles, B.S., University of North Carolina (Chapel Hill)

DENTAL HYGIENE (D HYGN)

CURRICULUM

See pp. 184.

201. Pre-Clincal Dental Hygiene. (2) Edwards
Didactic instruction into the theory and clinical skills of dental hygiene. 1 lecture. {Fall}

202L. Pre-Clinical Dental Hygiene Laboratory. (2) Edwards
Introduction to the clinical skills of dental hygiene. 6 hrs. lab. {Fall}

203. Clinical Dental Hygiene I. (2) Edwards
Didactic instruction in techniques of oral hygiene procedures. 1 lecture. {Spring}

204L. Clinical Dental Hygiene I. (3) Edwards
Clinical experience in techniques of oral hygiene procedures and practices.
Prerequisites: 201, 202L, 210, 211L, 230, 250. 9 hrs. lab. {Spring}

210. Head and Neck Anatomy. (3) Nesbit
Anatomy of head and neck with emphasis on oral structures and their function. 3 lectures. {Fall}

211L. Tooth Morphology. (2) Miera
Morphology of the tooth structure. 1 lecture, 3 hrs. lab. {Fall}

212L. Oral Radiography. (3) Welles
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) Taylor
Didactic course introducing basic clinical knowledge prior to patient contact. 1 lecture. {Fall}

235. Dental Office Emergencies. (1) Lyons
An introduction to emergency situations in the dental office with emphasis on taking and recording health/dental history and procedures required to prevent occurance of an emergency situation. {Fall}

240. General and Oral Pathology. (3) Yudkowsky
Pathology of the head and neck and the major diseases that affect the oral cavity. 2 lectures. {Spring}

250. Histology. (2) Yudkowsky
Study of cells, tissues, and organ systems of the human body with emphasis on oral structure. 2 lectures. {Fall}

260. Pharmacology for Dental Hygienist. (3) Jack
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) Logothetis
Continuation of 203. Didactic instruction in dental hygiene sciences. 1 lecture. {Fall}

301L. Clinical Dental Hygiene II. (3) Logothetis
Clinical experiences in dental hygiene procedures and practices. 9 hrs. lab. {Fall}

302. Clinical Dental Hygiene III. (2) Logothetis
Continuation of 300. 1 lecture. {Spring}

303L. Clinical Dental Hygiene III. (4) Logothetis
Clinical experience in dental hygiene procedures and practices.
Prerequisite: completion of first three semesters of professional curriculum. 12 hrs. lab. {Spring}

315. Dental Office Management. (2) Welles
The study of dental practice management. {Spring}

320L. Dental Materials. (2) Bird
(Also offered as D Asst 121L.) A survey of materials used in dentistry; training in common dental laboratory procedures.
Corequisite: 301L. 1 lecture, 3 hrs. lab. {Fall}

322. Community Dental Health. (3) Logothetis
Survey of health dentistry in regard to principles, methods, and materials. 2 lectures. {Fall}

330. Dental Specialties. (2) Miera
Didactic instruction in dental specialties and participation in activities related to functions normally performed by dental auxiliaries. 1 lecture, 2 hrs. lab. {Spring}

340. Field Experience. (1) Logothetis
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. 1 lecture. {Spring}

342. Ethics, Jurisprudence and Practice Management. (2) Lyons
Introduction to dental hygiene professional ethics, professional association, principles, laws, and regulations. Office management and record keeping are discussed. 1 lecture. {Spring}

344. Special Topics in Dental Hygiene. (2) Edwards, Taylor
Discussion of topics related to professional advancements, innovations and concerns, national and international. Includes one week rural rotation. 2 lectures. {Summer}

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) Edwards
Instruction and clinical practice in the administration of local anesthetic agents. 1 lecture, 3 hrs. lab.

400. Seminar. (3) Kostas
Critical analysis of literature in the health and education professions.
Prerequisites: Ed Fdn 310, permission of instructor.

410. Research Methods. (3) Kostas
Developing of research in regard to special areas in dental hygiene with emphasis on writing reports.
Prerequisite: 400 or permission of instructor.

440. Student Teaching/Field Experience. (3)Δ Kostas
Provides 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 a maximum total of 6 credits.
Prerequisites: 400, 410, EM/LS 432, 433. {Fall, Spring}

DENTAL ASSISTING (D ASST)

CURRICULUM

See page 185.

121L. Dental Science. (2) Bird
(Also offered as D Hygn 320L.) Study and manipulation of materials used in dentistry. 1 lecture, 3 hrs. lab. {Fall}

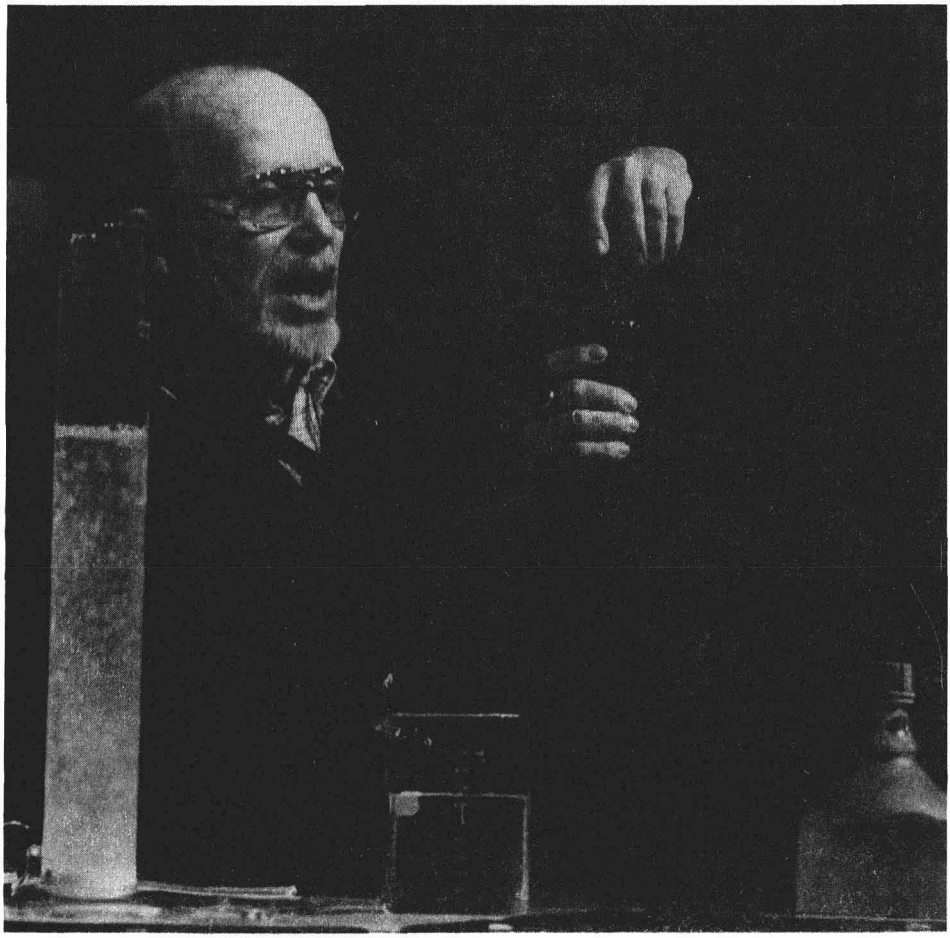
125T. Basic Dental Sciences. (6) Welles
Study of dental sciences including head and neck anatomy, oral pathology, microbiology, pharmacology, medical emergencies, preventive dentistry, and a review of basic human biology. {Fall}

131LT. Pre-Clinical Dental Assisting. (4) Miera
Detailed study of the application and practice of dental assisting. 1 lecture, 3 hrs. lab. {Fall}

132LT. Clinical Dental Assisting. (2) Miera
Lecture and clinical course coordinating classroom and clinical skills.
Prerequisites: 121L, 131LT. {Spring}

134LT. Extramural Clinical Dental Assisting. (5) Miera
Clinical experiences in private practice setting, a dental clinic, or in any other appropriate facility. Weekly Seminar.
Prerequisites: 121L, 131LT. {Spring}

138LT. Advanced Extramural Clinical Assisting. (3) Welles
Intended to immerse the dental assisting student into a transitional clinical experience for entry into the actual dental work environment. The student will spend 1 month as the primary chairside assistant in a dental office.



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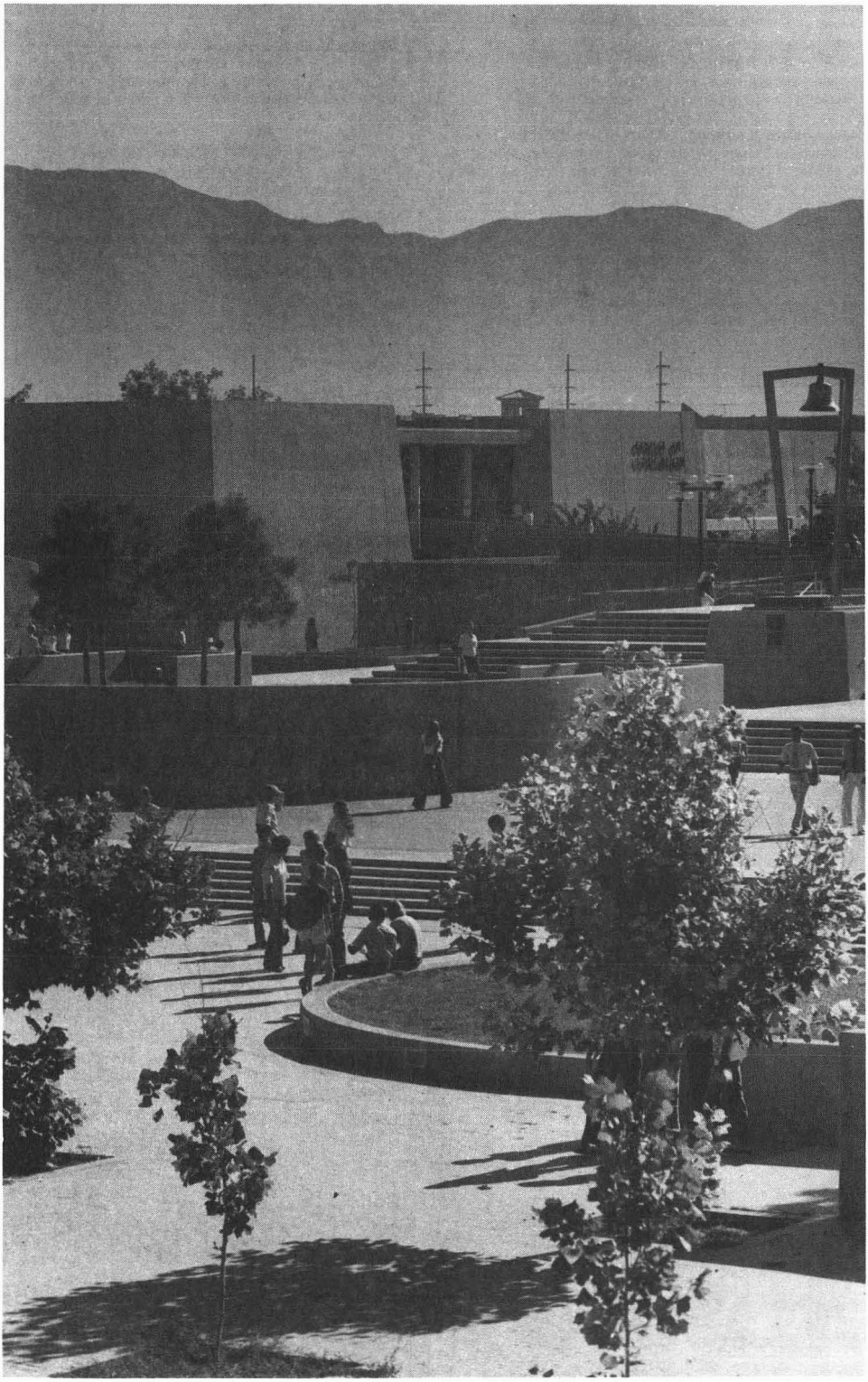

COLLEGE OF EDUCATION

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 principal 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 licensure.

Students in College of Education programs participate in a wide variety of learning experiences. The College of Education has laboratory facilities for art education, nutrition and dietetics, family studies education, library/media, mathematics education, and science education. It also has a human performance laboratory, a learning materials laboratory and learning materials library, a mutilcultural materials collection, an interactive video lab, a wellness center, a computer assisted instruction lab, and two micro-computer laboratories. Clinical programs in day care, reading and counseling are carried out at the Manzanita Center. All of these facilities are utilized extensively in the various programs of studies offered in the College. In addition, virtually all programs of studies offered through the College of Education include organized and sequential experiences with children, youth, or adults in off-campus settings. These required laboratory and off-campus experiences may include directed observation of pupils at work and at play, guided participation with groups of children, youth or adults, and formal practica or student teaching assignments. There are also opportunities available for qualified students to work as staff members in a variety of teaching, research and service programs operated through 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 New Mexico teacher licensure. Some programs, while leading to a bachelor's degree, do not lead to licensure as a teacher. Complete information on all degree programs and on licensure requirements can be obtained from the appropriate departments and the College Advisement Center.

The College of Education offers 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 is offered by the College. Enrollment in most is limited to participants in special projects. Further information about available Associate of Arts programs may be obtained from the College of Education Advisement Center.

Degrees Awarded by the College of Education

The following degrees are available through the College:

Bachelor of Arts/Science in Education (Teaching) Majors in Art Education, Bilingual Education, Business/Marketing Education, Communication Arts, Earth Science, Elementary Education, Family Studies Education, Industrial Technology Education, Life Sciences, Math Education, Physical Education, Physical Science, School Health Education, Social Studies, Special Education, and TESOL.

Bachelor of Arts/Science in Education (Non-Teaching) Majors in Arts in Recreation, Athletic Training, Child Development and Family Relations, Community Health, Exercise Technology, General Family Studies, Industrial Technical Education, Nutrition/ Dietetics, Recreation.

Associate of Arts in Education for those who concentrate in paraprofessional training

Post-bachelor's Liscensure Program Students holding a Bachelor's Degree from an accredited college may pursue a program of studies leading to teacher licensure. The regular procedures for admission to the College of Education must be followed. After admission, the student works with an advisor to formulate a program of studies.

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 advisor, (3) honors in student teaching. All students permitted to enter the honors program will meet University regulations as described. Permission of the major advisor is required for enrollment in 497, Reading and Research in Honors.

Requirements for Graduation

College Requirements

The College has general requirements for graduation. It is the student's responsibility to complete both general college requirements and departmental program requirements. Students should contact their respective departments as early in their studies as possible.

The following are the college-wide requirements for graduation:

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1. An application for final degree check must be completed immediately after completion of 90 semester hours. The application can be obtained from the College Advisement Center.
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 departmental offerings.)
3. A grade point average 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.
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, pp. **-**). Students are entitled to graduate under the curriculum in effect at the time of their transfer into the College, if they have been in continuous attendance.

Maximum Number of Hours

Hours beyond 21 in a regular semester or 11 during the summer session will not be counted toward graduation.

Students may enroll for more than the stipulated 21 hours or 11 hours if they:

1. have a GPA of 3.0 or higher
2. present and receive approval of a written petition to the chairperson of their department and receive the approval of the Associate Dean of the College.

General (Liberal) Education Requirements

All prospective professional educators should be broadly educated as a foundation for a successful career. It is required, therefore, that UNM students expecting to get degrees from the College which lead to teacher licensure include in their preparation program a well-balanced plan of study in the liberal arts and sciences. Students must satisfy minimum requirements (54 semester hours) in the following six areas of study:

1. English (12 hours)
2. History, including American history and western civilization (12 hours)
3. Mathematics (6 hours)
4. Economics, sociology or government (6 hours)
5. Science, including biology, chemistry, physics, geology, zoology, or botany (12 hours)
6. Fine Arts (6 hours)

Students should consult an advisor to plan a program which includes the preferred courses.

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. Six hours of coursework in Educational Foundations*
   (* or approved substitute.)
2. All students must also take appropriate methods courses and student teaching as 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.

Admission to the College of Education

Application Process

All students seeking admission to the College of Education must complete the application process prior to being admitted. Application materials are available from the College Advisement Center. Students seeking admission should consult the College Advisement Center for information early in the semester prior to which they are seeking to be admitted. Completion of the application process and transfer to the College of Education takes approximately one term.

Students already enrolled at the University of New Mexico, whether in University College, a degree-granting college, or in non-degree status, will not be eligible to transfer to the College of Education or to take 300 and 400 level professional courses until they are admitted. (Note exception Elementary Education below.) Exceptions will be made for students with earned baccalaureate degrees upon recommendation of the department concerned and for students transferring from other institutions. Transfer students may be enrolled in the College of Education on a provisional basis for one semester during which time they must complete the process for admission into a College of Education program.

It is not necessary to be working toward a degree in the College of Education in order to pursue certain programs. However, those seeking licensure to teach, including graduate students and those with an earned baccalaureate degree, must be admitted to a teacher education program and must complete all requirements specified by that program. Those seeking secondary teacher licensure who are majoring in a field in the the College of Arts and Sciences may continue to be enrolled in that College and minor in secondary education in the College of Education.

Counseling and Advisement

Students considering teaching as a career or those planning to enter any field offered by the College of Education should contact the College Advisement Center when they begin their studies. Counseling and advisement will be provided to clarify course selections and insure proper planning. After admission into a program in the College of Education, a permanent advisor will be assigned. Advisement is mandatory for those enrolled in College of Education programs.

Eligibility Criteria

Students who wish to apply for admission to the College of Education should meet one of the following criteria:

1. Be enrolled in University College or any degree granting College at the University of New Mexico and
   a. have a minimum of 26 hours of coursework (normally students would have completed three to four semesters of coursework to acquire the basic skills necessary to pass the Pre-Professional Skills test)
   b. to enter a teacher preparation program, have a minimum cumulative GPA of 2.5, or a 2.5 GPA on the last sixty hours of coursework if more than sixty hours have been accumulated
   c. to enter non-teaching programs have a minimum cumulative GPA of 2.0.
2. Have a Bachelor's Degree from an accredited college (Post-baccalaureate students who are pursuing a teach-

ing license must follow the regular application process.)

Some departments and/or programs in the College of Education have additional criteria for admission:

a. *Art Education* requires successful completion of Art Ed 220 concurrent with applying and a positive recommendation from the student's professor of Art Ed 220 (in some cases Art Ed 320).
b. *Elementary Education* requires completion of Ed Fdn 303 and 310 and CIMTE 465 with a grade of "C" or better.
c. *Secondary Education* requires a minimum GPA of 2.8 in the teaching field
d. *Special Education* undergraduate majors must have completed 6 hours in English and 6 hours in Math. Special Education 201 and 204 must be completed with a grade of B or better.
e. *Nutrition/Dietetics* requires a cumulative GPA of 2.75.

Application Process

1. Obtain an Application Packet from the College Advisement Center and return the packet to the Center.
2. Take the required tests of basic skills in reading, writing and mathematics at the scheduled time and place for that semester.
3. Complete an interview with a faculty member in the department to which admission is being requested (if required). Students applying for admission in Art Education must bring examples of their art work (slides, photographs or actual work) to their interviews.
4. Students will be notified by mail of their acceptance into a College of Education program.
5. Those who wish to graduate from the College of Education must also make application for transfer to the College from their college of origin.

NOTE: This admission process must be completed before taking upper division (300 and 400 level) courses in the College of Education.

The English as a Second Language Writing Program

This English 100, 101 option provides a special service to those who speak English as a second language. Classes are composed of only fifteen students, meet five hours a week, and give full credit (3 hours each) for English 100 and 101.

For information, contact the English as a Second Language Writing Program, Mesa Vista, Room 2043, or telephone 277-5426. Admission and placement testing are done at the program office only. For class schedules, see the program office. Registration is by instructor permission only.

Center for English Language and American Culture

The Center for English Language and American Culture 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, 2111 Mesa Vista Hall, 277-4032.

Student Teaching

The student teaching assignment is considered one of the most important prerequisites to teacher licensure and 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. Because of the importance of this experience, specific requirements are established 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 a cumulative GPA of 2.5 at the University of New Mexico and must not be on probation. Graduate students must maintain a 3.0 GPA.
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 is to begin.
4. Completed and passed a tuberculosis skin test. Anyone showing 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 department.
5. Achieved a GPA of at least 2.5 in 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, including having passed all required testing.
7. Planned a total semester schedule of no more than 15 hours of course work including student teaching. (A course load of 12 hours including student teaching is highly recommended). Majors in elementary education must plan for two professional semesters. They must be available five hours daily for the Junior Block semester and for the entire school day during the Senior Block. Secondary student teachers must have full weekdays clear for assignment in the schools. Majors in Technological and Occupational Education programs must plan for at least one professional semester in their senior year, and must be available seven hours daily for the entire semester.
8. Filed an application for degree in the College Advisement Center.
9. Have on file in the College Advisement Center a completed and signed program of studies (major and minor).

Licensure

All students pursuing a program leading to teacher licensure must complete a planned program previously approved by a department advisor and placed on file in the College Advisement Center. Upon their request, successful graduates from College of Education teacher preparation programs will be recommended to state departments of education. The College also offers planned programs for licensed teachers who wish to add endorsements to their current licenses.

Programs which lead to state licensure in the areas of counseling, educational diagnosis, library/media, and school administration are also offered. These programs require graduate work. Programs leading to vocational licensure are available for both those who hold a baccalaureate degree and those who do not. Persons already holding a baccalaureate degree may pursue planned programs leading to licensure and should consult with the College Advisement Center.

Students who are working toward degrees through colleges other than the College of Education and who seek to obtain licensure in teaching areas under the jurisdiction of any department in the College of Education are subject to the same regulations as students in the College of Education.

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All students in the College of Education desiring licensure in the state of New Mexico may complete appropriate forms which are available from the College Advisement Center. Students planning to teach in other states should insure that their planned program meets the requirements of those states. For further information about licensure, consult the College Advisor in the Advisement Center of the College of Education.

Curricula

Curricula are outlined on the following pages under the respective departments. Descriptions for the courses listed are found later in this catalog. Note carefully the specified prerequisites. These determine the sequence in which courses must be taken. Also note that not all courses are offered every semester. The listings in this catalog indicate the general pattern in which courses are offered. For a listing of the courses offered in a particular semester, one should consult the Schedule of Classes for that semester.

The College of Education offers a variety of instructional programs through eight departments: Art Education; Counseling and Family Studies; Curriculum and Instruction in Multicultural Teacher Education; Educational Administration; Educational Foundations; Health, Promotion, Physical Education and Leisure Programs; Special Education; and Technological and Occupational Education. These departments work in cooperation with each other, with other units in the larger University, and with a variety of specialized agencies located on the campus and in the community. Descriptions of departmental programs are provided below and are available in more detailed form through the departments and the College Advisement Center.

Art Education

Students enrolling in the department of art education have a choice of curricula leading to the Bachelors degree in either 1) teacher preparation in art or 2) arts in recreation (a non-teaching program)

Major in Art Education

Teacher Preparartion Program

The following program leads to a bachelor of arts in education with a major in art education - teacher preparation in art. Upon completion of this program the graduate is qualified to apply for New Mexico licensure to teach visual arts, grades K - 12.

A student who wishes to be admitted into the teacher preparation program in art 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 310 (220), and in some cases Art Ed 320.

Upon admission into the teacher preparation program in art, the student will be assigned a department faculty advisor with whom the student must design and contract an official program of studies. The student is required to meet with his/her advisor each semester throughout the program.

CURRICULUM FOR ART EDUCATION MAJORS - TEACHER PREPARATION

I. GENERAL EDUCATION - 54 hours

A. Fine Arts - 6 hours including Art Hi 151 (3) Artistic Traditions of the Southwest and Art Hi 250 (3) Modern Art.

B. English - 12 hours including Engl 101 (3) Writing with Readings in Exposition and Engl 102 (3) Analytic Writing.

C. History - 12 hours including a course in American History (3) and one in Western Civilization (3).

D. Science - 12 hours.

E. Math - 6 hours.

F. Government or Economics or Psychology or Anthropology 6 hours including Phil 367 (3) Philosophy of Art and Aesthetics.

II. PROFESSIONAL EDUCATION AND ART EDUCATION - 30 hours.

Ed Fdn 313 (6) Human Development and Learning.
Art Ed 310 (3) Teaching Art in Elementary School.
Art Ed 320 (3) Teaching Art in Secondary School.
Art Ed 400 (3) Elementary Student Teaching in Art.
Art Ed 461 (6) Secondary Student Teaching in Art.
*Art Ed 430 (9) Studio Art in the Schools.

III. TEACHING AREA - 36 hours.

A. Basic Art courses (12 hours.)
Art St 121 (3) 2-D Design.
Art St 122 (3) 3-D Design.
Art St 106 (3) Drawing Fund.
Art St 205 (3) Drawing I.

B. Studio Concentration I (9 hours.)
A concentration of 9 hours in a single studio area (not drawing), 3 hours of which must be courses numbered 300 or above.

C. *Art Electives (15 hours.)
A concentration of 15 hours of approved art electives to fulfill art teaching competencies, 6 hours of which must be in courses numbered 300 or above.

*At lease 6 hours combined in two of the following three areas: ceramics, weaving and/or jewelry.

IV. FREE ELECTIVES - 8 hours.

Total 128 hours.

Major in Arts in Recreation

This program prepares the student in an arts specilization applicable to those recreation settings which include the arts as a basic component. A student may pursue a curriculum leading to a Bachelor of Arts with a major in Arts in Recreation in the Art Education Department. For details of this program, please contact the department.

* The 6 hour requirement in Educational Foundations can be met by taking Ed Fdn 303: Human Growth and Development and Ed Fdn 310: Learning and the Classroom or by taking a new 6 hour course which will be numbered Ed Fdn 313, combining the content from 303 and 310. Ed Fdn 313 will be available by Fall 1989. Please contact the Ed Fdns Department for more information.

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 310 and Art Ed electives (400 level, 6 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 advisor.

Graduate Program

The Department offers an M. A. in Art Education with emphasis in teaching, art therapy and Museum education. For details of the graduate program see the Graduate Programs Bulletin.

Counseling and Family Studies

The department is a newly established merger between the former Department of Counselor Education and the Department of Family Studies. The department is committed to the development of programs which enhance individual and family strengths following interdisciplinary and ecological approaches. The department emphasizes individual development, interpersonal relationships, and family functioning through the components of education, research, and service.

The programs are designed to prepare students for a variety of career options including classroom teacher, counselor in schools or community agencies, family specialist, and others concerned with facilitating families as educators and learners. Job opportunities can be found in schools, universities, community agencies, business and industry, mental health clinics and many other settings where work is directed toward education, prevention, intervention, and research with individuals and families.

The department sponsors a child care center at the Manzanita Center on campus which provides students an opportunity to observe the behavior of children. Also offered at Manzanita Center is a counselor training program which provides counseling services to students and the general public under the direct supervison of department faculty members. Master's and doctoral level students participate as counselors in this program. Research training and participation is available for those students interested in careers in academic fields related to human development, family management, counseling psychology, and related areas.

In addition to degree programs, the department offers courses which may be of interest to students as background for careers in other fields in the college. For example, course work in career development, mental health principles, growth and development, and family relations may be helpful to a wide variety of teachers, administrators, and human service professionals. Both undergraduate and graduate minors are available to students from other programs within the university.

The department offers majors in Child Development and Family Relations and in General Family Studies which lead to a Bachelor of Science (B. S.) degree and a major in Family Studies Education which leads to a Bachelor of Science in Education (B. S. Ed.). The department also offers work leading to the Master's of Arts degree in Family Studies or in Counseling, the doctorate (Ph. D or Ed. D) with specialties in Counseling Psychology and in Counselor Education, and an Education Specialist certificate in Counselor Education. A master's degree is prerequisite to application for a doctoral program. The master's in family studies may be pursued in any of the three following specialties: human development and family relations; family management and consumer sciences; or family studies composite. The master's in counseling may be pursued in any of the following specialties: elementray school counseling; secondary school counseling; community and agency counseling. Contact the department for more information about specific requirements. In addition to the application to the Office of Graduates Studies, applicants must submit an application to the department. Students wishing to pursue any of these programs should refer to the Graduate Programs Bulletin.

Family Studies

The department prepares students according to three curriculum areas, Home Economics Education, Child Development and Family Relations and General Family Studies.

Curriculum for Students Preparing To Teach Home Economics

This curriculum prepares students to teach Home Economics in middle school, junior and senior high schools. Students completing this program will be eligible to apply for a New Mexico teacher certification in Vocational Home Economics. Students also will be prepared for related home economics careers such as in cooperative extension, social service agencies, and business.

Thirty-six hours of required family studies subject matter is required for a major with a minimum of 27 hours in a teaching minor. Students must seek advisement when planning their major and minor.

1. CORE	15
FS 181 Intro to FS	3
FS 213 Marriage and Family Relations	3
FS 312 Parent/Child Interactions	3
FS 343 Family Mgmt Theories	3
FS *481 Family and Public Policy	3
2. REQUIRED COURSES	21
FS 130L Food Science Lab	3
FS 244 Consumer Decisions	3
FS 313 Contemp Family Lifestyles	3
FS 403 Growth/Development Preschl Child	2
FS 407L Preschl Child Lab	1
FS 444 Family Finance	3
FS 493 T/Consumer Clothing	3
NUTR 125 Introductory Nutrition	3
In addtion, student must pass a clothing competency exam.	
3. PROFESSIONAL EDUCATION	30
FS ED 361 Prestudent Teaching in Sec. Schl	3
FS ED 437 Methods in Home Economics	3
FS ED 461 Student Teaching in Sec. Schl	12
FS ED 465 Seminar: Voc. Home Ec. Ed.	3
CIMTE 438 Reading in the Content Areas	3
ED FDN COE Teacher Education Core	6*

*NOTE: The six hour requirement in Education Foundations can be met by taking Ed Fdn 303: Human Growth and Development and Ed Fdn 310: Learning and the Classroom or by taking a new six hour course which will be numbered Ed Fdn 313, combining the content from Ed Fdn 303 and 310. Ed Fdn 313 will be available by Fall 1989; please contact the Education Foundations Department Office for more information.

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Family Studies Education Licensure

State Board of Education licensure regulations are subject to periodic change. Please contact a College of Education or department advisor for specific requirements for programs leading to educator licensure and endorsement.

Curriculum for Students Preparing for Child Development and Family Relations

The curriculum leading to a Bachelor of Science in Family Studies with a major in Child Development and Family Relations is designed to prepare students for a career in early childhood program settings, cooperative extension, a social services agency, in home economics, a family counseling center, or a business setting. Students wishing to screen into this concentration must have a 2.5 GPA and have successfully completed FS 181 and 213 with grades of C or better.

The curriculum with a major in Child Development and Family Relations requires a minimum of 21 hours in CDFR and 9 hours in selected other Family Studies courses in addition to the departmental requirements. A minor of 18-21 hours in a related field is recommended. A 54-hour program without a minor is available. Students should seek advisement within the department for program planning.

Family Studies: Child Development and Family Relations

1. CORE	15
FS 181 Intro to FS	3
FS 213 Marriage & Fam Relat	3
FS 312 Parent/Child Interactions	3
FS 343 Family Mgmt Theories	3
FS *481 Family and Public Policy	3
2. REQUIRED COURSES	21
FS 208 Theories of CDFR	3
FS 313 Contemp Family Lifestyles	3
FS 494 Practicum	3
and a minimum of 12 units from the following	
FS 202 Infant Growth & Develop	3
FS 207L Infant Lab	1
FS 304 Growth/Devel Mid Child	3
FS 310 Friends and Intimate Relat.	3
FS 315 Adolescent Dev in Fam	3
FS *403 Growth/Develop Preschl Child	2
FS *407L Preschl Child Lab	2
FS *415 Aging & Family	3
3. Choose a minimum of 9 units from the following (*or an approved future course* in department)	
FS 244 Consumer Decisions	3
FS 341 Ecol Aspects of Housing	3
FS 342 Computer Appl in the Home	3
FS *409L Org/Mgt Early Chldhd Prog	3
FS *411 Marr & Fam Life Ed	3
FS 443 Applic of Fam Mgt Theories	3
FS *444 Family Finance	3
4. GENERAL EDUCATION	42

(In addition, the student must complete 42 hours for the *general education requirements*. Consult the department for specific courses.)

5. Suggested minor: 18-21 hours in one of the following:

   Anthropology
   Psychology
   Sociology
   Special Education
   Composite Behavioral Science
   OR
   54 hours major

6. Unrestricted Electives	11
Total Hours	**128**

Minor Study

A minor in CDFR consists of 21 hours. FS 213 & FS 312 are *required*. An *additional* 15 hours, with at least 9 hours numbered above 300, are to be selected with a department advisor. Courses taken as a major requirement in the department cannot be counted as a minor requirement in CDFR.

Curriculum for Students Preparing for General Family Studies

The curriculum for a major in General Family Studies requires 27 hours of Family Studies subject matter in addition to the 15-hour departmental core. A student may select either a 54-hour concentration or a minor. Students wishing to screen into this concentration must have a 2.5 GPA and have successfully completed FS 181 and 213 with grades of C or better. Students should seek advisement within the department for program planning and selection of a minor.

This particular curriculum will allow students to prepare themselves as generalists in Family Studies. This academic background can lead to careers in social service agencies, business and cooperative extension.

Family Studies: General Family Studies

1. CORE	15
FS 181 Intro to Fam Studies	3
FS 213 Marriage & Family Relations	3
FS 312 Parent/Child Interactions	3
FS 343 Family Management Theories	3
FS *481 Families & Public Policy	3
2. REQUIRED COURSES	27
a. Chooses 6 credits from Child Development and Family Relations among the following or other approved course:	
FS 202 Infant Growth and Dev	3
FS 207L Infant Lab	1
FS 208 Theories of Child Dev & Fam Relat	3
FS 304 Growth/Devel Mid Child	3
FS 310 Friends & Intimate Relations	3
FS 313 Contemp Fam Lifestyles	3
FS 315 Adol Dev in Family	3
FS *403 Growth/Bev Preschl Child	3
FS *407L Preschl Child Lab	2
FS *409L Org/Mgt Early Child Program	3
FS *411 Marr & Family Life Education	3
FS *415 Aging & Family	3

b. Choose 9 credits from Family Resource Management to include:
FS 443 Appl. of Family Mgt. Theories 3

and 6 credits from among the following or other approved courses:

FS 244 Consumer Decisions 3
FS 341 Ecol Aspects of Housing 3
FS 342 Computer Appl in the Home 3
FS *444 Family Finance 3

c. Choose 12 credits from additional FS courses to include:
FS 495 Field Experience 3

The student must have 40 hours above 300.

In addition, the student must complete 48 hours for the general education requirement. Consult the department for specific courses.

Suggested minors are: Anthropology, Management, Economics, English, Journalism, Psychology, Sociology.

General Family Studies Minor

A minor in General Family Studies consists of a total of 21 hours; nine of which are required by all department majors. These include FS 213, 312, and 343. A minimum of an additional twelve hours distributed among the following areas is required:

1. Family Relations/Child Development (6-9): For example: FS 202, 313, 403L
2. Family Resource Management (6-9): For example: FS 244, 341, 443L, 444

Nine hours must be numbered above 300. Grades of C or better are required in all FS courses used to meet minor requirements. This is a non-teaching minor. If the same course(s) are required in both the major and the minor an equivalent number of approved hours shall be added to the total hour requirement.

Other Curricula

Major Study in Arts and Sciences. A major in Family Studies in the College of Arts and Sciences prepares the student for a career in family studies in social service agencies, business or in the home.

This curriculum would be a minimum of 34 hours in Family Studies. Twelve of the 34 hours must be upper division courses. The curriculum described for the General Family Studies major best approximates the program of studies for an Arts and Sciences Major.

Ten additional hours must be approved by the student's advisor in Family Studies.

Minor Study. A minor study consists of a total of 24 hours, at least 9 hours numbered above 300 (this does not include FS Ed 437). The General Family Studies minor best approximates this program of studies.

Any substitutions must be approved by the Chairperson of the Department. Those seeking a certification endorsement through a minor study must take FS Ed 437, and see the department for specific requirements.

Curriculum and Instruction in Multicultural Teacher Education

The purpose of the department is to develop exemplary teachers and teacher educators. The department will take advantage of the state's rich cultural resources to guide its work as it focuses on the schools in the areas of teacher education, curriculum development, and classroom practices.

Department Programs

The Department of Curriculum and Instruction in Multicultural Teacher Education offers both undergraduate and graduate programs and courses which focus on the study of the fields of curriculum, instruction, multicultural teacher education, and research related to these areas. The department offers graduate programs leading to the masters' and doctors' degrees and the Certificate of Education Specialist. Students who wish to pursue one of these programs should consult the chairperson and the Graduate Programs Bulletin for details.

Post bachelor students who wish to be certified must apply for admission to a teacher education program through the College of Education Advisement Center and must follow a certification program as established through advisement in the Curriculum and Instruction in Multicultural Teacher Education Department's Student Services Office. This office is located in Mesa Vista Hall.

Curriculum for Students Preparing to Teach in Elementary Schools

Admission to elementary education is limited to 100 students per year. Students apply and are admitted on a competitive basis: a GPA of 2.5 is required for admission. Therefore, a number of students who meet the minimum catalog requirements for acceptance to the program may be denied admission on a selective basis.

Catalog requirements are regarded as minimal for admission to the Elementary Education Program. That is, simply meeting the minimum requirements will not automatically result in admission to the program. 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 application and admission process. The Department admits those students who appear to be the best qualified to profit from its elementary teacher preparation program. In addition, students who are admitted may be asked to take their professional semesters at designated times when space is available.

All prospective elementary school teachers are required to complete a minimum of 57 semester hours in general education. The faculty of the department 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. The general education requirements also provide a knowledge base by encouraging learning in a wide range of study areas, consistent with the curriculum of elementary schools. In addition to general education courses, students are given elective options in subject matter fields that may lead to teaching endorsements.

DUE TO CHANGES IN STATE REGULATIONS AT THE TIME OF PRINTING, STUDENTS SHOULD CONTACT THE DEPARTMENT FOR INFORMATION REGARDING SPECIFIC COURSE WORK IN THIS PROGRAM.

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Pre-Professional Course Requirements

Ed. Fdns. 393 Human Development and Learning	6
CIMTE 465 Microcomputer Applications in the Schools	3

The methods blocks combine on-campus instruction with opportunities to observe and work with children in classroom settings.

The following courses are required and may be taken prior to or concurrently with the blocks.

CIMTE 443 Children's Literature	3
CIMTE 465 Microcomputer in Schools	3
Sp Ed 407 Special Education in the Regular Classroom	2

Professional Blocks

JUNIOR METHODS BLOCK (Entire morning)	
CIMTE 321L Tchg of Soc St in El Sch	3
CIMTE 331L Tchg of Reading in El Sch	3
CIMTE 333L Tchg of Oral/Writ Lang in El Sch	3
CIMTE 400 Stu Tchg in El Sch	4-6
SENIOR METHODS BLOCK (Entire day)	
CIMTE 353L Tchg of Sci in El Sch	3
CIMTE 361L Tchg of Math in El Sch	3
CIMTE 400 Stu Tchg in El Sch	8-9

Students enrolled in Junior and Senior 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 grade point average. Students should, therefore, exercise caution in selecting CR/NC grading options in nonprofessional aspects of the undergraduate program.

Students must apply for admission to each Junior and Senior Block separately. Applications are accepted during October and March preceding the semester in which the student wishes to enter the respective block. Applications are not accepted during the summer session. Students are charged a $10.00 laboratory fee for the methods blocks and student teaching blocks. This fee is for materials and supplies used in the schools by elementary education students.

Endorsement Areas

Students may develop one or more teaching fields of 24-36 credit hours in a subject-matter area. These include mathematics, science, social studies, language arts, bilingual education, teaching English to Speakers of Other Languages (TESOL), and reading. Programs of studies should be designed for the endorsement area(s) by the student and an advisor. General education courses may be counted toward the completion of these options.

Composite teaching fields have been approved science, social sciences, language arts and mathematics.

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 SOCIAL SCIENCES. This is designed for students wishing to pursue a broad field's study of the social sciences. Acceptable fields include anthropology, economics, geography, political science, history, 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.

LANGUAGE ARTS. This is designed for students wishing to pursue a broad field in language arts. Acceptable fields include English, Linguistics, Journalism, Theatre Arts, Communications and Communications Disorders.

MATHEMATICS. This is designed for students wishing to pursue an endorsement in mathematics. Topics include set theory, logic, number theory, probability, statistics, geometry, measurement and calculus.

Students may elect teaching fields in bilingual education and and reading which meet K-12 licensure requirements. (See secondary teaching fields, below).

LICENSURE. Students who successfully complete the curriculum for elementary education and earn a bachelor's degree are eligible to apply for a Level I New Mexico Elementary License.

Curriculum for Students Preparing to Teach in Secondary Schools

DUE TO CHANGES IN STATE REGULATIONS AT THE TIME OF PRINTING, STUDENTS SHOULD CONTACT THE DEPARTMENT FOR INFORMATION REGARDING SPECIFIC COURSE WORK IN THIS PROGRAM.

The undergraduate secondary teacher education 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 coursework in foundations of education, curriculum, and instruction.

General Education

To meet the general education requirements for secondary teacher education, students must complete the general education requirements as prescribed by each curriculum area.

Programs of Study

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 concentrations, not less than one departmental major concentration.

All students who wish to elect teaching major concentrations will consult with the Department of Curriculum and Instruction in Multicultural Teacher Education for detailed information *and requirements.*

Because degree minors and certain patterns of coursework in degree majors do not always meet licensure requirements, students' programs must be approved by an advisor in the Department.

Any student wishing to be certified in any majors or minors must be admitted to secondary teacher education before the semester in which he/she enrolls in CIMTE 362, Pre-Student Teaching and/or Special Methods courses (e. g., The Teaching of Science).

Professional Sequence

The following professional sequence is required of all undergraduate and post-baccalaureate students working toward secondary licensure through this Department.

Ed Fdns 393 Human Development and Learning	6
CIMTE 465 Microcomputers in the Classroom	3
Sp Ed 407 Special Education in the Regular Classroom	2
CIMTE 438 Reading in the Content Fields	3
CIMTE 4xx Special Methods (e. g., Teaching Science)	3
CIMTE 362 Pre-Student Teaching	3
CIMTE 463 Student Teaching	12

Pre-Student Teaching consists of a 6-9 semester hour block which includes CIMTE 362 Pre-Student Teaching; the special methods course(s) in the student's proposed teaching area(s). Also, it is highly recommended that CIMTE 438 Reading in the Content Field (required in the teacher certification program) be taken concurrently with the block. During the Pre-Student Teaching semester, students will serve an internship in the secondary schools. Pre-Student Teaching and a special methods course in each teaching field are prerequisites to admission into secondary teaching. The special methods course(s) must be taken concurrently with CIMTE 362 Pre-Student Teaching.

Student Teaching Preparation and Internship. Full-time student teaching for at least one public school semester is required for a total of 12 semester hours.
Prerequisite: Pre-Student Teaching Block, and Special Methods

Overall, the secondary teacher professional sequence may require from two to four semesters. The student is urged to consult an advisor in the Department of Curriculum and Instruction in Multicultural Teacher Education as early in her/his college career as possible.

Special Requirements for Secondary Student Teaching

The student must have:

1. Completed an application at least one semester prior to student teaching, which includes a program of studies by the student's advisor(s). The program of studies will verify the following:
   a. Completion of a major portion of work in the student's major and minor (degree check);
   b. A GPA of at least 2.8 in the major teaching area and of at least a 2.5 in the minor teaching field. A general GPA of at least 2.5 must be achieved in all courses attempted at the undergraduate level. Graduate students must also meet these requirements and maintain a 3.0 GPA.
   c. A grade of "B" or better in all required CIMTE courses; and
   d. Application has been made for graduation.

2. Students enrolled in secondary student teaching are required to comply with a modified academic calendar, i. e. students are obliged to meet the public school schedule for the student's teaching semester.

Teaching Fields

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 language 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.

Composite Teaching Areas

The composite teaching field are designed to enable the prospective secondary 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. Specific requirements for each field may be obtained for the CIMTE Student Advisor (MV 3077).

The application of this unified knowledge to the teaching of currently unified or generalized secondary school subjects (e.g., language arts, mathematics, science, and social studies) is an avowed purpose of this form of preparation.

DUE TO CHANGING LICENSURE REQUIREMENTS, STUDENTS MUST CONSULT THEIR CIMTE ADVISORS WITH REGARD TO THE FOLLOWING PROGRAMS.

TEACHING FIELD IN LANGUAGE ARTS major consists of interdisciplinary study in each of these areas: linguistics, English, communication arts, and non-print media.

TEACHING FIELD IN SCIENCE. The major in science consists of coursework in the broad fields of science and mathematics. Four areas of concentration are available in the composite major:

Physical Science. (Physics Emphasis) This program requires 30 hours in physics and 8 hours EACH in biology, chemistry, geology and mathematics.

Physical Science. (Chemistry Emphasis) This program requires 30 hours in chemistry and 8 hours EACH in biology, geology, physics and mathematics.

Earth Science. This program requires 30 hours of geology and 8 hours EACH in biology, chemistry, physics, and mathematics.

Life Science. This program requires 30 hours of biology and 8 hours EACH in geology, chemistry, physics, and mathematics.

Requirements are subject to change. See Science Education Office for advice.

TEACHING FIELD IN SOCIAL STUDIES IN SECONDARY EDUCATION. The composite major in social studies requires history, (including U. S. and Western Civilization), political science, anthropology, economics, geography and sociology.

MATHEMATICS. This program requires 34 hours in mathematics, enabling students to develop proficiencies in calculus, algebra, geometry, probability and statistics, computing, application of mathematics and history of mathematics.

BILINGUAL EDUCATION. Students may elect a teaching field in bilingual education with either a Spanish-English or Navajo-English concentrations. This program meets K-12 licensure requirements.

TEACHING ENGLISH to SPEAKERS of OTHER LANGUAGES (TESOL). Students may elect a 36 hour teaching field in Teaching English to Speakers of Other Languages. This program meets K-12 licensure requirments.

READING. Students may elect a 24 hour teaching field in Reading. This program meets K-12 licensure requirements.

Educational Administration

See Courses of Instruction for course descriptions and the Graduate Programs Bulletin for all graduate programs.

Symbols - See page 379

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 advisor in their major department and the chairperson of Educational Foundations. Course offerings meet state certification requirements in Library/Media.

See Courses of Instruction for course descriptions and the Graduate Programs Bulletin for all graduate programs.

Health, Promotion, Physical Education and Leisure Programs

Curricula for Health Education

Both lead to a Bachelor of Science in Health Education.

Two tracks are available to students majoring in HEALTH EDUCATION. Both lead to a Bachelor of Science in Health Education. Track one is school health education which leads to teacher licensure and prepares the student to teach health in elementary and secondary schools. Track two, community health education, is a non-teaching track. This track provides students with a broad-based introduction to community and public health and prepares them for professional service in community health agencies, clinical settings, and the workplace. 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.

Community Health Education Track

FIRST YEAR

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
*Nutr 125 Intro to Nutrition	3
*Biol 122L Prin of Biol	4
*Engl 219 Tech Wrtg or *Engl 220 Expos Wrtg	3
*Electives	3
	33

SECOND YEAR

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 Soc of Med	3
Biol 221 Genetics or 239L Micro for Hlth Sc	3-5
*Approved Sp Comm Course	3
*Ed Fdn 303 Human Growth and Dev	3
H Ed 247 Consumer Hlth	3
Electives	3-5
	33

THIRD YEAR

*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
EM/LS 432 Prod of Inst Mat	3
Approv H Ed Electives	6
Electives	3
	33

FOURTH YEAR

H Ed 495 Field Experience I	3
H ED 470 Methods of Teaching H Ed	3
*Multicultural Elective	3
H Ed 495 Field Experience II	3
Approv H Ed Electives	9
Electives	9
	30

General Education for Community Health Education Majors

Students must develop a written plan of study for general education in consultation with a health education faculty advisor. 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.

School Health Education Track

State Board of Education licensure regulations are subject to periodic change. Please contact a College of Education or department advisor for specific requirements for programs leading to educator licensure and endorsement.

FIRST YEAR

H Ed 164 First Aid	3
H Ed 171 Personal & Community Health	3
Engl101 Writing with Readings in Exposition	3
Psych Approved Psychology course	3
Soc Approved Sociology course	3
Science Elective	4
Engl 102 Analytic Writing	3
Nutr 125 Introduction to Nutrition	3
Hist 101 or 102	3
Elective	3
	31

SECOND YEAR

H Ed 260 Introduction to Health Education	3
Biol 136-139L Human Anatomy & Physiology	4
Math 145 Introduction to Prob and Stats	3
Hist 161 or 162	3
Fine Arts Elective	3
Approved English course	3
Math Elective	3
H Ed 212 Fund of Human Sexuality	3
H Ed 247 Consumer Health	3
Elective	3
	34

THIRD YEAR

Ed Fnd 303 or 403	3
H Ed 345 Prof. Exp. in Sch. and Com.	3
H Ed 301 General Safety Education	3
H Ed 333 Mental/Emotional Health	3
Fine Arts Elective	3
Libr 432/TOE432	3
Approved Science Course	4
H Ed 471 Community Health	3
Ed Fdn 310 or 410	3
Electives	3
	31

FOURTH YEAR

Hist Electives	6
H Ed 451 Curriculum Development	3
H Ed 470 Methods of Teaching H Ed	3
H Ed 475 Alternative Approaches to Drug Ed.	3
H Ed 442 Emergency Health Care	3
Health Education Elective	6
H Ed 461 Student Teaching	6
Electives	3
	33

Minor Study in Health Education

A minor in school health is comprised of 24 credit hours and must be approved with a faculty advisor in the school health education program.

The Health Education Minor is as follows:

H Ed 164 First Aid	3
H Ed 171 Personal & Community Health	3
H Ed 260 Intro to Health Education	3
H Ed 212 Human Sexuality	3
H Ed 345 Professional Experience in School or Community	3
H Ed 475 Alternative Approaches to Drug Ed	3
H Ed 451 Curriculum Development	3
H Ed 470 Methods of Teaching H Ed	3
	24

Curriculum for Students Preparing for Nutrition/Dietetics

The curriculum leading to a Bachelor of Science in Nutrition/Dietetics is designed to provide students with the academic requirements necessary for membership in the American Dietetics Association (ADA). Following successful completion of the undergraduate degree, students will need additional training via a dietetic internship or an approved pre-professional practice program as part of the preparation to take the national exam to become a registered dietetian. To be admitted into the Nutrition/Dietetics program, students must have a 2. 75 GPA and have successfully completed Nutr 125, and one chemistry, or one biology with grades of C or better.

Students may wish to declare a minor field of study as stated in the UNM Catalog. Elective hours will then be used to fulfill the minor requirements. Students who do not declare a minor will choose their restricted electives with their advisor's approval. Students should seek advisement for program planning.

Nutrition-Dietetics

FIRST YEAR

Nutr 125 Intro Nutrition	3
Biol 121L Prin of Biology	4
Biol 136 Hum Anat and Physiol	3
Biol 139L Hum Anat and Physiol Lab	1
Chem 121L General Chemistry	4
Math 121 College Algebra	3
Soc 101 Intro Sociology or Psych 102 Gen Psychology	3
Engl 101 Wrtgs/Rdgs in Expos	3
Engl 102 Analytic Writing	3
Elective	3
Anth 130 Cultures of World	3
	33

SECOND YEAR

Biol 122L Prin of Biology	4
Nutr 225 Food Nutr & Society	3
Chem 122L General Chemistry	4
Chem 212 Integ Org and Biochem or Chem 301-303L Organic I	4
Comm 221 Interpersonal Comm	3
Biol 239L Microbiology	4
H Ed 171 Pers & Comm Hlth	3
Math 145 Statistics	3
Elective	3
Restricted Elective	3
	34

THIRD YEAR

Nutr 325 Adv Nutrition	3
Nutr 320 Meth of Nutr Educ	3
Nutr 330L Prin Food Science	4
Biol 429 Cell Biology I	4
Econ 200 Prin & Prob or Econ 201 Prin of Econ	3
Mgt 361 Organizational Theory	3
Engl 219 Technical Writing	3
Ed Fdn 303 Human Grwth & Devel	3
Humanities Elective	3
Restricted Elective	3
	32

FOURTH YEAR

Nutr 321L Food Service Mgmt	4
Nutr 424 Nutrition Life Cycle	3
Nutr 428 Diet Therapy	3
Nutr 427L Lrg Qnty Food Prod	3
Nutr 406 Seminar, Community Nutr	3
Restricted Electives	10
Humanities Elective	3
	29

Minor Study in Nutrition

A minor in nutrition consists of Nutr 125, 225 and 325 plus a minimum of nine hours selected from the following: Nutr 320, 330L, 406, 424, 428. Grades of C or better are required in all Nutr courses used to meet the nutrition minor requirement. The sequence of courses for the minor has a minimum prerequisite of organic chemistry (Chem 212 or 301).

Symbols - See page 379

Curricula for Students Preparing to Teach Physical Education

Curricula leading to the degree of Bachelor of Science in 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 teaching license in New Mexico. To be certified applicants must pass the NTE Core Battery and the Physical Education Specialty examinations.

State Board of Education licensure requirements are subject to periodic change. Please contact a College of Education or department advisor for specific requirements for programs leading to educator licensure and endorsement.

Three teaching majors in Physical Education are offered: K-12, Secondary and Elementary P. E. See the department for specific course requirements. Course requirements for the K-12 Physical Education major are listed below.

K - 12 Physical Education Program

FIRST YEAR

Engl 101 Writing w/Readings in Exposition	3
Psych 101 or 102 General Phychology I	3
Math 120 Algebra	3
Nutr 125 Introductory Nutrition	3
Biol 136 Human Anatomy and Physiology	3
BioIL 139 Human Anatomy and Physiology Lab	1
H Ed 164 First Aid	3
Ed Fdn 124 Microcomputer Aware for Ed	1
Engl 102 Analytic Writing	3
P E-NP 115 Women's Gymnastics **or** P E-NP 117 Men's Apparatus Stunts	1
P E-P 231 Flickerball,Flag Football, Volleyball, Basketball	1
P E-P 232 Golf, Aerobic Dance	1
P E-P 233 Soccer, Speedaway, Racquetball	1
P E-P 234 Track and Field	1
P E-P 235 Tennis, Aerobics	1
P E-P 273 Intro to Athletic Training	2
Math 145 Probability and Statistics	3
	34

SECOND YEAR

P E-P 217 Physical Ed in Elementary Schools	3
P E-P 239 Dance	1
P E-P 236 Personal Defense, Archery	1
P E-P 237 Softball,Team Handball, Badminton	1
P E-P 238 Wrestling or Modern Dance and Weight Trainging	1
P E-P 245 Professional Lab Exp in Phys Ed	2
P E-P 277 Kinesiology	3
P E-P 288 Motor Learning and Performence	3
Hist 101 or 102	3
Hist 161 or 162	3
General Education-English Elective	3
General Education-Gov't., Econ., Soc., or Psych General Education-Fine Arts Elective	3
General Education-Science Electives	5
	35

THIRD YEAR

Ed Fdn 310 Learning and the Classroom	3
Ed Fdn 303 Human Growth and Development	3
P E-P 444 Teaching Physical Education	3
P E-P 301 Teaching Team Sports	2
P E-P 310 Folk Dance in the School Program	2
P E-P 445 Motor Development in Children	3
P E-P 289 Test and Measurements	3
P E-P 309 Teaching of Gymnastics	2
P E-P 326 Physiology of Exercise	3
General Education-Fine Arts Elective	3
General Education-History Elective	3
Elective	3
	33

FOURTH YEAR

P E-P 479 Organization and Administration of PE	3
P E-P 378 Principles of Physical Education	3
P E-P 466 Special Physical Education	3
P E-P 461 Student Teaching-Secondary	9
P E-P 400 Student Teaching-Elementary	3
General Education-English Elective	3
General Education-Science Elective	3
General Education-History Elective	3
	30

Must have water safety instruction certification prior to student teaching.

Special Requirements for Physical Education Student Teaching

The student must have:

1. Submitted recommendations from three faculty members, including the student's advisor, indicating that the student is believed ready for student teaching.
2. Successfully completed a major portion of the theory coursework as determined by the advisor in consultation with the student teaching personnel.
3. Completed all of the prerequisites including water safety instruction.
4. Removed all Ds and Fs in the major field.
5. Attained at least a 2.5 grade-point average in the major field and at least a 2.2 grade point average overall.
6. Students enrolled in physical education student teaching may be required to comply with a modified academic calendar and should plan to be in the school for a full day.

Additional Information

Students who, for any reason, interrupt their progress in the physical education program at UNM for more than two consecutive semesters must reapply.

Physical education majors will not be allowed to graduate with a grade of D or lower in a course in their major field.

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.
Non-teaching majors are offered in Exercise Technology and Athletic Training. A non-teaching minor in Athletic Coaching is also available.

Minor Study Requirements in Athletic Coaching
(Not available to physical education majors.)

PE-P 273 Athletic Trng	2
PE-P 209 Fdn Human Perf	3
PE-P 481 Adm Varsity Athletics	3
PE-P 495 Field Exper	3

Choose two of the following three courses:

PE-P 288 Motor Lrng	3
PE-P 378 Prin of PE	3
PE-P 452 Org and Coaching of Sports	3

Choose nine hours from the following group:

PE-P 202 Theory and Prac of Baseball	2
PE-P 203 Theory and Prac of Wrestling	2
PE-P 204 Theory and Prac of Track and Field	
PE-P 205 Fund of Basketball	2
PE-P 206 Fund of Football	2
PE-P 207 Theory and Prac of Swmng	2
PE-P 309 Tchng Gymnastics	2
PE-P 464 Theory of Football	3
PE-P 465 Theory of Basketball	3
PE-P 245 004 Prof Lab Exper	2
	26

Curriculum for Non-Teaching Major: Athletic Training

The major leads to the degree of Bachelor of Science in Athletic Training and national certification in athletic training.

Admission

To be accepted as a major in athletic training a student must first gain admission to the HPPELP department by successfully completing the COE application and admission process. The student must then successfully complete the following procedure:

1. Interview with athletic training faculty
2. Receive a grade of B or better in P E-P 284, 273, H Ed 164.

General Education: 48 hours required

1. Humanities and Social Sciences (6 hours minimum)	6
2. Behavioral Sciences (6 hours minimum)	
Psych 102, General Psych	3
Psych 220 Developmental Psych	3
	6
3. Natural and/or Physical Sciences (4 hours minimum),	
Biol 121 Biol 121 General Biology	4
4. Communication Arts (9 hours minimum)	
Engl 101 Writing w/Rdgs in Expos	3
Engl 102 Analytic Writing	3
Comm 130 Speech Communications	3
	9
5. Fine and Practical Arts	
6. Mathematics (4 hours minimum)	
Math 145 Intro Prob & Stats	3
Ed Fdn 124 Intro to Microcomputers	1
	4
7. Health Ed and Recreation	
8. Foreign Language	
9. Multicultural Studies (3 hours minimum)	3

Athletic Training Major Requirements

*#Nutr 125 Intro to Nutrition	3
*#H Ed 164 First Aid w/Lab	3
*#H Ed 171 Pers & Comm Hlth	3
*H Ed 442 Emergency Health Care	3
#P E-P273 Intro to Athl Trng	2
#P E-P284 Athl Trng Clin Exper	3
#P E-P277 Kinesiology	3
P E-P288 Motor Learning	3
P E-P289 Tests & Measurements	3
#P E-P326 Physio of Exercise	3
#P E-P373 Adv Athl Trng	3
#P E-P484 Clin Prog for Athl Trng	12
#P E-P466 Special PE	3
P E-P470 Designs for Fitness	3
*#Biol 237 Hum Anat & Physio I	3
*#Biol 247 Hum Anat & Physio Lab	1
*#Biol 238 Hum Anat & Physio II	3
*#Biol 248 Hum Anat & Physio Lab	1
#P E-P472 Eval of Athl Injuries	3
#P E-P473 Rehab of Athl Injuries	3
#P E-P474 Org & Adm of Athl Trng	3
#Phy Th306 Clin Use of Modalities	3
	70

Following are requirements for certification by the National Athletic Trainers Association:

Completion of specific required courses:

1. Anatomy Biol (Biol 237, 247L)
2. Physiology (Biol 238, 248L)
3. Physiology of Exercise (PE-P 326L)
4. Applied Anatomy and Kinesiology (PE-P 277)
5. Psychology (2 courses) (Psych 102 and 220)
6. First Aid and Safety (H Ed 164)
7. Nutrition (Nutr 125)
8. Remedial Exercises (PE-P 466)
9. Personal, Community, and School Health (H Ed 171)
10. Techniques of Athletic Training (PE-P 273)
11. Advanced Techniques of Athletic Training (PE-P 373)
12. Laboratory Practice (800 clock hours) (PE-P 484)
13. Evaluation of Athletic Injuries (P E-P 472)
14. Rehabilitation of Athletic Injuries (P E-P 473)
15. Org & Adm of Athletic Training (P E-P 474)

Curriculum for Non-Teaching Major: EXERCISE TECHNOLOGY

FIRST YEAR

Engl 101 Wrtg w/Rdgs in Exp	3
Psych 101 Gen Psychology I or 102	3
Math 120 Intermediate Algebra	3
Nutr 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 & Biochem	4
PE-P 232 Golf, Dance	1
PE-P 234 Track & Field	1
Mgt 113 Intro to Mgt	3
PE-NP 102 Intermed Swim	1
Engl 102 Analytic Writing	3
	33

*Cannot count toward General Education Requirement.
Mandated by the National Athletic Trainers Association.

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SECOND YEAR

Comm 130L Public Spk	3
Math 145 Intro Prob & Stat	3
Biol 237-247L Human Anat & Physiol	4
Biol 238-248L Human Anat & Physiol	4
H Ed 164 First Aid	3
PE-P 273 Intro Athl Trng	2
PE-P 289 Test & Meas in PE	3
PE-P 277 Kinesiology	3
PE-P 288 Motor Learning	3
PE-P 235 Tennis, Aerobics	1
PE-NP 126 Aerobic Dance	1
PE-NP 167 Basketball Recreation	1
C S 150L Fdns of Comp Sci	3
	34

THIRD YEAR

Psych 230 Psych of Adjustment	3
or Psych 260 Psychology of Learning	
PE-P 472 Eval Athl Injuries	3
PE-P 326 Exercise Physiol	3
PE-P 470 Designs for Fitness	3
PE-P 391 Problems	3
PE-P 495 Field Exper	
PE-NP 160 Wt Training	1
PE-NP 161 Dev PE and Wt Control	1
Electives	6
Nutr 325 Interm Nutrition	3
	32

FOURTH YEAR

PE-P 493 T/Concpts in Spt/Fit Prog	3
PE-P 467 Survey Phy Defects	3
PE-P 487 Phys Activity & Aging	3
PE-P 426 Interm Exercise Physiol	3
PE-P 495 Field Experience	6
PE-NP 152 Racquetball	1
PE-NP 165 Yoga	1
PE-NP 162 Jogging Fitness	1
H Ed 493 T/Hlth Prom in Workplace	3
PE-NP 170 Volleyball	1
Electives General Education	6
	31

Students must have American Red Cross or American Heart Association CPR certification prior to graduation.

Department Certification Programs

The Department offers special certification programs for those students who desire specialized preparation in specific areas. The certification programs are available in Teaching Aerobic Dance, Youth Sports Coaching and Aquatics Specialization.

Teaching Aerobic Dance

The program in Teaching Aerobic Dance provides those who wish to teach this very popular activity, the physiological principles for safe and worthwhile participation as well as skill development in a variety of dance routines. It also includes methods and techniques of choreography and practical teaching opportunities.

REQUIRED COURSES

PE 158 Aerobic Dance I	1
PE 159 Aerobic Dance II	1
PE 209 Foundations of Human Performance	3
PE 293 Methods of Teaching Aerobic Dance	2
PE 245-004 Practicum in Teaching Aerobic Dance	2
	9

Youth Sports Coaching

This program is designed to help prepare individuals for coaching in the area of Youth Sports. It provides information relative to safe and proper training of young athletes, principles of motor skills development, as well as the appropriate methods for treating injuries. The coaching theory courses of coaching which apply to specific sports are available on an elective basis.

REQUIRED COURSES

Pre-requisite: First Aid Certificate

PE-P 209 Found of Human Movement	3
PE-P 288 Motor Learning	3
PE-P 273 Intro to Athl Trng	2
PE-P 452 Org & Coach of Sports	3
Elective Coaching Theory Course	3
	14

Aquatics Specialists

The Aquatics Specialist Certificate Program enables students to develop expertise in a wide variety of aquatics skill. It includes appropriate information on pool management and general recreational administration. The elective component offers specific water skills competencies as well as practical applications. The holder of this certificate is well qualified to conduct a diverse aquatic program in the typical public or private setting.

REQUIRED COURSES

Prerequisite: Certification in Livesaving, Water Safety Instruction, CPR, and First Aid.

PE-P/ RECREA 493 Pool Mgmt/Operation	3
RECREA 454 Dev of Rec Prog	3
RECREA 245 Fieldwork/Practicum	3
	9

Elective Courses-choose 9 hours from the following:

RECREA 480 Admin of Rec Prog	3
PE-P 304 T/Adapted Aquatics	2
PE-P 207 Theory & Practice of Swimming	2
PE-NP 105 Water Polo	1
PE-NP 104 Diving	1
PE-NP 109 Skin and Scuba or	
PE-NP 110 Advanced Scuba	1
PE-NP 108 Small Craft	1
PE-NP 103 Adv Swimming/Synchronized	1
PE-NP 193 Aquatic Exercise	1
PE-NP 193 Windsurfing	1
PE-P 391 Problem	1-3
	18

Recreation

The curriculum for the degree of Bachelor of Arts in Recreation is designed to prepare students for professional careers in parks, recreation and leisure services.

Student should contact department for information regarding recreation program options such as Therapeutic recreation.

General Education

Students must develop a written plan of study for general education in consultation with an advisor from the recreation program, Department of Health Promotion, Physical Education and Leisure Programs. This plan must satisfy the following requirements:

Behavioral science	6 hours
Psych 102 (Gen Psych II) (3)	
Psych (200 level and above)(3)	
Communicative arts	15 hours
English 101, (3) 102(3)	
Comm 130 (Public Spkng)(3)	
Comm 221 Interpersonal Comm (3)	
or Comm 225 (Group Prob Solv) (3)	
or Writing Elective(3)	
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
Ed Fdn 303 (Human Grth & Dev)	3 hours
Computer Skills	7 hours
Math 120 Intermediate Algebra (3)	
Math 145 Intro to Prob & Stat (3)	
Ed Fdn 124 Microcomputer Aware Ed (1)	
Total	55 hours

Major Study in Recreation

FIRST YEAR

Engl 101 Wrtg w/Rdg in Expos	3
Engl 102 Analytic Writing	3
Natural Sciences Electives	6
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
Math 120 Algebra	3
	30

SECOND YEAR

Writing Elective	3
H Ed 171 Per and Comm Hlth	3
Comm 130 Public Speaking	3
Recrea 221 Recrea Leadership	3
Recrea 245 Field Work	3
Recrea 311 Leis in Society	3
Social Science Elective	3
Math 145 Statistics	3
Recrea Program Option	3
Electives	6
	33

THIRD YEAR

Recrea 378 Outdoor Recrea	3
Comm 225 Prob Solv Groups or	3
Comm 221 Interpersonal Communic	
Recrea 454 Dev of Recrea Prog	3
Recrea 495 T/Field Exper	6
Psych Elective (200 level or above)	3
Social Science Elective	3
Fine and Practical Arts Elective	3
Recrea 385 Leisure Serv for Spec Pop	3
Ed Fdn 303 Human Growth & Dev	3
Electives	3
	33

FOURTH YEAR

Recrea 480 Admin of Recrea Prog	3
Elective	3
Social Science Elective	3
Recrea Program Option	6
Recrea 407 Hist & Phil	3
Directed Recrea Elect	3
Ed Fdn 124 Microcomputer Awareness	1
Electives	10
	32
Total	128

Minor Study Requirements in Recreation

Recrea 175 Fdns of Recrea	3
Recrea 290 Creat and Soc Arts for Recrea	3
Recrea 221 Recreation Leadership	3
Recrea 245 Prof Lab Exper in Recrea	3
Recrea 454 Dev of Recrea Prog	3
Recreation Elective	6
Recrea 385 Intro to T. R.	3
	24

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 Curriculum in Music Education in College of Fine Arts.

Minor in Music Education

Students may also minor in music education. See Music Education section under College of Fine Arts for minor requirements.

Special Education

The Department of Special Education offers degrees and programs at several levels: Associate of Arts Degree in Education, a Non-Teaching Minor, an Undergraduate Major and Graduate Degrees.

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Special Education Paraprofessional Training

The Associate of Arts Degree in Special Education Paraprofessional Training is a specialty program designed to prepare qualified adults for employment as teacher aides or assistants to other professionals in special education programs. The curriculum combines identified areas of coursework with supervised field experiences, to enable trainees to develop the competencies considered important for working with handicapped students and clients effectively. Students wishing to enter this program must meet the requirements for admission to UNM, as well as complete an application and interview with program staff. The AA degree requires 66 total hours. Nine hours are designed for electives (with the advisor's approval), so that trainees may focus on content areas (for example, reading, math, PE, or fine arts), human growth and development, certain age or ethnic groups, disability categories, or other areas of interest. Students are required to seek advisement for initial and ongoing program planning.

Course Requirements

The requirements for the Associate of Arts Degree in Special Education Paraprofessional Training are indicated below.

COMMUNICATION SKILLS REQUIREMENTS (6 hours)	
Engl 101 Wrtg/Rdgs in Exposition	3
Engl 102 Analytic Writing	3
or Comm 270 Comm for Teachers	3
ARTS/HUMANITIES/SOCIAL SCIENCES REQUIREMENTS (6 hours)	
Fine Arts: Art, Dance, Music, Mus Ed, Th Arts	3
Humanities: Ling 101, Am St, Hist of NM or SW	3
Soc Sciences: Econ, Geog, Pol Sc, or Soc 101	3
MATH/NAT SCIENCE/BEHAV SCIENCE REQUIREMENTS (6 hours)	
Math: 111 or 112	3
Nat Science: Biol, Chem, Geol, or Physcs/Astr	3
Behav Science: Anth, Psych 101/103L, 102/104L	3-4
INSTRUCTIONAL FOUNDATIONS REQUIREMENT (6 hours)	
Human Grth & Development course (Ed Fdn 303, Psych 210 or 260, FS (various age levels))	3
Ed Fdn 310 Learning in Classroom	3
SPECIAL EDUCATION REQUIREMENTS (32 hours)	
Spc Ed 201 Educ of the Exceptional Person	3
Spc Ed 204 Intro to Special Education	2
Spc Ed 207T Paraprof Interactions in Spe Ed	3
Spc Ed 319 Classroom Org & Management	3
Spc Ed 211T Educ Approaches with Spec Pop	3
Spc Ed 104T Field Applications I	3
Spc Ed 232T Therapeutic Tech For SBD	3
or Spc Ed 252T Therapeutic Tech for S/P & MHP	3
Spc Ed 209 Affective Educ & Except Person	3
Spc Ed 264 Clsrm Diag & Program Planning	3
Spc Ed 203T Ways & Means: Dir Serv w/Handicapped	3
Spc Ed 205T Field Applications II	3
Electives (to be approved by advisor) (9 hours)	
To be selected from list of suggested electives	9
TOTAL	66

Courses classified as University Skills may not be used to satisfy the requirements for the A. A. degree.

Non-Teaching Minor and Undergraduate Major

The Department of Special Education offers an Undergraduate Major of thirty (30) hours. Also offered is a twenty (20) hour non-teaching minor. Students should plan to enroll in special education courses during the fall and spring semesters, since most courses in this sequence are seldom offered during the summer sessions.

Following are the courses required for the undergraduate minor and a general sequence for completing required courses.

UNDERGRADUATE MINOR

STEP ONE:
Enroll in Spc Ed 201 and Spc Ed 204.
(Concurrent enrollment required)
Spc Ed 201 Ed of Excpt Person (3)
Spc Ed 204 Intro to Spc Ed (2)
(Field Experience and Seminar)

STEP TWO:
Complete application for non-teaching minor.

STEP THREE:
After acceptance to non-teaching minor meet with an undergraduate advisor to plan a course sequence.

STEP FOUR:
Complete course sequence as outlined on individual program of studies.

REQUIRED:
Spc Ed 319 Clsrm Organ & Manag (3)
Spc Ed 409 Affect Ed & Excpt Persons (3)

Choose one (1) or two (2):
Spc Ed 420 Nat & Needs of MR (3)
Spc Ed 430 Nat & Needs of BD (3)
Spc Ed 440 Nat & Needs of LD (3)

Choose one (1) of the following:
Spc Ed 493 Intro to Micro Comuptors & Software (3)
Spc Ed 302 Intro to CD (3)
Spc Ed 467 Survey of Physical Defects (3)
Spc Ed 465 Art & the Excpt Chld (3)

Following are the courses required for the undergraduate major in Special Education, as well as the sequence in which courses should be completed.

UNDERGRADUATE MAJOR

Special Education Courses Required Prior to Undergraduate Major:
Spc Ed 201 Education of Exceptional Childern (3)
Spc Ed 204 Introduction to Special Education (2)

Courses Which Must be Taken Prior to Pre-Student Teaching Block: (May be taken before Admission)

Spc Ed 319 Classroom Organization & Management (3)

Courses Which May be Taken Prior to Pre-Student Teaching Block (and prior to admission): (Choose one)

Spc Ed 420 Nature & Needs of Mental Retardation (3)
or
Spc Ed 430 Nature & Needs of Behavior Disorders (3)
or
Spc Ed 440 Nature & Needs of Learning Disabilities (3)

Courses Which Require Admission to Special Education Major:

Pre-Student (Practicum) Teaching Block:
Spc Ed 303 Methods & Materials in Special Education (3)
Spc Ed 304 Practicum (4)
Spc Ed 313 Curriculum Development (2)

Student Teaching Block:
Spc Ed 464 Classroom Diagnosis & Program Planning (3)
Spc Ed 462 Student Teaching (7)

Application and Admission

Applicants must contact the College of Education Advisement Office for information on application and admission procedures for the paraprofessional program and the undergraduate major. Individuals interested in the non-teaching minor should contact the Special Education Records Secretary for an application.

Requirements

Students must earn a grade of B or better in Spc Ed 201 and Spc Ed 204 (which must be taken concurrently), and must have a minimum GPA of 2.5 prior to admission to any Special Education undergraduate program. Other specific requirements are stated in department documents, which describe individual programs. Upon acceptance into any program, the students will be assigned an advisor who will assist in the preparation of the program of studies.

Students seeking further information should contact the Department of Special Education and request an appointment with an undergraduate advisor.

Graduate Program

The Department of Special Education offers the M. A., Ed. S., Ed. D., and Ph. D. Concentrations are available in the areas of Learning Disabilities, Behavior Disorders, Mental Retardation, Educational Diagnosis and Gifted . There are aslo specialized areas of emphasis in other areas such as bilingual special education, secondary/vocational, and early childhood.

TECHNOLOGICAL AND OCCUPATIONAL EDUCATION

The Department of Technological and Occupational Education offers degree and professional development programs for individuals who want to improve their performance through the application of learning technologies in education, business and government settings.

The department offers four areas of emphasis; Instructional Technologies, Adult Learning, Training and Development, and Occupational Education. Through these areas, the department serves the following client groups:

EDUCATION

*Classroom Teachers
*Post-Secondary Faculty from all disciplines
*Staff Development Specialists
*Educational Technologists
*Computer Education Coordinators/Resource Personnel
*Administrators

BUSINESS/GOVERNMENT/INDUSTRY

*Trainers/Training Directors
*HRD Practioners
*Staff Development Specialists
*Training Consultants
*Instructional Technologists
*Managers/Supervisors

Together with the student population in the department, these client groups represent a wide resource of experiences and disciplines. The diversity of backgrounds and personal interaction compliment learning experiences.

Professional growth in a changing society, rapid infusion of learning technologies in education, corporate-sponsored education and training, economic development/employment concerns and rapidly changing conditions in the workplace and classroom continue to influence the mission of the department. In response to these forces, the department offers the working adult evening and weekend courses, non-traditional delivery systems, and programs leading to certifications or degrees at the Baccalaureate, Masters, and Doctoral levels. Each student's program is purposely designed with maximum flexibility to achieve individual goals.

INSTRUCTIONAL TECHNOLOGIES

Area Advisors: J. Gittinger, P. Resta, C. Taylor, G. Watson

Learning how to instruct with and about instructional technologies, how to design effective educational and training materials using these technologies, and how to plan and implement the use of these technologies within educational and training settings represent crucial challenges for educators and trainers. In order to meet the challenges posed by technology and in order to implement programs which will have a direct impact on the learning process, students will be prepared to develop effective strategies for making these technologies integral elements in the educational process of schools, corporations, and government agencies. As more and more corporate, governmental, non-profit, and educational organizations incorporate instructional technologies into their training and development activities, the career opportunities for educators and trainers in this field will continue to expand. An exciting aspect of selecting instructional technologies as a career choice is that individuals in this field can be at the cutting edge of a developing field.

The Instructional Technologies courses focus on the development of applications based upon communication and delivery technologies, as well as emphasizing the criteria for selecting appropriate media. Courses develop design skills for integrating instructional technologies with special learner characteristics, distance delivery systems, and current research.

ADULT LEARNING

Area Advisor: J. Dalla

Career opportunities in the field of adult learning and human resource development are rapidly expanding and cover many organizational settings as public and private organizations incorporate continuing education into their operational priorities. One of the most exciting aspects of working in this field is that practitioners are continually redefining the scope of the field itself.

Courses in Adult Learning provide both the structure and framework within which the student can develop knowledge and skills in the various organizational forms, clientele groups, learning processes, program development strategies, and research perspectives. The primary emphases is on the adult

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in a variety of learning environments. Programs in this area are designed to reflect the multi-disciplinary nature of the field and students are encouraged to take courses in other College and University departments, such as adult community programs, adult basic education, management and psychology.

Training and Development

Area Advisors: J. Dalia, P. Blackwell

A new and growing field, training and development is based on the concept that an organization's greatest potential for growth and productivity is its people. By developing their skills, the organization is enhanced. Training and development as a field of study attracts people from diverse backgrounds: those with staff development as experience who want to move from education into the corporate sector; persons with training experience interested in expanding their skills; individuals with undergraduate training in education, business, communications, psychology, social work, and the like, who want to specialize in training and development.

Training and Development courses provide both the structure and framework within which the student can increase or develop skills appropriate to a future training role in education, business, government, military or industrial setting. Through multidisciplinary courses, electives, directed internships, and individual projects, students may acquire common group of competencies and may enhance individual expertise.

Coursework toward a Trainer's Certificate is offered in addition to degree programs.

Occupational Education

Area Advisors: C. Taylor, E. Tweeten

Occupational Education programs in Business/Marketing Education, Industrial Technology Education (teaching), Industrial Technical Education (business and industry), and courses for Vocational Education Licensure are offered by the department. Technical content courses are available at branch and post-secondary institutions throughout the state, although courses to be transferred must be approved by the department. General education and professional preparation courses are offered on the main UNM campus. Students entering degree programs must consult with an advisor for approval of an appropriate program of studies and if pursuing a license to teach, consult the New Mexico State Department of Education regarding current licensure standards.

Business/Marketing Education

Area Advisor: E. Tweeten

The Business/Marketing Education program blends business with technology and leads to the Bachelor of Science in Education degree, preparing people to teach business/marketing education at the mid-school through post-secondary level.

Industrial Technology Education

Area Advisor: C. Taylor

Industrial Technology Education is a program leading to a Bachelor of Science in Education degree, preparing people to teach (formerly Industrial Arts) at the mid-school through the post-secondary level. The teaching field is comprised of four technical clusters; i. e., communication, construction, manufacturing and transportation as well as a technical support component.

Industrial Technical Education

Area Advisor: C. Taylor

Industrial Technical Education is a program leading to a Bachelor of Science Degree, designed to prepare students for technical, managerial, production, training, and related professional leadership positions in business and industry. Recent graduates of the program are employed in a variety of industrial/business mid-management positions both locally and nationally.

Vocational Education Licensure

Area Advisors: E. Tweeten, C. Taylor

The department provides professional courses designed to prepare individuals for New Mexico Vocational Licensure. Students interested in pursuing a career teaching Vocational Education at either the secondary or post-secondary level should first contact the New Mexico State Department of Education for an evaluation of their credentials, and then consult with a TOE departmental advisor for an appropriate coursework plan.

DEPARTMENT POLICIES AND PROCEDURES FOR STUDENT TEACHING

Area Advisor: E. Tweeten

The student must have:

1. Completed an application for student teaching/professional semesters, and submitted the form to appropriate major area advisor verifying the following;
   a. Completed 80 percent of the coursework in his/her major and minor (degree check).
   b. Maintained at least a 2.5 grade point average in the major teaching area, and a cumulative GPA of at least 2.5 in all courses included in the degree requirements. Graduate students must maintain a 3.0 grade point average.
   c. Applied for graduation.
2. Students enrolled in student teaching/professional semester may be required to comply with a modified academic calendar.

GRADUATE COURSES AND PROGRAMS

Coordinator of Graduate Affairs:

The Department offers a variety of graduate activities including workshops, courses, programs, certificates, and degrees. For information, see the UNM Graduate Programs Bulletin, and/or contact the Department at 277-4131. For specific information, contact the Department Coordinator of Graduate Affairs. Department Graduate Bulletins describing the programs are available upon request.

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

ASSISTANT PROFESSORS;

Josie Abbenante, M. A., University of Louisville
Phill Peterson, M. A., New York University

MAJOR CURRICULUM --TEACHER PREPARATION

See p. 192

MAJOR CURRICULUM--ARTS IN RECREATION

Contact Department

MINOR STUDY

See p. 193

ART EDUCATION (ART ED)

120. Techniques of Craft Education. (1-3) Townsend
Beginning crafts and teaching methods for recreation situations. Special fee required.

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}

230. Techniques of Design Education. (3) Townsend
Design in everyday life. Special fee required.

285. Recreation Arts and Crafts. (3) Townsend
Exploration in recreational arts and crafts including application of techniques, materials, and methodology of teaching and supervising arts and crafts activities in all age groups of heterogeneous nature. Course includes laboratory and field experiences in preselected sites. Course design to develop full potential of students for recreation. Special fee required.

291. Problems in Art Education. (1-3)
Independent study in art education to be designed by the student in conjunction with the supervising professor. {Summer, Fall, Spring}

293. Topics. (1-3)Δ
Courses on a variety of topics are offered according to need and interest. Different section numbers indicate different topics {Offered upon demand}

310. Teaching Art in the Elementary School. (3) Peterson
Philosophical, psychological, theoretical and practical concepts about teaching art in the elementary school, including observation and involvement in art teaching situations on Saturday mornings in the Department's Community Art for Children Program. Initial screening course and prerequisite for teacher preparation curricula. Special fee required. {Fall, Spring}

320. Teaching Art in Secondary School. (3) Peterson
Philsophical, 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: 310. {Fall}

357. Media-Arts and Women. (3)
(Also offered as W 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: W St 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
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: 310, 320, and approval of the Department's Director of Elementary Student Teaching. {Fall, Spring}

414. Art Education in Elementary School Teaching. (3) 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 multicultural 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) Abbenante, McConeghey, Peterson, Srubek, Townsend
Studio experience in art for school and recreational situations. Different art forms are emphasized in different offerings of the courses--e. g. ,Studio Art in the School: Porcelain; Studio Art in the Schools: Weaving, etc. May be repeated for credit as studio area varies; may be taken twice with same studio area, and may be repeated more than twice with permission of instructor and department chairperson. Special fee Required. {Summer, Fall, Spring}

460. Student Teaching in the Middle/Junior High School. (3, 6, 9) § Peterson
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

§ A maximum of 15 hours of student teaching **combined** (all levels) is allowed.

EDUCATION

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the middle/junior high school.
Prerequisites: 310, 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) §Peterson
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: 310, 320, 400, 460, and approval of the Departmen's Director of Secondary Student Teaching. {Fall, Spring}

465. Art and the Exceptional Child. (3)
(Also offered as Spc 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 adaptions 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)
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. {Offered upon demand}

474. Art for the Gifted. (3)
(Also offered as Spc Ed 474.) Identification and characteristics of the gifted student in general and in art. Theory, methods, curriculum, and practical art experiences for the gifted. Special fee required. {Spring} {Offered upon demand}

475. Art, Architecture and Environmental Education in the Schools. (3)
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)Δ
Different workshops are offered about various aspects of art education and art therapy according to interest and need. Different sections indicate different workshops.
Prerequisite: varies with workshop content. {Offered upon demand}

493. Topics. (1-3)Δ
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)Δ McConeghey, Srubek
{Fall}

510. Curriculum Development in Art Education. (3)
McConeghey, Srubek
{Spring}

514. Art Education in Elementary School Teaching. (3)
Peterson
{Offered upon demand}

520. Art Education in Early Childhood. (3) Peterson
{Spring}

530. Studio Art in the School:_____. (3)Δ
Abbenante, McConeghey, Peterson, Srubek, Townsend
{Summer, Fall, Spring}

560. Survey of Art Therapy. (3) McConeghey
{Fall}

561. Practicum in the Supervision of Instruction. (3)Δ
{Summer, Fall, Spring}

565. Art and the Exceptional Child. (3)
(Also offered as Spc Ed 565.) {Fall}

567. Theory and Technique in Art Therapy I. (3)
Abbenante
Prerequisite: permission of instructor. {Fall}

568. The Image and Imagination in Art Education and Art Therapy. (3) McConeghey
{Spring}

570. Art in Multicultural Education. (3)
{Offered upon demand}

574. Art for the Gifted. (3)
(Also offered as Spc Ed 574.) {Offered upon demand}

575. Art, Architecture and Environmental Education in the Schools. (3)
(Also offered as Arch 562.) {Offered upon demand}

577. Theory and Technique in Art Therapy II. (3)
Abbenante
Prerequisite: permission of instructor. {Spring}

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)Δ
{Offered upon demand}

593. Topics. (1-3)Δ
{Offered upon demand}

595. Advanced Field Experiences. (3-6, to a maximum of 12)
Prerequisite: permission of instructor. {Summer, Fall, Spring}

598. Directed Readings 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 credit requirements. {Summer, Fall, Spring}

696. Internship. (3-6, to a maximum of 12) McConeghey, Srubek
{Summer, Fall, Spring}

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§ A maximum of 15 hours of student teaching **combined** (all levels) is allowed.

COUNSELING AND FAMILY STUDIES

Virginia C. Shipman, Chairperson
Home Economics 102, 277-4316

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
Mary M. Smith, Ph. D., Colorado State University
Pauline Turner, Ph. D., University of Texas-Austin

ASSOCIATE PROFESSORS:

Guillermina Engelbrecht, Ph. D., Arizona State University
Marion J. Heisey, Ph. D., Kent State University
Vonda Long, Ph. D., Washington State University
John Rinaldi, Ed. D., Texas Tech University
Richard M Smith, Ed. D., Oklahoma State University Stillwater

ASSISTANT PROFESSORS:

Blaine J. Fowers, Ph. D., University of Texas-Austin
Pamela N. Olson, Ph. D., Oregon State University
Mary E. Steir, Ph. D., Yeshiva University

PROFESSORS EMERITI:

George L. Keppers, Ed. D., University of Colorado
Robert Micali, Ed. D., Rutgers University
Ednell M. Snell, Ed. D., Columbia University
Gordon Zick, Ed. D., University of Illinois

COUNSELING (COUNS)

***413. Career Development in the Classroom. (3)**
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, Spring}

420. Foundations of Counseling. (3)
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}

***422. Interviewing Skills. (3)**
Designed to help students develop and improve their human relations interactions by focusing upon different interviewing techniques using a counseling emphasis.

***425. Wilderness Counseling. (3)**
Using the outdoors as a laboratory setting, this course is designed to teach personal and professional growth. It includes a unique combination of academic cognitive skills, group counseling, and outdoor skills.
Prerequisite: permission of instructor. {Summer}

430. Dynamics of Human Behavior. (3)
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)
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}

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. {Offered upon demand}

***492. Workshop in Counseling. (1-4)**
Carries graduate credit when specifically approved by the Office of Graduate Studies. {Offered upon demand}

***493. Topics. (1-3)**

510. Techniques of Parent-Teacher Counseling. (1, 2, 3)
(Also offered as Spc Ed 508.)
Prerequisite: 420 or permission of instructor.

512. Assessment of Intelligence. (3)
Prerequisite: permission of instructor.

513. Socio-Economic Information in Counseling. (3)

514. Organization and Supervision of Counseling Services. (3)

515. Using Tests in Counseling. (3)
{Fall, Spring}

516. Clinical Case Study. (3)

517. Theories of Counseling. (3)
Prerequisites: 520, 530. {Summer, Fall, Spring}

518. Group Counseling. (3)
Pre- or corequisite: 517. {Summer, Fall, Spring}

520. Foundations of Counseling. (3)
{Summer, Fall, Spring}

521. Techniques of Counseling Laboratory. (1)
Prerequisites: 520, 530. Corequisite: 517.

530. Dynamics of Human Behavior. (3)
{Summer, Fall, Spring}

531. Theories of Human Interaction. (3)
{Fall, Spring}

540. Counseling in the Elementary School. (3)

541. Counseling and Play Therapy with Children. (3)

542. Counseling in Secondary Schools. (3)
Prerequisite: 517.

560. Family Counseling. (3)
(Also offered as FS 560.)
Prerequisites: 420, 430, 517, and a course in the study of the family. {Fall, Spring}

561. Counseling Issues in Death and Dying. (3)

562. Non-Sexist Counseling. (3)
Prerequisite: 517. {Spring}

575. Values Clarification. (3)
Prerequisite: permission of instructor.

576. Medical Aspects in Counseling. (3)

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580. Psychosocial Aspects of Disability. (3)

581. Sexuality in Counseling and Psychotherapy. (3)

582. Treatment Approaches in Human Sexuality. (3)
Prerequisite: 581 or permission of instructor.

590. Practicum in Counseling. (1-6)
Prerequisites: 520, 530, 517, 518, permission of instructor. {Summer, Fall, Spring}

591. Problems. (1-3, to a maximum of 6)
Prerequisite: permission of instructor.

592. Workshop in Counseling. (1-4)
For degree restrictions, consult the Graduate Programs Bulletin.

593. Topics. (1-3)

595. Field Practicum. (3-6)
Prerequisites: permission of instructor and major in the department. {Summer, Fall, Spring}

596. Internship in Rehabilitation. (1-12)
Prerequisites: 420, 430, 517, 518, 590.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

610. Professional Issues and Ethics. (3)

620. Seminar in Counseling. (3)

621. Advanced Theories of Counseling and Psychotherapy. (3)

622. Advanced Group Counseling and Psychotherapy. (3)

630. Advanced Practicum in Counseling, Counselor Education, and Supervision. (3-6)

696. Internship. (3-6, to a maximum of 12)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirement.

FAMILY STUDIES (FS)

130L. Food Science. (3)
Principles of selection and preparation of food including economic aspects. 2 lectures, 3 hrs. lab. {Offered upon demand}

181. Introduction to Family Studies. (3)
Introduction to content matter covered in department as well as career opportunities. Required of all majors. {Fall}

202. 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}

207L. Infant Laboratory. (1)
Observation of infants, 2 hours per week. Required to be taken concurrently with 202 by FS Child Development and Family Relations (CDFR) students; may be elected by non-majors, with 202 as a corequisite. {Fall, Spring}

208. Theories of Child Development and Family Relations. (3)
Overview of significant theories and research for better understanding children's development and family interaction. {Spring}

213. Marriage and Family Relationships. (3)
Survey of research in premarital, marital, and family relationships. {Fall, Spring}

244. Consumer Decisions. (3)
Role of the family member as a consumer and exploration of the resources available for purchase decisions. {Fall, Spring

258. Clothing and Human Behavior. (2)
An interdisciplinary approach to study of clothing including factors of clothing in behavior and decision-making. {Spring}

293. Topics. (1-3)Δ

304. Growth and Development in Middle Childhood. (3)
Principles of growth and development for 6-to 11-year-olds in cognitive, physical-motor and social-emotional areas. Influences on development included.
Prerequisite: 3 hrs. in child development in FS or Psych 102 or Ed Fdn 300. {Fall}

310. Friends & Intimate Relationships. (3)
This course reviews the research concerning friends and intimate relationships. The focus of the course will be on the dynamics characteristic of friendship and other intimate relationship excluding marriage and family relations. {Fall}

312. Parent-Child Interactions. (3)
Dynamic interactions of parents and children throughout the life cycle in diverse family configurations.
Prerequisite: 3 hrs. in FS or Psych 102 or Ed Fdn 300 {Fall, Spring}

313. Contemporary Family Lifestyles. (3)
Analysis of current lifestyles of families including single parent, remarried, same sex, cohabitants.
Prerequisite: 213 for majors; Psych 102 or Soc 101 for others. {Fall, Spring}

315. Adolescent Development in the Family. (3)
Development and communication patterns of adolescents within the family setting.
Prerequisite: 3 hrs. in child development FS or Psych 102 or Ed Fdn 300. {Fall, Spring}

341. Ecological Aspects of Housing. (3)
Variations in housing structures and the impact of housing on family functioning. {Offered upon demand}

342. Computer Applications in the Home. (3)
A survey of computer applications for family use to include managerial and educational activities, impact of current technology on family relationships and attitudes concerning computer usage.
Prerequisite: Ed Fdn 124. {Fall, Spring}

343. Family Management Theories. (3)
Comparison of current theories of family management.
Prerequisite: 213 for majors; Soc 101 or permission of instructor for others. {Fall}

391. Problems. (1-3)

***403. Growth and Development of the Preschool Child. (2)**
Developmental principles and recent research on cognitive, physical and social-emotional development of the preschool child.
Prerequisites: 202 or permission of instructor; junior standing; corequisite: 407L. {Fall, Spring}

***407L. Preschool Child Laboratory. (1-2)**
Laboratory experience in child care center to be taken concurrently with 403. Includes participation or observation/participation. Hours arranged.
Prerequisites: 202, 207L, or permission of instructor.

***409L. Organization and Management of Early Childhood Programs. (3)**
Prerequisite: 403 or the equivalent. {Offered upon demand}

***411. Marriage and Family Life Education. (3)**
Philosophies and processes of marital and family life education programs. Includes learning how to develop, implement and evaluate programs.

***415. Aging and the Family. (3)**
The impact of aging upon family functioning.
Prerequisite: 3 hrs. in human growth and development. {Fall, Spring}

443. Application of Family Management Theories. (3)
Working with adult family members to identify and help meet family demands with an emphasis on family resource use.
Prerequisite: 343. {Fall, Spring}

***444. Family Finance. (3)**
Financial decisions of the family throughout the life cycle.
Prerequisite: a basic course in economics. {Fall, Spring}

***481. Family and Public Policy. (3)**
Synthesis of issues in family studies with emphasis on the formulation and impact of public policies.
Prerequisite: major in department or permission of instructor. {Spring}

***493. Topics. (1-3)**

***494. Practicum. (3-6)**
Designed to give the student practical experience in a specified area of Family Studies.
Prerequisites: major in department, upper division standing, and permission of instructor. {Summer, Fall, Spring}

495. Field Experience. (3-6)
Planned and supervised field experience in agency or institutional setting.
Prerequisite: major in department, upper division standing and permission of instructor. {Summer, Fall, Spring}

501. Parent Education. (3)
Prerequisites: Graduate standing with a minimum of 6 credit hours in child development, early childhood education, family relationships, and/or developmental psychology.

503. Seminar in Human Growth and Development. (3)
(Also offered as Ed Fdn 503.){Fall, Spring}

506. Young Child at Home and School. (3)
Prerequisite: A course in child development or developmental psychology.

512. Working with Parents and Children. (3)
Prerequisite: permission of instructor.

513. Seminar-Current Issues in Family Studies. (3)
Prerequisite: A course in Family Studies.

517. Family Interaction. (3)
Prerequisite: permission of instructor. {Spring}

543. Managing Family Resources. (3)
Prerequisite: A course in home management theories or permission of instructor {Fall}

560. Family Counseling. (3)
(Also offered as Couns 560.)
Prerequisites: Couns 420, 430, 517, and a course in the study of the family. {Fall, Spring}

570. Family Studies Research. (3)
Prerequisite: required of FS graduate majors. {Fall, Spring}

591. Problems. (1-3 hrs. each semester)

592. Workshop. (1-4)
For restrictions, consult the Graduate Programs Bulletin.

593. Topics. (1-3)

598. Directed Readings in Family Studies. (3-6, to a maximum of 6)

599. Thesis. (1-6)

696. Internship. (3-6, to a maximum of 12)

FAMILY STUDIES EDUCATION (FS ED)

361. Pre-Student Teaching Experience in Secondary Education. (3)
2 hrs. lecture, 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. (3-12, to a maximum of 15)
Prerequisite: 437; concurrent: 465, FS 443L. {Fall, Spring}

465. Seminar: Vocational Home Economics Education. (3)
Trends in vocational home economics education. {Offered upon demand}

***475. Evaluation in Family Studies Education. (3)**
The use of methods of assessment and program evaluation for family studies programs with special emphasis on measures appropriate for the classroom.
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 or equivalent and teaching experience. {Offered upon demand}

***492. Workshop. (1-4)**
For degree restriction see college requirements for degree in this catalogwe 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 college requirements for departmental honors. {Offered upon demand}

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)

Symbols - See page 379

CURRICULUM AND INSTRUCTION IN MULTICULTURAL TEACHER EDUCATION

William A. Kline, Chairperson
MESA VISTA 3081, 277-4114

PROFESSORS:

F. Keith Auger, Ed. D., University of Illinois
David W. Darling, Ed. D., University of Texas (Austin)
Donald E. Kelly, Ed. D., Arizona State University
William A. Kline, Ph. D., Stanford University
Catherine E. Loughlin, Ed. D., Rutgers University
Sara Dawn Smith, Ph. D., University of Maryland
George C. Stoumbis, Ed. D., University of Oregon
Paul W. Tweeten, Ph. D., University of Iowa
Richard D. Van Dongen, Ed. D., University of New Mexico
Robert H. White, Ph. D., University of Arizona

ASSOCIATE PROFESSORS

Dean G. Brodkey, Ed. D., University of California
Zelda Maggart, Ph. D., University of New Mexico
Marlis E. Mann, Ed. D., Arizona State University
Sigmund A. Mierzwa, Ph. D., Stanford University
Sandra J. Odell, Ph. D., University of New Mexico
Leroy I. Ortiz, Ph. D., University of New Mexico
Anita B. Pfeiffer, M. A., University of Arizona
Patrick B. Scott, Ed. D., Columbis University

ASSISTANT PROFESSORS:

Federico Carrillo, Ph. D., University of New Mexico
Luisa C. Duran, Ph. D., University of New Mexico
Priscilla Norton, Ed. D., U. S. International University
Lynette Oshima, Ed. D., University of Indiana
Joseph H. Suina, Ed. D., University of New Mexico
Donald A. Zancanella, Ph. D. X

LECTURERS:

Linda M. Meyers Day, M. A., University of New Mexico
Thomas P. Keyes, M. Ed., Boston College

PROFESSORS EMERITI:

Leroy Condie, Ph. D., University of New Mexico
Bonner M. Crawford, Ph. D., University of Michigan
Harold D. Drummond, Ed. D., Stanford University
George Hirshfield, Ed. D., University of New Mexico
Wilson H. Ivins, Ed. D., University of Colorado
Mari-Luci Jaramillo, Ph. D., Universith of New Mexico
Robert D. Kline, Ph. D., Syracuse University
Peter Prouse, Ph. D., Northwestern University(deceased)
William B. Runge, Ed. D., University of Southern California
Halene Weaver, M. A., University of Arizona
Miles V. Zintz, Ph. D., University of Iowa

CURRICULUM AND INSTRUCTION IN MULTICULTURAL TEACHER EDUCATION (CIMTE)

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 accomodates the learning styles of children.

192. Workshop: The Paraprofessional in the Classroom. (1-6) §
To be taken concurrently with 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 128, and the opportunity for students to initiate extensive development of activities, classroom management, and teacher skills.

233. Language/Arts Methods for Paraprofessionals. (2)
An introductory language arts methods course appropriate for teacher aides working in elementary school settings. Attention will be given to language acquisition, observation of children's language, planning language experiences for children, and the role of the adult in children's language development. {Offered upon demand}

260. Physical Science. (4) Kidd, Tweeten
(Also offered as NS 261.) 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. For elementary and middle school teachers only.
Prerequisite: permission of instructor.

261. Mathematics Methods for Paraprofessionals. (2)
Hands on experience with materials appropriate for teacher aides in elementary school mathematics. Much attention will be given to diagnosing students' understanding so that proper activities can be assigned for problem solving as well as drill and practice. {Offered upon demand}

262. Life Science. (4) Kidd, Tweeten
(Also offered as NS 262.) Deals with man's peaks of discovery in biology. For elementary and middle school teachers only.
Prerequisite: permission of instructor.

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)

296. Internship. (3-6, to a maximum of 12)

298. Music for the Elementary Teacher. (3)
(See Mus Ed 298.)

300. Bilingual Teaching Methods-Materials and Techniques. (3-9) Carrillo, 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, Smith
Strategies and materials of effective learning experiences and classroom organization for young children. {Summer, Fall, Spring}

§ Open to students in the A.A. in Education (Elementary) pro-

319. Physical Education in the Elementary School. (3)
(Also offered as PE-P 217.) Introduction to all methods of teaching elementary physical education. 4 class meetings a week. {Summer, Fall, Spring}

321L. Teaching of Social Studies in the Elementary School. (3) Auger, Kelly, Ortiz, Oshima, Suina
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)
Duran, Maggart, Norton, 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, 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, Tweeten
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}

362. Pre-Student Teaching Experience I. (3)§§
3 hrs. seminar, 6 hrs. field work weekly. {Fall, Spring}

363. Pre-Student Teaching Experience II. (3)
{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)
Pre- or corequisite: 321L, 331L, 333L, 353L, 361L. Additional requirements are listed in previous section entitled "Student Teaching". Special fee of $10. 00 is charged. {Fall, Spring}

404. Planning Early Childhood Learning. (3)
To be taken with senior block.
Corequisite: 400. {Fall, Spring}

***421. The Social Studies Program in the Elementary School. (Estudios Sociales en las Escuela Primaria.) (3)**
Auger, Kelly, Ortiz, Oshima
Overview and development of the social studies curriculum within the contexts of the elementary school program and multicultural community settings.
Prerequisite: 321L. {Summer 1985 and alternate years, Fall}

***425L. Teaching of Biology. (3) §§**
Prerequisites: 362 or 363 and Biol 123L. 2 lectures, 3 hrs. lab.

***429. Teaching of Mathematics. (3)** Scott
Prerequisites: 362. {Fall, Spring}

430. Teaching of Communication Arts. (3) White, Zancanella
Prerequisites: 362 or 363, and Ling 292L or Engl 440. {Spring}

431. Teaching of Sciences. (3) Tweeten
To be taken concurrently with 362 or 363. {Fall, Spring}

432. Teaching of Social Studies. (3) Oshima
Prerequisite: consult instructor for prerequisites. {Fall, Spring}

***433. Oral and Written Language Program in the Elementary School. (Lenguaje Oral y Escrito en la Escuela Primaria.) (2-3)** Duran, Ortiz
The development extension/elaboration and analysis of the language arts in both home language and English language. Creative methods and materials. {Fall}

434. Teaching Art in Secondary School. (3)
(See Art Ed 460.)

***435L. Remedial Reading Problems. (3)** Maggart
Designed to meet needs of 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. Teaching of English. (3) White, Zancanella
Prerequisites: 362 or 363, and Ling 292L or Engl 440. Carries credit both in education and in English. {Fall}

***437. Teaching of Home Economics. (3)** Smith
(See FS Ed 437.)

***438. Teaching Reading and Writing in the Content Field. (3)** Norton, Oshima, White
Prerequisite: classroom teaching experience or permission of the department. {Fall, Spring, Summer}

439. Diagnosis and Prescription in Elementary School Reading. (3) Maggart, Norton
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: 331L or permission of instructor. {Fall}

***440. Teaching of French. (3)**
(Also offered as French 440.)
Prerequisite: 362 or 363. {Spring}

***441. Teaching of Spanish. (3)** Carrillo
(Also offered as Span 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: 362 or 363. {Fall, Spring}

***442. Teaching of Reading. (3)** White
Includes two hours supervised lab each week.
Prerequisites: 362 or 363 and Ling 292L or Engl 440. {Fall}

§§ Students in 362 must enroll concurrently in the appropriate section of Ed Fdn. 303 and 310.

EDUCATION

Symbols - See page 379

***443. Children's Literature. (Literatura Infantil.) (3)** Van Dongen
(Also offered as EM/LS 443 543.) A survey course of the field of childrens' literature. Focuses on knowledge and practice of literature, literary response, and classroom programs. K-8.
Pre- or corequisite: 331L. {Summer, Fall, Spring}

444. Teaching of Physical Education. (3)
(Also offered as PE-P 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 may also be taken by others who are interested in a teaching experience.
Prerequisites: 362 or 363 and permission of instructor. {Offered upon demand}

446. Games and Songs of New Mexico. (3) Duran
Course to cover theory and content of the games and songs of the culture in which course is offered.
Prerequisite: proficiency in the language in which the course is taught. {Summer, and upon demand}

***448. Career Education. (3)** Darling
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)** Carrillo
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.), 362 or 363, 441, and permission of instructor. {Fall and upon demand}

***450. Teaching in Bilingual Programs in Secondary Schools. (3)** Carrillo
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: 362 or 363, and permission of instructor. {Spring and upon demand}

***453. The Science Program in the Elementary School. (3)**
Duran, Tweeten
Prerequisite: 353L. {Summer, Spring}

***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, Mierzwa
{Summer, Fall}

462. 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 in previous section entitled "Student Teaching". {Fall, Spring}

463. Professional Education Block. (12)
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.

464. Student Teaching. (3-6-9, to a maximum of 15)
A second student teaching experience.

465. Microcomputers in Schools. [Microccomputers Application in Elementary Education] **(3)** Norton, Scott
An introduction to the use of LOGO, word processing, simple data base management and computer assisted intruction in schools.
Prerequisite. Ed Fdn 124. {Summer, Fall, 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.

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)** Carrillo
(Also offered as M Lang 480.)

***481. Education Across Cultures in the Southwest. (3)**
Carrillo, Duran, Kelly, Ortiz, Pfeiffer
(Also offered as Ed Fdn 481.) {Summer, Fall, Spring}

***482. Teaching English as a Second Language. (3)**
Brodkey, Duran, Pfeiffer, White
Prerequisites: Ling 292L or Engl 440 (may be taken concurrently) and permission of instructor. {Spring}

***490. Reading in the Content Area--Music. (3)** Dodson, Van Dongen
(Also offered as Mus Ed 493.) Discovering the ways music education can be employed as a positive influence in teaching of 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. {Offered upon demand}

***492. Workshop. (Taller Pedagogico.) (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)Δ**
{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. {Summer, Fall, Spring}

497. Reading and Research in Honors. (3-6)
Prerequisites: for degree restrictions, see the section in Education entitled "Requirements for Graduation". {Offered upon demand}

500. Advanced Instructional Strategies. (3) Auger, Loughlin, Mierzwa, Kelly, Ortiz
Prerequisite: permission of instructor. {Summer, Fall, Spring}

501. High School Curriculum. (3)

502. The Junior High School. (3)

503. Student Activities in the Secondary School. (3)
{Summer, Fall}

506. The Middle School. (3)
{Fall or Spring, Summer upon demand}

507. Developing Curriculum for Middle Schools. (3)
{Fall or Spring, Summer upon demand}

508. Instructional Strategies for Middle Schools. (3)

509. Seminar in Supervision of Field Experiences. (1-3)

510. Curriculum Appraisal and Improvement of School Programs. (3) Stoughton, Stoumbis

511. Curriculum in the Elementary School. (3-12) Auger, Darling, Duran, Kelly, Ortiz, Smith
{Summer, Fall, Spring}

512. Arranging Learning Environments. (3) Auger, Loughlin, Ortiz, Van Dongen
{Spring, Upon demand}

513. The Process of Teaching and Learning. (3) Norton, Odell, Van Dongen
Prerequisite: permission of instructor. {Fall}

514. Young Children Moving into Literacy. (3) Maggart, Van Dongen
Prerequisites: 331L and 333L. {Fall}

515. Remedial Teaching Techniques. (3)
Also offered as CIMTE 535.

516. Integrating Curriculum in the Classroom. (3)
Pre- or corequisites: 500, 542 or equivalent.

517. Reading Informational Books, an Instructional Strategy. (3) Van Dongen
Prerequisites: 500, 542 or equivalent. {Spring and alternate Summers}

520. Instructional Trends in the Communication Arts. (3) Zancanella
{Fall and upon demand}

521. Seminar in the Social Studies. (3-12) Kelly, Ortiz, Oshima, Pfeiffer

522. Seminar in English Curriculum and Instruction. (3) Zancanella
{Offered upon demand}

527. Studies in Rhetoric for Teachers. (3)Δ Zancanella
(Also offered as Engl 527.)

528. Studies in Reading and Literature for Teachers. (3) Zancanella
(Also offered as Engl 528.)

530. Seminar in Science Teaching. (3) Tweeten

531. The Reading Program in the Elementary School. (El Programa de Lectura en la Escuela Primaria.) (2 or 3) Duran, Maggart, Norton, Oshima,
Prerequisite: 331L. {Summer, Fall, Spring}

532. The Reading Process. (3) Maggart, Norton, White
Prerequisites: 531 and permission of instructor. {Spring 1984 and alternate Summers.}

533. Seminar in the Language Arts. (3-12) Ortiz, Zancanella
{Spring}

534. Seminar in Teaching Reading. (3-12) Maggart, White
Prerequisite: 531. {Spring and alternate Summers}

535L. Remedial Teaching Techniques. (3) Maggart

537. Practicum in Learning Disabilities (Reading). (3) Maggart
Includes 3 hrs. supervised laboratory each week.
Prerequisites: 435L and 534 or 520. 3 lectures, 1 hr. lab.
{Alternate Springs and Summers}

538. Teaching Reading through the Content Field. (3) Norton, Oshima, Van Dongen, White
Prerequisite: classroom teaching experience or permission of the department. {Fall, Spring, Summer}

540. Instructional Trends in the Social Studies. (3) Oshima

541. Seminar in Children's Literature. (3-12) Van Dongen

542. Principles of Curriculum Development. (3)
{Fall}

544. Children's Literature. (3) Van Dongen
(Also offered as EM/LS 543.) {Fall, Spring, Summer}

549. History Education. (3) #
(Also offered as Hist 549.)

550. Seminar in History Education. (3)
(Also offered as Hist 550.)
Prerequisite: 549.

553. Seminar in Teaching Elementary Science. (3-12) Duran, Tweeten

556. Proseminar in Problems of Language Instruction. (3)
(See Spanish 543.)

560. Supervision of Instruction (Elementary). (3) Auger, Kelly, Smith, Tweeten
(Also offered as Ed Adm 560.)

561. Seminar in Teaching Mathematics. (3-12) Darling, Mierzwa, Scott

562. Practicum in the Supervision of Instruction. (3) Auger, Smith,
May be repeated for a maximum of 12 hrs. {Fall, Spring}

565L. Diagnostic and Corrective Techniques in Mathematics Teaching. (3)
Prerequisite: 461. {Offered upon demand}

574. Curriculum for Early Childhood. (3) Englebrecht, Loughlin, Mann, Smith
Prerequisite: FS 403L. {Summer, Fall}

575. Early Childhood Language Development/Curriculum. (3)
Duran, Mann

576. Early Childhood Visual/Motor Development & Curriculum. (3) Duran

579. Seminar in Early Childhood Education. (3-12) Loughlin, Mann, Smith
Prerequisites: 501 and permission of instructor. {Summer 1988 and alternate years, Spring}

581. Seminar in the Education of the Bilingual Student. (3) Carrillo, Duran, Ortiz, Pfeiffer
(Also offered as Ed Fdn 481.) {Fall and upon demand}

582. Curriculum Development in Multicultural Education. (3) Carrillo, Duran, Ortiz, Pfeiffer
Prerequisites: 581 and permission of instructor. {Spring and upon demand}

590. Seminar. (3)
{Summer, Fall, Spring}

591. Problems. (1-3, to a maximum of 6)

Available for graduate credit except for graduate majors in Economics or History.

Symbols - See page 379

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)

597. Directed Readings in Secondary and Adult Teacher Education. (3-6, to a maximum of 6)

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.

611. Curriculum Appraisal and Improvement of School Program. (3) Darling, Kelly, Smith

643. Curriculum Theory Seminar. (3) Darling, Drummond, Kelly, Smith
Prerequisite: permission of instructor.

681 and 682. [681-682] **Seminar in Multicultural Teacher Education.** [Seminar in Multicultural Teacher and Childhood Education] **(3, 3)**
681 offered Fall and Spring
682 offered on demand
Prerequisite for 681: Admission to Doctoral Study
Prerequisite for 682: Cimte 681

690. Dissertation Seminar. (3)
{Fall, Spring}

694. Practicum in the Supervision of Instruction. (3)
May be repeated to a maximum of 12 hours. {Fall, Spring}

696. Internship. (3-6, to a maximum of 12)

698. Directed Readings in Elementary/Secondary Teacher Education. [Directed Readings in Secondary and Adult Teacher Education] **(3-6, to a maximum of 12)**

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

EDUCATIONAL ADMINISTRATION

Mike Milstien, Chairperson
Education 211, 277-4533

PROFESSORS:

Ronald E. Blood, Ph. D., Claremont Graduate School
S. Gregory Bowes, Ed. D., Northern Illinois University
David Colton, Ph. D., University of Chicago
Ignacio R. Cordova, Ed. D., University of New Mexico
Mike Milstein, Ph. D., University of California
Paul A. Pohland, Ph. D., Washington University
Alex Sanchez, Ed. D., New Mexico State University

ASSOCIATE PROFESSORS:

Breda Bova, Ph. D., University of New Mexico
Gene LeDoux, Ph. D., University of New Mexico
Carolyn J. Wood, Ph. D., Washington University

ASSISTANT PROFESSOR:

Gary Anderson, Ph. D., Ohio State University
Jon M. Facey, Ph. D., University of New Mexico

LECTURER:

Bettye Bobroff, Ph. D., University of Texas(Austin)
Ernest S. Stapleton, M. A., University of New Mexico

PROFESSORS EMERITI:

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
Richard F. Tonigan, Ed. D., Columbia University
Horacio Ulibarri, Ed. D., University of New Mexico

The programs offered in this department are at the graduate level. For information concerning these programs, consult the Graduate Programs Bulletin.

EDUCATIONAL ADMINISTRATION (ED ADM)

504. The Two-Year College Curriculum. (3)

509. Organizational Analysis. (3) Wood
{Summer, Fall, Spring}

510. School-Community Relations. (3) Bova
Prerequisite: 509. {Summer, Fall, Spring}

512. Public Education in New Mexico. (3) Cordova, Stapleton
{Summer, Fall, Spring}

520. The School Principalship. (3) Anderson, Bobroff
Prerequisite: 509. {Summer, Fall, Spring}

521. Public School Finance. (3) LeDoux
{Fall, Spring, Summer}

522. School Business Management. (3) LeDoux
{Summer, Fall, Spring}

526. Educational Planning and the School Plant. (3) LeDoux
Prerequisite: a course in curriculum. {Spring}

530. Administration of Adult Education. (3) Bowes
{Fall}

531. Administration of Staff Personnel. (3) Pohland
Prerequisites: 509, 520. {Summer, Spring}

532. Current Educational Problems. (3)
{Offered upon demand}

560. Supervision of Instruction (Elementary and Secondary). (3) Pohland, Wood
(Also offered as CIMTE 560.)
Prerequisites: 509, 520 for administration majors. {Summer, Fall, Spring}

561. School Law. (3) Colton
Prerequisite: 509. {Summer, Fall, Spring}

564. School and Community Surveys. (3) LeDoux
Prerequisite: 510. {Fall}

571. State and Federal Educational Administration. (3) Colton
Prerequisites: 509, 510. {Summer, Spring}

581. Seminar in Educational Administration. (3) Δ
Prerequisite: permission of instructor. {Summer, Fall, Spring}

591. Problems. (1-3, to a maximum of 6)
Prerequisite: permission of instructor. {Summer, Fall, Spring}

592. Workshop in Educational Administration. (1-4)
{Offered upon demand}

593. Topics. (1-3)
{Summer, Fall, Spring}

595. Advanced Field Experiences. (3-6, to a maximum of 12)
Prerequisite: permission of instructor. {Offered upon demand}

596. Internship. (3-6, to a maximum of 12)

598. Directed Readings in Educational Administration. (3-6, to a maximum of 6)
Prerequisite: permission of instructor.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements. {Summer, Fall, Spring}

605. Qualitative Research in Education. (3) Pohland
(Also offered as Ed Fdn 605.)
Prerequisite: Ed Fdn 501 or equivalent. {Fall}

610. Organizational Change: Theory and Processes. (3) Wood
Prerequisites: advanced graduate standing, 509 and permission of instructor. {Spring}

626. Educational Buildings and Equipment. (3)
Prerequisite: 526. {Offered upon demand}

629. Seminar for Practicing School Administrators. (1-3)
{Offered upon demand}

630. Administration in Higher Education. (3) Sanchez
Prerequisite: permission of instructor. {Fall}

695. Field Experiences in Educational Administration. (1-6, to a maximum of 6)
Prerequisite: permission of instructor. {Offered upon demand}

696. Internship. (3-6, to a maximum of 12)
Doctoral Students only.
Prerequisite: permission of instructor.

698. Directed Readings in Educational Administration. (3-6, to a maximum of 12)
Prerequisite: permission of instructor.

699. Dissertation. (3-12 hrs. per semester)

EDUCATIONAL FOUNDATIONS

Gladys Levis-Pilz, Chairperson
Student Services Center B26, 277-5141

PROFESSORS:

David L. Bachelor, Ph. D., University of Chicago
Mary B. Harris, Ph. D., Stanford University
Vera P. John-Steiner, Ph. D., University of Chicago
Wayne P. Moellenberg, Ed. D., Colorado State College
Candace G. Schau, Ph. D., Iowa State University
John T. Zepper, Ed. D., University of Missouri

ASSOCIATE PROFESSORS:

Rupert A. Trujillo, Ed. D., University of New Mexico (Dean, Continuing Education)
Andre A. Vierra, Ph. D., Univerity of New Mexico

ASSISTANT PROFESSORS:

Tony Lam. Ph. D., University of Washington
Gladys Levis-Pilz, Ph. D., Northwestern University
Joseph G. R. Martinez, Ph. D., University of New Mexico
Ann Nihlen, Ph. D., University of New Mexico
Shiame Okunor, Ph. D., University of New Mexico
Cynthia T. Wolf, M. L. S., Denver University

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
James C. Moore, Ph. D., Arizona State University
Louis A. Rosasco, Ed. D., New York University
Albert W. Vogel, Ed. D., American University

EDUCATIONAL FOUNDATIONS (ED FDN)

124. Microcomputer Awareness for Educators. (1)
An introduction to microcomputers, software, and several programming languages useful in educational applications. {Summer, Fall, Spring}

181. Seminar for Returning Women Students. (3)
(Also offered as W 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, Okunor, Zepper
An introduction to the philosophical, social, historical, and comparative foundations of education. {Summer, Fall, Spring}

291. Problems. (1-3)

303. Human Growth and Development. (1-3) Harris, John-Steiner, Levis-Pilz, Moellenberg, Nihlen, Schau
Principles of growth and development and implications for the school curriculum. {Summer, Fall, Spring}

Symbols - See page 379

310. Learning and the Classroom. (3) Harris, John-Steiner, Martinez, 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 linguistics 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) Harris, Lam, Moellenberg, Vierra
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 Spc Ed 383.) Educational trends, issues and problems of the Mexican-American and the solutions necessary to alleviate these problems.

384. Women and Self-Education. (3) Nihlen
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)

393. Topics. (1-6)

***401. U. S. Politics and Education. (3)** Garcia
(Also offered as Pol Sc 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)** Moellenberg, Nihlen
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, Fall, Spring}

***410. Principles of Classroom Learning. (3)** Martinez, 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, Spring}

***411. History of American Education. (3)** Zepper
The development of American education from the Colonial period to the present. An analysis of the contributions of teachers, statesmen, philanthropists, psychologists, sociologists, and philosophies to educational thought and practice in the U. S. A.
Prerequisite: a course in American history.

***412. History of Education. (3)** 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) Zepper
A survey of philosophical systems and their application to education.
Prerequisite: 290 or equivalent. {Summer, Fall, Spring}

***420. Theories of Small Group Communication. (3)**
(Also offered Sp Com 425.) Major concepts, theories and research in small group communication. Attention to decision-making, group formation and development, and communication processes and networks. Consideration of applications in a variety of contexts. {Fall, Spring}

***421. Sociology of Education. (3)** Bachelor
(Also offered as Soc 421; Soc 421, however, does *not* carry graduate credit.) 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, Nihlen, Vierra
An overview of educational implications from the field of anthropology. {Fall, Spring}

***474. Principles of Educational and Psychological Measurement. (3)** Harris, Lam, Moellenberg, Vierra
An analysis of the educational and psychological tests used in a school testing program.

***481. Education Across Cultures in the Southwest. (3)**
(Also offered as CIMTE 481.) {Summer, Fall, Spring}

486. Psychological Development of Women. (3) John-Steiner
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)** Nihlen
(Also offered as W St 487; W St 487, however, does *not* carry graduate credit.) 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, W St 200, and permission of instructor.

***493. Topics. (1-3)Δ**

***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, Nihlen, Vierra, Zepper
(Also offered as Art Ed 585.) {Summer, Fall, Spring}

501. Fundamental Statistics in Education I. (3) Harris, Martinez, Moellenberg, Schau, Vierra
{Summer, Fall, Spring}

503. Seminar in Human Growth and Development. (3) Harris, Moellenberg
(Also offered as FS 503.)

504. Mainframe Computer Software Use in Education. (3) Schau, Vierra
Prerequisite: 501 or permission of instructor.

505. Planning and Conducting Educational Research. (3) Harris
Prerequisite: 501 or equivalent.

507. Reseach Design in HPER. (3)
(Also offered as PE-P, H Ed, Recrea 507.)

510. Seminar in Classroom Learning. (3) Harris, Martinez, Moellenberg, Schau
{Spring}

513. Aging and Education. (3) Moellenberg
(Also offered as Educ 513.) {Fall, Spring}

515. Philosophies of Education. (3) Zepper
Graduate students taking this course for certification only should enroll in Ed Fdn 415. {Summer, Fall, Spring}

516. Educational Classics. (3) DeSantes, Okunor, Zepper

517. Educational Ideas in Literature. (3)

518. Comparative Education. (1-3)Δ Bachelor, Okunor, Zepper

523. Ethnographic Research in the Classroom. (3) Levis-Pilz, Nihlen, Vierra
Prerequisite: 422 or permission of instructor.

524. Computers in the Educational Process. (3)
Prerequisite: permission of instructor.

533. Behavior Modification in Education. (3) Harris

555. Seminar in Educational Linguistics. (1-3)Δ John-Steiner, Oller
(Also offered as Ling 555. See M Lang 555.)

562. Seminar. (3)Δ
(Also offered as Ling 562.)

563. Seminar in Language Acquisition. (3)
(Also offered as Ling 563.)

574. Theory and Construction of Educational Measures. (3) Harris, Lam
Prerequisite: 474, 501 or permission of instructor.

576. Cognition and the Gifted Child. (3)

581. Seminar: Sociology of Education. (3) Bachelor
(Also offered as Soc 521.)

586. Psychological Development of Women. (3) John-Steiner
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)Δ
For degree restrictions consult the Graduate Programs Bulletin.

593. Topics. (1-3)Δ

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 the Graduate Programs Bulletin for total credit requirements.

603. Statistical Design and Analyses in Education. (3) Harris, Lam, Martinez
Prerequisite: 501 or equivalent. {Summer, Fall, Spring}

604. Multiple Regression Techniques as Applied to Education. (4) Schau
Prerequisites: 504 and 603.

605. Qualitative Research in Education. (3)
(Also offered as Ed Adm 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) Zepper

645. Advanced Seminar in Foundations of Education. (3)Δ

650. Dissertation Seminar. (1-3) Harris, Levis-Pilz, Schau
Corequisite: 699. **(Offered on a CR/NC basis only.)**

651. Seminar in Educational Statistics and Data Processing. (1-3) Schau
Prerequisites: 504, 603 and permission of instructor. {Summer, Fall, Spring}

696. Internship. (3-6, to a maximum of 12)
Offered on a CR/NC basis only.

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 and media courses. Three programs in library/media 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 an 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 Foundations Department Chairperson.

MINOR STUDY FOR UNDERGRADUATES IN ARTS AND SCIENCES

Consult Educational Foundations Department Chairperson.

LIBRARY/MEDIA (EM/LS)

235. Video Laboratory for Educators. (2)
(Also offered as TOE 235.) 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.

247. Library and Media for Educators. (3)
An introductory course for educators. Explores the resources of library and media centers. Not intended for Library/Media certification.

Symbols - See page 379

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)
(Also offered as TOE 432.) Includes training in the use of media production and display equipment, production of graphic materials, overhead transparencies, slides, S8mm motion pictures, audio recordings, basic principles of black-and-white photography and criteria for effective design and use of media materials. Lab fee required.

433. Instructional Design and Development--A Systems Approach. (3)
(Also offered as TOE 433.) 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)
(Also offered as TOE 434.) Research into education uses of TV, operation of portable TV equipment; grapic, 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. (2)**
(Also offered as TOE 435.) 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.

436. S8mm Film-Production and Use in Learning Environments. (3)
Research on use and value of film in education; social, cultural, and experiential variables affecting learning from film. Operation and use of S8mm 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.

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.

443. Children's Literature. (3)
(Also offered as CIMTE 443.)
Pre- or corequisite: CIMTE 331L.

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 Libraries. (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)
(Also offered as TOE 532.)

533. Instructional Design and Development-A Systems Approach. (3)
(Also offered as TOE 533.)

534. TV Techniques and Use in Education. (3)
(Also offered as TOE 534.)
Prerequisite: 432 recommended as introductory course.

535. Interactive Video. (3)
(Also offered as TOE 535.)
Prerequisite: permission of instructor. {Fall, Spring}

536. S8mm 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.

543. Children's Literature. (3)
(Also offered as CIMTE 544.)

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 Libraries. [Microcomputer Automation in School Library Media Centers] **(3)**

592. Workshop. (1-4)
Consult the Graduate Programs Bulletin for restrictions.

HEALTH PROMOTION, PHYSICAL EDUCATION AND LEISURE PROGRAMS

John A. Gustafson, Chairperson
Johnson Gym Center 1155, 277-5248

PROFESSORS:

Hemming Atterbom, Ph. D., University of Oregon
Leon E. Griffin, Ed. D., University of Utah
Vivian Heyward, Ph. D., University of Illinois
Nicolaas J. Moolenijzer, Ph. D., University of Southern California
Richard L. Papenfuss, Ph. D., University of Utah
Elmer A. Scholer, Ph. D., University of Illinois
Armond H. Seidler, Ph. D., University of Illinois (Director, Facilities)
Neal Townsend, M. A., University of New Mexico

ASSOCIATE PROFESSORS:

Mary J. Campbell, Ph. D., Ohio State University
(Director, Physical Education and Recreation)
William De Groot, Ed. D., Arizona State University
Lorain F. Diehm, M. S., Kansas State Teachers College
Philip Elias Duryea, Ph. D., University of Nebraska
John A. Gustafson, Ph. D., University of Utah
Ernest Lange, Ed. D., University of New Mexico
(Coordinator, Therapeutic Programs)
Robert G. Ness, Ph. D., Stanford University
Charlotte L. Piper, M. A., University of New Mexico
Wendy M. Sandoval, Ph. D., Oklahoma State University
(Director, Health Promotion Program).

ASSISTANT PROFESSORS:

Nancy L. Carleton, Ph. D., Oklahoma State University
Carolyn Campbell, Ph. D., Cornell University
Gerald Gustafson, Ph. D., University of New Mexico
Michael J. Hammes, Ph. D., University of Utah
Kathleen M. Koehler, Ph. D., University of Illinois
(Urbana-Champaign)
Dennis Lobstein, Ph. D., Purdue University
Fred V. Perez, M. S., University of New Mexico
Steve Rubio, Ph. D., University of Utah
Catherine G. Stivers, Ph. D., Southern Illinois University

LECTURERS:

Wayne Barger, Lecturer III, University of New Mexico
Pam Cox, Lecturer III, University of New Mexico
Lawrence E. Willock, Lecturer III, University of New Mexico

ADJUNCT ASSOCIATE PROFESSORS:

Edward B. Cazzola, M. D., Texas Tech
Richard D. Lueker, M. D., University of Colorado
Waneta Coester Tuttle, Ph. D., University of New Mexico

ADJUNCT ASSISTANT PROFESSORS:

Edward G. Case, B. S., University of New Mexico
Daniel Fisher, M. D., University of Florida
Jack Albert Loeppky, Ph. D., 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 Nutrition/Dietetics, community health education, school health education and physical education. Non-teaching majors in Exercise Technology and Athletic Training are also offered. It offers undergraduate and graduate degree programs in recreation and Therapeutic Recreation designed to train recreation leaders and administrators.

HEALTH EDUCATION (H ED)

164. Standard First Aid. (3)
Preparation in knowledge and skills to meet the needs in situations when basic first aid care is needed. Students eligible for Standard First Aid Certification 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. Reproduction, contraception, sexually transmitted disease, sexual health and sexual dysfunctions are among areas examined. {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}

264. Advanced First Aid. (3)
{Summer}

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. Emotional Health and Interpersonal Relationships. (3)
Primary focus is on a frame work that enables an individual to manage the stresses of life and make them beneficial. Students will also discuss how the frame work provides direction for their life, provides goals and assists in minimizing and preventing conflict. In addition, students will apply the frame work to developing and maintaining healthy interpersonal relationships.
Prerequisites: 171, 260, Ed Fdn 290, 303, 310 or permission of instructor. {Fall}

345. Professional Experience in School and Community Health Education. (1-4)
Prerequisite: health education majors only. {Spring}

391. Problems. (1-3)
Prerequisite: permission of health education faculty member. {Summer, Fall, Spring}

400. Student Teaching in Elementary Schools. (1-5)
{Fall, Spring}

Symbols - See page 379

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)**
Students will examine a model for developing a marketing strategy for development, implementation and evaluation of a health education prevention program. Students will also discuss the procedures for program development and accountability. In addition, students will examine the concerns of the public education system and possible solutions to some of these concerns.

461. Student Teaching in the Secondary Schools. (1-6)
{Fall, Spring}

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15)
{Fall, Spring}

470. Methods of Teaching Health Education. (3) #
Development of needed competencies for teaching school health education. Emphasis on planning, teaching methodology, and observations, practice and critical study of problem areas related to classroom instruction.
Prerequisites: 171, 260, 333, Ed Fdn 290, 303, 310, EM/LS 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}

***473. Health Issues in Death and Dying. (3)**
An introduction to content in the area of death and dying: the dying process, grief, types and alternatives to funerals, out-of-body experiences, types of death, and community resources available for support. {Fall}

***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 of drug-related behavior in various populations.
Prerequisite: permission of instructor. {Spring}

477. Stress Management. (3)
Deals with multiple causes of stress and its resolutions. Emphasizes chief stressors of adults, self-responsibility for change, holistic approach, emotional/mental methods of stress reduction. {Fall, 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. {Summer}

***487. Physical Activity and Aging. (3)**
(Also offered as Recrea, P E-P 487.) Concerned with the process of aging as it affects physical activity and the potential of physical activity in adjustment to the process of aging. {Spring}

***492. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Office of Graduate Studies. For degree restrictions see the section in Education entitled "Requirements for Graduation" 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.
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)
{Summer}

504. Research Seminar. (1)

505. Foundations for a Philosophy in HPER. (3)
(Also offered as P E-P, Recrea 505.) {Summer, Spring}

506. Health Behavior. (3)
{Fall}

507. Research Design in HPER. (3)
(Also offered as P E-P, Recrea, Ed Fdn 507.)
Prerequisite: senior standing.

509. Public Relations for Health, Physical Education, Recreation and Sports Administration. (3) Price, Scholer
(Also offered as Recrea, P E-P 509.) {Fall}

511. Administrative Aspects of School and Community Health. (3)
{Summer}

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 171. {Fall}

572. Community Health Education Program Planning, Development, and Evaluation. (3)
Prerequisite: graduate status in Health Education. {Spring}

574. Epidemiological Principles for Health Educators. (3)
{Spring}

577. Stress Management. (3)
{Fall, 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}

Limited to juniors and seniors.

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)
Prerequisite: permission of instructor.

599. Master's Thesis. (1-6 hrs. per semester)
{Summer, Fall, Spring}

604. Research Seminar. (1)
(Also offered as P E-P, Recrea 604.)
Prerequisite: Departmental required research skills sequence.

696. Internship. (3-6, to a maximum of 12)
Prerequisite: permission of instructor.

698. Directed Readings in Health Education. (3-6, to a maximum of 12)
Prerequisite: permission of instructor.

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements. {Summer, Fall, Spring}

NUTRITION (NUTR)

125. Introductory Nutrition. (3)
Nutritive needs of normal individuals of all age groups; relation of nutrition to health. {Fall, Spring}

225. Food, Nutrition and Society. (3)
Food selection as influenced by cultural, psychosocial, economic factors, and by availability and merchandising. Effect of processing, additives, storage, preparation on nutritive value, safety, and palatability. Availability of food, maintenance of nutritional well-being as public policy issues.
Prerequisite: 125. {Fall}

292. Workshop. (1-4)

293. Topics. (1-3)

320. Methods in Nutrition Education. (3)
Principles of education basic to effective learning by individuals or groups. Selection and effective use of teaching materials and resources to promote the learning process.

321L. Food Service Management. (4)
Principles of organization and management applied to food service establishments.
Prerequisites: 330L and Mgt 361. 3 lectures, 4 hrs. lab. {Fall}

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. {Fall}

330L. Principles of Food Science. (4)
Scientific aspects of food properties, requiring some knowledge of nutrition and organic chemistry. Food processing and preparation in the context of chemical and physical properties of food.
Prerequisites: 225, Chem 212 or 301. Corequisite: Biol 239L. 3 lectures, 3 hrs. lab. {Spring}

391. Problems. (1-3)

406. Seminar, Community Nutrition. (3)
Classic and recent literature on community nutrition integrated with student experience. {Spring}

***424. Nutrition in the Life Cycle. (3)**
Nutritional assessment, physical growth and development, and the physiological basis for nutrient needs in pregnancy, lactation, infancy, childhood, adolescence and old age. Application to food selection patterns and the influence of social and cultural factors.
Prerequisites: 125 and a course in anatomy and physiology, and junior standing or higher. {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.

428. Diet Therapy. (3)
The adaptation of diets in the treatment of impaired digestive and metabolic conditions.
Prerequisites: 125, 325, Chem 212.

***492. Workshop. (1-4)**
Carries graduate credit when specifically approved by the office of graduate studies. For degree restriction, see college graduation requirements.

***493. Topics. (1-3)**

***495. Field Experience. (3-6, to a maximum of 12)**
Planned and supervised professional laboratory or field experiences in an agency or institutional setting.
Prerequisite: permission of instructor.

526. Nutrition Assessment. (3)
Prerequisite: 325 or permission of instructor.

528. Advanced Clinical Nutrition. (3)
Prerequisite: 428 or permission of instructor.

535. Seminar in Nutrition. (3)

591. Problems. (1-3)

592. Workshop. (1-4)

593. Topics. (1-3)

595. Advanced Field Experience. (3, to a maximum of 6)
Prerequisites: acceptance into a graduate program and permission of instructor.

PHYSICAL EDUCATION (P E-NP)

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.

Symbols - See page 379

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)
Intruction 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)
Acquaints 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 social dances such as fox trot waltz, lindy, rhumba, tango, and cha-cha.

125. Intermediate Ballroom Dance. (1)
Instruction dependent upon experience of students in basic movements of all segments of ballroom dance.

126. Modern Dance I. (1)
The techniques and practice of basic motor skills and their application to aesthetic communication.

128. Beginning Country Western Dance. (1)
Instruction in the basic movements of the Waltz, Two-Step, Swing, and Polka.

129. Intermediate Country Western Dance. (1)
Instruction dependent upon experience of students in basic movements of all segments of Country Western Dance.

130. Advanced Country Western Dance. (1)
Instruction in developing creative combination of Country Western Dance steps.

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.

154. Intermediate Racquetball. (1)
Instruction dependent upon experience and skills of students in basic fundamentals. Perfection of all strokes and strategies used in the game of racquetball.

158. Aerobic Dance I. (1)
Instruction in continuous movement using basic dance steps for improved cardiorespiratory endurance.
Fitness Test Fee

159. Aerobic Dance II. (1)
Instruction in a longer aerobic workout using more advanced dance steps for improved cardiorespiratory endurance.
Fitness Test Fee

160. Weight Training and Physical Conditioning. (1)
Individual training programs for development of general strength, tone, endurance, and weight control.
Fitness Test Fee

161. Developmental Physical Education--Weight Control. (1)
Combined weight training and running for overall development.
Fitness Test Fee

162. Jogging Fitness. (1)
Individualized running programs for improved cardiorespiratory endurance.
Fitness Test Fee

163. Intermediate Weight Training. (1)
Instruction in advanced weight-lifting principles and techniques as well as fitness related topics.
Fitness Test Fee

164. Fitness Fundamentals. (1)
Instruction in a variety of aerobic conditioning experiences and emphasizing a conceptual approach to movement.
Fitness Test Fee

165. Yoga. (1)
Introduction to five areas of yoga which are particularly significant to the Western World.

166. Intermediate Yoga. (1)
Instruction in more advanced techniques of Yoga emphasizing the physical aspects of Hatha Yoga.

167. Basketball Recreation. (1)
Instruction and practice of basic skills.

168. Basketball Competition. (1)
Instruction and practice of game skills in a team setting.

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. (1)
Instruction and practice of basic skills of soccer and speed-away.

174. Softball. (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 fees. 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)
(Also offered as Recrea 180.) 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.

183. Wilderness Experience. (2)
(Also offered as Recrea 183.) Creation of stressful situations 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. (2)
(Also offered as Recrea 190.) 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 (P E-P)

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. {Fall}

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}

Symbols - See page 379

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 CIMTE 319.) Introduction to all methods of teaching elementary physical education. 4 hrs. per week. {Summer, Fall, 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}

231. Basketball, Volleyball, Flag Football, Flickerball. (1)
Instruction and practice of advanced game skills, tactics and strategy of basketball, volleyball, flag football, and flickerball.
Prerequisite: physical education major or minor. {Fall, Spring}

232. Golf and Aerobic Dance [Golf and Dance] **(1)**
Comprehensive skill and knowledge in golf and aerobic 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. {Fall, 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, Spring}

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. {Fall, Spring}

238. Wrestling/Weight Training. [Wrestling or Modern Dance, Weight Training] **(1)**
Comprehensive skill and knowledge of wrestling and weight training.
Prerequisite: physical education major or minor. {Fall, Spring}

239. Dance. (1)
Comprehensive skill and knowledge in folk, square, and contra dance.
Prerequisite: physical education major or minor. {Fall, Spring}

245. Professional Laboratory Experience in Physical Education. (2)Δ
Designed to provide an introduction to the teaching of physical education. For physical education majors only. May be repeated to a maximum of 8 semester hours. {Fall, Spring}

260. Officiating in Sports. (2)Δ
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, Spring}

273. Introduction to Athletic Training. (2)
An introduction to the prevention and treatment of athletic injuries. {Fall, Spring}

275. Camp Leadership. (3)
(Also offered as Recrea 275.) To introduce students to camp experience and to study camping skills with emphasis on leadership functions. Field trips. {Fall}

277. Kinesiology. (3)
Science of human motion.
Prerequisites: Math 120, Biol 136, 139L. {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 skills, 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 145. {Fall, Spring}

292. Workshop. (1-4)
{Summer, Fall, Spring}

293. Topics. (1-3)
{Summer, Fall, Spring}

301. Teaching of Team Sports. (2)
Organization, methods, skills necessary to teach a wide variety of team sports.
Prerequisites: 231, 233, 234, 237, or permission of instructor. 4 hrs. per week. {Fall}

302. Teaching of Individual and Dual Sports. (2)
Organization, methods, skills necessary to teach individual and dual sports.
Prerequisites: 232, 235, 236, 238, or permission of instructor. 4 hrs. per week. {Spring}

303. Methods of Teaching Skiing. (3)
Organization and methods to teach skiing.
Prerequisites: skiing ability and experience and permission of instructor. {Fall}

304. Adapted Aquatics. (2)
Covers the theoretical and applied aspects of teaching aquatics to disabled populations. Students will have the opportunity to become certified as American Red Cross Adapted Aquatics Instructors.
Prerequisite: American Red Cross Water Safety Instructor Certification or permission of instructor. {Spring}

309. Teaching of Gymnastics. (2)
Organization, methods, and spotting techniques when teaching gymnastics.
Prerequisite: 115 or 117 or permission of instructor. 4 hrs. per week. {Spring}

310. Teaching of Dance in Schools. (2)
Organization and methods in teaching social, folk, and square dance.
Prerequisite: 239. 4 hrs. per week. {Fall}

318. Rhythms and Movement in Elementary Physical Education. (2)
Fundamentals of rhythm (and dance) and the development of movement education concepts and their application in teaching physical education in elementary schools. {Fall}

320. Teaching Alternatives in Elementary Physical Education. (2)
Programming for extra curricular activities, developing management skills and managing equipment and materials when teaching elementary physical education. {Spring}

326L. Fundamentals of Exercise Physiology. (3)
Prerequisites: 289, Biol 136, 139L. {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)
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. {Spring}

385. Leisure Services for Special Populations. (3)
(Also offered as Recrea 385.) Survey analyses and techniques of recreation and leisure delivery services for special populations in a variety of settings. Field trips. {Fall}

386. Women in Sports. (3)
(Also offered as W St 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. (maximum of 15 hours)
Prerequisites: 217, 245, 277, 288, 289, 301, 309, 310, 326L, 444, 445, PE-NP 107, Ed Fdn 303, 310. {Fall, Spring}

***426. Intermediate Exercise Physiology. (3)**
Continuation of 326L. Specific topics of interest to those who need an introduction to the practice of exercise physiology and to become familiar with research possibilities and career opportunities in the field of exercise physiology.
Prerequisites: undergraduate exercise physiology or instructor permission.

444. Teaching of Physical Education I. (3)
(Also offered as CIMTE 444.) Theories and concepts related to teaching physical education.
Prerequisites: 217, 245, 288, PE-NP 106. {Fall}

445. Motor Development in Children. [Teaching of Physical Education II] **(3)**
Prenatal through adolescent human growth and development is studied with an emphasis on movement performance application. Knowledge is then applied toward developing an appropriate physical education curriculum.
Prerequisites: 217, 245, 288, 444, PE-NP 106. {Spring}

452. Organization of Sports Programs. [Organization and Coaching of Sports] **(3)**
(Also offered as Recrea 452.) Organization and administration of games and sports in intramural, interschool, and community recreation programs.
Prerequisite: permission of instructor. {Spring}

461. Student Teaching in the Secondary Schools. (maximum of 15 hours)
Prerequisites: 107, 217, 245, 277, 288, 289, 301, 309, 310, 326L, 444, 445, Ed Fdn 303, 310. {Fall, Spring}

462. Student Teaching in the Secondary Schools. (maximum of 15 hours)
Prerequisites: 107, 217, 245, 277, 288, 289, 326L, 301, 309, 310, 444, 445, Ed Fdn 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.
Prerequisite: 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.
Prerequisite: 205 and senior standing. {Fall}

466. Special Physical Education. (3)
(Also offered as Recrea 466.) The field of adaptive and corrective physical education and its relationship to the regular curriculum in PE. {Fall, Spring}

***467. Survey of Physical Defects and Pathology. (3)**
(Also offered as Recrea, Spc Ed 467.) To investigate the etiology, characteristics, and treatment programs necessary for teaching the physically handicapped child.
Prerequisite: Spc 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: 277, 289, and 326 or equivalents. {Spring}

472. Evaluation of Athletic Injuries. (3)
Provides the student with the evaluative techniques and skills necessary in the recognition of athletic injuries, and an understanding of the mechanism of various athletic injuries.
Prerequisites: 273, 277, 284, H Ed 164, Biol 237, 238, 247, 248. {Fall}

473. Rehabilitation of Athletic Injuries. (3)
Designed to provide the student with the basic components of a comprehensive rehabilitation program-therapeutic goals, modalities and exercise, progression criteria, and methods of evaluating and recording rehabilitation progress.
Prerequisites: 273, 277, 284, 326, H Ed 164, Biol 237, 238, 247, 248, Phy Th 306L. {Fall}

474. Organization and Administration of Athletic Training. (3)
The student will learn to plan, coordinate, and supervise all administrative components of an athletic training program for a high school, college, or professional athletic organization.
Prerequisites: 273, 472. {Spring}

479. Organization and Administration of Physical Education. (3)
Program building, including criteria for the selection of activities and progression, and other factors affecting course of study such as facilities, equipment, budget, laws, policies, professional responsibilities. {Fall}

***481. Administration of Varsity Athletics. (3)**
{Summer, Spring}

***482. History of Physical Education. (3)**
{Fall}

***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}

Symbols - See page 379

***486. Introduction to Therapeutic Recreation. (3)**
(Also offered as Recrea 486.) 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)**
(Also offered as Recrea, H Ed 487.) Concerned with the process of aging as it affects physical activity and the potential of physical activity in adjustment to the process of aging. {Spring}

***492. Workshop. (1-4)**
Carries graduate credit when specifically approved by the Graduate Committee. *For degree restrictions see the section* in Education entitled "Requirements for Graduation" 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 or 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 college section on degree requirements. {Summer, Fall, Spring}

505. Foundations for a Philosophy in HPER. (3)
(Also offered as H Ed, Recrea 505.) {Summer, Spring}

506. Assessment Theory and Principles for HPER. (3)
Prerequisites: 289 or equivalent; Ed Fdn 501 or equivalent. {Spring}

507. Research Design in HPER. (3)
(Also offered as H Ed, Recrea, Ed Fdn 507.)
Prerequisite: Ed Fdn 501 or equivalent {Summer, Fall}

509. Public Relations for Health, Physical Education, Recreation and Sports Administration. (3) Price, Scholer
(Also offered as H Ed, Recrea 509.) {Fall or Summer}

510. Curriculum Construction in Physical Education. (3)
{Fall}

514. Kinesiotherapy. (3)
(Also offered as Recrea 514.) {Spring}

516. Seminar in Physical Education. (3)
{Spring}

521. Motor Learning of the Handicapped. (3)
(Also offered as Recrea, Spc Ed 521.) {Fall}

522. Motor Learning of the Handicapped. (3)
(Also offered as Recrea, Spc Ed 522.) {Spring}

523. Biomechanics. (3)
{Fall}

526. Motor Assessment of the Handicapped. (3)
(Also offered as Recrea, Spc 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: 326 or equivalent. {Fall}

530. Laboratory Procedures and Instrumentation in Applied 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: 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}

575. Facilities Planning, Construction, and Utilization. (3)
{Spring}

586. Principles of Therapeutic Recreation. (3)
(Also offered as Recrea 586.)

588. Psychological Aspects of Sports. (3)
Prerequisite: Psych 230 or 332 or equivalent. {Fall}

590. Supervision of Physical Education Programs. (3)
Prerequisite: permission of instructor. {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 H 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)
Prerequisite: permission of instructor. {Summer, Fall, Spring}

698. Directed Readings in Physical Education. (3-6, to a maximum of 12)
Prerequisite: permission of instructor.

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}

180. Camping Experiences. (2)
(Also offered as P E-NP 180.) Instruction and field experiences designed to develop skills in shelter, food, warmth, and safety. {Fall}

183. Wilderness Experience. (2)
(Also offered as P E-NP 183.) Creation of stressful situations in the wilderness environment to help students learn more about themselves. {Fall}

190. Casting and Angling. (2)
(Also offered as P E-NP 190.) Instruction in skills and techniques for fishing in New Mexico. {Fall}

221. Recreational Leadership. (3)
Methods and materials in recreation leadership; theory, principles, and practice.
Prerequisites: 175, 290. {Spring, 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)
(Also offered as P E-P 275.) To introduce students to camp experiences and to study camping skills with emphasis on leadership functions. Field Trips. {Alternate Fall, 1988}

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}

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 Programming. (3)
Foundations, programming, and operation of recreational sports in diversified settings. {Fall}

302. Recreational Sports. (3)
Expansion of 301 to include development of campus recreation. Field trips. {Spring}

311. Leisure in Society. (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. (3)
(Also offered as P E-P 385.) Survey analyses and techniques of recreation and leisure delivery services for special populations in a variety of settings. Field trips. {Fall}

386. 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}

391. Problems. (1-3)
Prerequisite: permission of the instructor. {Summer, Fall, Spring}

400. Environmental Awareness in Outdoor Recreation Areas. (3)
Overview of environmental awareness in southwestern United States outdoor recreation areas managed by Federal and State Agencies. Emphasis is on arid land environments. Field trips required.
Prerequisite: 378. {Alternate Spring, 1988}

407. History and Philosophy of Parks and Recreation. (3)
The historical development of recreation concepts and philosophies. {Spring}

452. Organization of Sports Programs. [Organization and Coaching of Sports] **(3)**
(Also offered as P E-P 452.) Organization and administration of games and sports in intramural, interschool, and community recreation programs.
Prerequisite: permission of instructor. {Offered upon demand}

***454. Development of Recreation Programs. (3)**
Planning and evaluating recreation programs: promotion, utilization of resources and facilities, and leadership.
Prerequisites: 221, 245 and for majors/minors only. {Fall}

466. Special Physical Education. (3)
(Also offered as P E-P 466.) The field of adaptive and corrective physical education and its relationship to the regular curriculum in PE. {Fall, Spring}

***467. Survey of Physical Defects and Pathology. (3)**
(Also offered as P E-P, Spc Ed 467.) To investigate the etiology, characteristics, and treatment programs necessary for teaching the physically handicapped child.
Prerequisite: Spc Ed 201 or permission of instructor. {Fall}

***477. Leisure Services in Special Settings. (3)**
Knowledge of procedures and principles related to leisure services in institutional, commercial, private, and industrial settings. 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. {Alternate Spring, 1989}

***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. {Alternate Spring, 1988}

486. Introduction to Therapeutic Recreation. (3)
(Also offered as P E-P 486.) 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)**
(Also offered as P E-P, H Ed 487.) 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. {Spring}

Symbols - See page 379

***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. Practicum. (3-6)
Prerequisites: 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 P E-P 604.)

505. Foundations for a Philosophy in HPER. (3)
(Also offered as P E-P, H Ed 505.) {Summer, Spring}

507. Research Design in HPER. (3)
(Also offered as Ed Fdn, H Ed, P E-P 507.)
Prerequisite: Ed. Fdn 501 or equivlant

508. Organization and Administration of Public Recreation. (3)
{Alternate Spring, 1990}

509. Public Relations for Health, Physical Education, Recreation and Sports Administration. (3) Price, Scholer
(Also offered as H Ed, P E-P 509.) {Fall or Summer}

514. Kinesiotherapy. (3)
(Also offered as P E-P 514.) {Spring}

516. Seminar in Recreation. (3)
{Spring}

521. Motor Learning of the Handicapped. (3)
(Also offered as P E-P, Spc Ed 521.) {Fall}

522. Motor Learning of the Handicapped. (3)
(Also offered as P E-P, Spc Ed 522.) {Spring}

524. Evaluation of Park and Recreation Resources and Programs. (3)
{Fall}

526. Motor Assessment of the Handicapped. (3)
(Also offered as P E-P, Spc Ed 526.)
Prerequisite: Undergraduate major or minor in physical education, recreation, special education or permission of instructor. {Spring}

540. Outdoor Recreation Planning. (3)
{Alternate Spring, 1989}

555. Contemporary Leisure Concepts. (3)
{Fall}

586. Principles of Therapeutic Recreation. (3)
(Also offered as P E-P 586.) {Alternate Spring, 1988}

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)
Prerequisite: permission of instructor. {Offered upon demand}

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements. {Offered upon demand}

604. Research Seminar. (1)
(Also offered as H Ed, P E-P 604.)

696. Internship. (3-6, to a maximum of 12)
Prerequisite: permission of instructor. {Summer, Fall, Spring}

698. Directed Readings in Recreation. (3-6, to a maximum of 12)
Prerequisite: permission of instructor. {Offered upon demand}

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements. {Summer, Fall, Spring}

SPECIAL EDUCATION

Deborah D. Smith, Chairperson
Education Administration Building 206, 277-5018

PROFESSORS:

Gary W. Adamson, Ed. D., University of Kansas
Eloy R. Gonzales, Ph. D., University of New Mexico
Roger L. Kroth, Ed. D., University of Kansas
Richard L. McDowell, Ed. D., University of Kansas
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
Ruth Luckasson, J. D., University of New Mexico
Henry J. Pepe, Ed. D., University of Kansas
Glen D. Van Etten, Ed. D., University of Kansas

ASSISTANT PROFESSORS:

Ginger Blalock, Ph. D., University of Texas(Austin)
Virginia Cavalluzzo, Ph. D., George Peabody College for Teachers
Josephine DeLeon, Ph. D., New Mexico State University
Elizabeth Nielsen, Ph. D., Purdue University

LECTURER:

Carlene Van Etten, Ed. S., George Peabody College for Teachers

SPECIAL EDUCATION (SPC ED)

104T. Field Applications I. (3) Blalock
This field course allows paraprofessional trainees to explore populations, programs, and potential employment settings of interest. Placement provides students the opportunity to apply and strengthen competencies learned through formal instruction. {Summer, Fall, Spring}

201. Education of the Exceptional Person. (3) Everett, Gonzales, Pepe
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}

203T. Ways & Means: Direct Service with the Handicapped. (3)
A range of widely used methods and materials for daily intervention with special education students will be presented. Students will learn to select or develop and use methods and materials appropriate for paraprofessionals.
Prerequisites: 201, 204, 264. {Fall or Spring}

204. Introduction to Special Education. (2)
Field experience and seminar in special education settings. Required of all undergraduate majors.
Corequisite: 201. {Fall, Spring}

205T. Field Applications II. (3) Blalock
This field course allows advanced paraprofessional trainees to explore populations, programs, and potential employment settings of importance. The placement provides students the opportunity to apply and refine competencies learned through formal instruction.
Prerequisite: 104. {Summer, Fall, Spring}

207T. Paraprofessional Interactions in Special Education. (3) Blalock
Designed to help paraprofessionals clarify their roles as important team members in special education programs. Discussion, experiential, and other activities will improve skills/attitudes for working with staff, students, and families. {Summer, Fall, Spring}

209T. Affective Education and Exceptional Persons. (3)
Communication skills, values clarification, nonverbal behavior, and other affective techniques are presented as they relate to exceptional persons and their teachers. Special emphasis is placed on social and psychological problems in special education. {Fall or Spring}

211T. Educational Approaches with Special Populations. (3)
Selected aspects of teaching students with learning disabilities, behavior disorders, mental retardation, and communication disorders, as well as gifted students who are also LD, BD, or CD, will be surveyed.
Prerequisites: 201, 204. {Offered upon demand}

232T. Therapeutic Techniques for Severe Behavior Disorders. (3)
This course will improve paraprofessionals' competencies in recognizing and prioritizing severe behavior problems of handicapped students. Hands-on experience will train students to assist in planning/implementing appropriate behavioral techniques and programs.
Prerequisites: 201, 204, 319. {Offered upon demand}

252T. Therapeutic Techniques for Severely/Profoundly and Multiply Handicapped Students. (3)
This course will improve paraprofessionals' competencies in identifying and responding to needs of students with severe/profound and multiple handicaps. Fieldwork will train students to assist in planning/implementing appropriate interventions.
Prerequisites: 201, 204, 319. {Offered upon demand}

264T. Classroom Diagnosis and Program Planning. (3)
Provides functional instruction in the use of observation and informal and formal assessment procedures. Students will receive instruction in the merits and limits of various diagnostic procedures and instruments.
Prerequisites: 201, 211T, 319. {Spring}

293. Topics. (1-3)
Designed to offer specialized content to paraprofessionals working with handicapped learners.

297. Music for Special Education. (3)
(See Mus Ed 297.)

302. Introduction to Communicative Disorders. (3)
(Also offered as Com Ds 302.) Introduces students to nature of speech, language and hearing disorders in children and adults, and acquaints students with professions of speech-language pathology and audiology.
Prerequisite: permission of instructor. {Fall, Spring}

303. Methods and Materials for the Mildly Handicapped. (3)
To provide the undergraduate special education student with a variety of specific strategies and a knowledge of materials which are important in meeting the needs of mildly handicapped students at all ages and in a variety of classroom settings.
Prerequisites: 201, 204; corequisites: 304,313 {Fall, Spring}

304. Practicum. (4)
Emphasis will be on developing a functional understanding of the instructional needs of the mildly handicapped, developing initial competencies in basic skills, content, and in affective programming, development of skills in behavior management, and integration of initial course content. Also accompanied by a weekly seminar.
Corequisites: 303, 313. {Fall, Spring}

306. Introduction to Behavior Management. (3)
Provides an introduction to behavioral principles and procedures in application with children and youth. Covers planning, environmental organization and behavioral principles.
Prerequisites: 201 and 204. {Fall, Spring}

313. Curriculum for the Mildly Handicapped Learner. (2)
Primary focus areas: altering/adapting basic curriculum, implementing behavioral, affective, academic curriculum, and selecting/altering curriculum content for special needs of handicapped learners.
Corequisites: 303, 304. {Fall, Spring}

319. Classroom Organization and Management. (3)
Provides future teachers with technical management skills needed to cope with the behaviors of exceptional students across all categories, age groups, and service levels. Emphasis on management and organization of environment, instruction, behavior, and record keeping. {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)
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}

Symbols - See page 379

420. *Nature and Needs of the Mentally Retarded.* (3)
Offers a 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}

430. *Nature and Needs of the Behavior Disordered Person.* (3)
Covers the characteristics of emotionally or behaviorally disordered children. Emphasis is on identification, behavioral description, classification, and intervention stategies in various therapeutic environments. {Fall}

440. *Nature and Needs of Learning Disabled Persons.* (3)
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 Special Education. (7)
Students will be placed in an elementary or secondary classroom, preferably at B or C service level. They will spend all day for one semester in the classroom setting, and spend 1 to 2 hours per week in a seminar session.
Prerequisite: all other courses in sequence; corequisite: 464. {Fall, Spring}

463. Student Teaching in the Secondary Schools: Professional Education Block. (6-15)
{Offered upon demand}

464. Classroom Diagnosis and Program Planning. (3)
Provides functional instruction in observation and informal/formal diagnostic procedures. Instruction in the merits/limits of diagnostic procedures and instruments. Use of case information/test protocols to determine functioning level and program plan.
Prerequisites: 303, 304, 313. {Fall, Spring}

465. Art and the Exceptional Child. (3)
(Also offered as Art Ed 465.) 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, Spring}

***467. Survey of Physical Defects and Pathology. (3)**
(Also offered as P E-P, Recrea 467.) To investigate the etiology, characteristics, and treatment programs necessary for teaching the physically handicapped child.

474. Art for the Gifted. (3)
(Also offered as Art Ed 474.) Identification and characteristics of the gifted student in general and in art. Theory. methods, curriculum and practical art experience for the gifted. Special fee required. Lab fee required. (Spring)

***492. Workshops in Special Education. (1-4)**
Prerequisite; permission of instructor. Carries graduate credit when specifically approved by the Office of Graduate Studies. Copnsult this catalog and the Graduate Programs Bulletin for degree restrictions. {Offered upon demand}

***493. Field Experience (3-6, to a maximum of 12)**
Planned and supervised professional laboratory or field experiences in agency of insituational setting.
Prerequisite: permission of instructor. {Summer, Fall, Spring}

501. The Psychology and Education of Exceptional Person. (3) Everett, Pepe
{Summer, 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)
Van Etten

504. *Practicum in Special Education.* (1-6)Δ
Prerequisites: major in department and permission of instructor. See department for other restriction. {Offered on demand}

505. Seminars in Special Education. (3)Δ
May be repeated as topics vary.

506. Sex Education for Exceptional Person. (3) Shelton
Prerequisite: permission of 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}

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)
Van Etten
{Fall}

519. The Application of Applied Behavior Analysis in the Special Education Classroom. (3) McDowell, Smith, Van Etten
Prerequisite: major in the Department. {Summer, Fall, Spring}

520. Nature and Needs of the Mentally Retarded. (3)
Luckasson, Van Etten
{Fall}

521. Motor Learning of the Handicapped. (3) Lange
(Also offered as P E-P, Recrea 521)

522. Mother Learning of the Handicapped. (3) Lange
(Also offered as P E-P, Recrea 522)

523. Teaching the Educable Mentally Handicapped. (3)
Luckasson, Van Etten
Prerequisite: 520. {Spring}

525. Legal Rights of Handicapped Persons. (3) Luckasson
{Fall}

526. Mother Assessment of the Handicapped. (3) Lange
(Also offered as P E-P, Recrea 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)
Mc Dowell
{Fall, Spring}

532. Education of Behaviorally Disordered. (3) McDowell
{Spring}

540. Nature and Needs of Learning Disabled Person. (3)
Blalock, Van Etten, Watson
{Fall, Spring}

541. Precision Teaching and Direct Instruction in Special Education. (3) Van Etten
Prerequisite: permission of instructor; 519 recommended. {Fall}

542. Teaching and Learning Disabled. (3) Smith
{Fall, Spring}

543. Reading for Handicapped Learners. (3) Van Etten
Prerequisite: Completion of reading courses required for teacher certification. {Spring}

552. Teaching the Severly/Profoundly Handicapped. (3) Van Etten
Prerequisites: 420/520 and Department majors only or permission of instrucotr. {Summer}

563. Assessment for Special Education Teachers. (3) Gonzales, Pepe, Watson
Prerequisites: 201 or 501. {Summer, Fall, Spring}

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 and 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 Diagonis II. (3) Gonzales, Pepe, Watson
Prerequisites: 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, 568. {Offered upon demand}

570. Nature and Needs of the Gifted. (3) Adamson, Nielsen
{Fall}

572. Teaching the Gifted Person. (3) Nielson
Prerequisite: 570 and department majors only. {Fall}

573. Instructional Strategies in Education of the Gifted. (3) Nielsen
Prerequisite: 572. {Spring}

574. Art for the Gifted. (3) Schoonover
(Also offered as Art Ed 574.) Special fee required. {Spring}

580. Language/Learning in Special Education Classrooms. (3)

582. Teaching the Communicatively Disordered Child. (3)
(Also offered as Com Ds 582.)
Prerequisites: Com Ds 430, 530, must be admitted to graduate study in the department. {Fall}

588. Organization and Supervision of Special Education Programs. (3) Everett
{Offered upon demand}

591. Problems. (1-3 hrs. each semester)
Prerequisite: permission of instructor. {Offered upon demand}

592. Workshops in Special Education. (1-4)
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)
{Offered upon demand}

595. Advanced Field Experience. (3-6, to a maximum of 12)
{Summer, Fall, Spring}

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

601. Professional Seminar in Special Education. (3) Luckasson, Watson
Prerequisite: admission to post-master's work in Special Education or permission of instructor. {Fall}

608. Seminar: Parents and Families of Exceptional Persons. (3) Kroth
Prerequisites: 508 or permission of instructor. Master's 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)Δ Luckasson, G. Van Etten
Prerequisites: 520, 522 or permission of instructor. May be repeated for credit when topics differ. Master's 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 years}

640. Clinical Aspects of Learning Disabilities. (3) Watson
{Fall in odd years}

645. Seminar in Learning Disabilities. (3) D. Smith
Prerequisites: 440, 542, and permission of the instructor. {Fall in even years}

675. Seminar on the Gifted. (3)Δ Nielsen
Prerequisite: master's candidates with experience and training may enroll with permission of the instructor. {Spring}

696. Internship. (3-6, to a maximum of 12)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

Symbols - See page 379

TECHNOLOGICAL AND OCCUPATIONAL EDUCATION

Frank R. Field, Chairperson
Mesa Vista 3011, 277-4131

PROFESSORS:

Frank R. Field, Ed. D., Ball State University
Paul A. Resta, Ph. D., Arizona State University
Elizabeth Tweeten, Ed. D., University of Kentucky
Edwin J. Weber, Ph. D., University of Michigan

ASSOCIATE PROFESSORS:

Peggy J. Blackwell, Ph. D., Texas Tech University
Charles O. Taylor, Ed. D., Temple University
Guy A. Watson, Ed. D., University of Southern California

ASSISTANT PROFESSORS:

Jeffrey J. Dalia, Ph. D., Georgia State University
Jack D. Gittinger, Ph. D., University of New Mexico

PROFESSORS EMERITI:

Gerald E. Cunico, Ed. D., Utah State University
Robert Nesbitt, M. Ed., Texas A&M University
William B. Runge, Ed. D., University of Southern California

The departmental courses translate a contemporary body of content into awareness, understanding, experience, and competencies. The department deals primarily with the preparation of professional teachers, instructors, trainers, supervisors, and technologists who work with the citizenry in public schools, private schools, businesses, and industries. Our society provides an attractive and exciting range of occupational choices for persons who like to combine theory and application in a changing technological environment.

For graduate advice contact Edwin J. Weber, the department Coordinator of Graduate Affairs.

TECHNOLOGICAL AND OCCUPATIONAL EDUCATION (TOE)

DEPARTMENTAL PROFESSIONAL COURSES

270. [Occ Ed. 371] **Vocational Instructional Planning. (3)**
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}

271. [Occ Ed 372] **Vocational Instructional Implementation. (3)**
Includes use of individualized modules in learning, motivation, total vocational technical curriculum, methods and strategies in teaching adults. {Fall, Spring}

293. Topics. (1-3)

296. Internship. (3-6, to a maximum of 12)
Offered on a CR/NC basis only.

370. [361] **Pre-Student Teaching Experience I. (2)**
Offered on a CR/NC basis only.

391. Problems. (1-3)
{Offered upon demand}

401. [433] **Instructional Design and Development: A Systems Approach. (3)**
(Also offered as EM/LS 433.) 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 instruction.
Prerequisite: 421 recommended as introductory course.

420. [I ED 325L] **Creativity and Technical Design.** [Industrial/Technical Design] **(3)**
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}

421. [432] **Production and Utilization of Instructional Materials. (3)**
(Also offered as EM/LS 432.) Includes training in the use of media production and display equipment, production of graphic materials, overhead transparencies, slides, S8mm 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}

422. [434] **Video Techniques: Use in Education & Training.** [TV Techniques and Use in Education] **(3)**
(Also offered as EM/LS 434.) Research into education uses of TV, operation of portable TV equipment; grapic, 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.

***423.** [*435] **Video Laboratory for Educators & Trainers.** [Video Laboratory for Educators] **(2)**
(Also offered as EM/LS 435.) 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}

440. [550] **Training and Development.** [Human Resources Development] **(3)**
Prerequisite: admitted to graduate study or permission of instructor. {Fall, Spring}

441. [*482] **Training Needs Assessment.** [Training Needs Analysis and Performance Monitoring] **(3)**
Designed to introduce alternative methods of data collections when determining training needs, review models of training needs analysis, review of better needs assessment models from education that suit the workplace setting, and to consider performance measures and transfer of training to the job.

443. [551] **Delivering Workplace Training. (3)**
Prerequisite: admitted to graduate study or permission of instructor. {Fall, Summer}

460. [Educ 570] **Introduction to Adult Education & Training.** [Introduction to Adult/Community Education] **(3)**

470. [420] **Philosophy & Curriculum in Occupational Education.** [Curriculum Development in Occupational Education] **(3)**
Introduction to the principles of curriculum development

472. [421] **Instructional Methods & Systems in Occupational Education]** Teaching Occupational Education Programs] **(3)**
Methods of developing instructional units and teaching methods for occupational education teachers.

473. [423] **Performance Evaluation in Occupational Education.** [Instructional Evaluation in Occupational Education] **(2)**
Principles of evaluation of instruction and student performance applied to occupational education.

474. [422] **Organization & Management of Occupational Education Programs.** [Laboratory Organization & Management of Occupational Education Programs] **(3)**
Methods and techniques of organizing occupational education programs.

475. [462] **Student Teaching for Occupational Education Minors.** [Student Teaching][**(3-6-9, to a maximum of 15)**
A second student teaching experience. Offered on a CR/NC basis only.

476. [461] **Student Teaching for Occupational Education Majors. (8)**
Observation and teaching in secondary schools for one or more semesters. Weekly seminar meetings required with University supervisors.
Prerequisites: See department for specific requirements. Offered on a CR/NC basic only.

477. [*443] **Organization & Supervision of Co-op work Program.** [Coordination Techniques in Vocational Cooperative Programs] **(3)**
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 marketing, office, and industrial occupations.

478. [503] **Student Associations & Clubs in Occupational Education.** [Student Activities in the Secondary School] **(1)**

479. [439] **Special Instructional Techniques in Occupational Education.** [Teaching of Business Subjects] (3)

480. [430] **Teaching Principles of Technology.** [Teaching of Industrial Subjects] **(3)**
Methods of developing instructional units, teaching methods associated with the Principles of Technology Project, and the selections and evaluation of strategies used in the lab/ classroom. {Offered upon demand}

481. [I ED. 102] **Technological Change and Society.** [Modern Industry] **(3)**
Focus will be on industry as man's systematic effort to provide the necessities and conveniences of life. In addition to developing a historical perspective, students will study in depth a variety of industrial organizations that provide goods and services to meet the needs and desires of society. {Offered upon demand}

482. [I ED. *425] **Safety and Accident Prevention in Occupational Education.** [Industrial Accident Prevention] **(3)**
Principles, responsibilities, and techniques for developing, organizing, implementing, and administering an industrial safety program. Includes an interpretation of the provisions of the Occupational Safety and Health Act as well as the regulations and standards pursuant to it.

***492. Workshop. (1-4)**
Carries graduate credit when specifically approved. For degree restrictions see the college section on degree requirements 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. **Offered on a CR/NCbasis only.**

497. [509] **Field Experience & Internship Seminar**[Seminar in Supervision of Field Experiences] **(1)**

500. [556] **Science, Technology and Society.** [Science, Technology, and Human Values: Implications for Education] **(3)**

501. [533] **Instructional Design and Development: A Systems Approach. (3)**
(Also offered as EM/LS 533.)

502. [542] **Models of Curriculum Development.** [Principles of Curriculum Development] (3)

503. [500] **Instructional Techniques & Applications.** [Advanced Instructional Strategies] **(3)**

505. Contemporary Instructional Technologies: Survey. [Development, Selection, Use, and Organization of Instructional Materials] **(3)**

508. [485] **Measurement, Evaluation, and Performance Monitoring**[Measurement and Evaluation Techniques] **(3)**

510. [I Ed 511] **Instructional Technology Facility Design.** [Laboratory Planning and Design] **(3)**

511. [546] **Economic Education. (2 or 4)**

520. [I ED325L] **Creativity and Technical Design.** [Industrial/Technical Design] **(3)**

521. [532] **Production & Utilization of Instructional Materials. (3)**
(Also offered as EM/LS 532.)

522. [531] **Video Techniques: Use in Education & Training.** [TV Techniques and Use in Education]**(3)**
(Also offered as EM/LS 534.)
Prerequisite: 521 recommended as introductory course.

523. [536] **Computer Authoring Languages and Systems. (3)**
{Summer, Fall, Spring}

525. [535] **Interactive Video. (3)**
(Also offered as EM/LS 535.)
Prerequisite: permission of instructor. {Fall, Spring}

539. [I Ed 525] **Advanced Instructional Technologies: Seminar.** [Advanced Technical Knowledge and Skills] **(3)**

540. [550] **Training and Development.** [Human Resources Development] **(3)**
Prerequisite: admitted to graduate study or permission of instructor. {Fall, Spring}

541. [*482] **Training Needs Assessment.** [Training Needs Analysis and Performance Monitoring] **(3)**

543 [TOE 551] **Delivering Workplace Learning. (3)**

560. [Educ 570] **Introduction to Adult Education and Adult/Community Education. (3)**

561. [Educ 571] **The Adult Learner. (3)**

562. [Educ 572] **Facilitating Adult Learning**[Teaching Adults] **(3)**

EDUCATION

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563. [*448] **Adult Career Development & Change**[Career Education] **(3)**

570. [501] **Foundations of Occupational Education.** [Foundations of Vocational Education] **(3)**

571. [510] **Contemporary Issues & Developments in Occ. Education.** [Developments in Industrial & Vocational Education] **(3)**

572. [Bus Ed 516] **Advanced Instructional Methods in Occ. Ed.** [Advanced Methods of Teaching Business Skill Subjects] **(3)**

573. [Bus Ed 514] **Instructional Trends in Occupational Education.** [Instructional Trends and Research in Business Ed] **(3)**

575. [562] **Practicum: Supervision of Instruction & Training.** [Practicum in Supervision of Instruction] **(3)**

576. [523] **Administration of Occupational Education Programs.** [Administration of Industrial and Vocational Education]**(3)**

577. [*443] **Organization & Supervision of Co-op work Program.** [Coordination Techniques in Vocational Cooperative Programs] **(3)**

578. [503] **Student Associations & Clubs in Occupational Education.** [Student Activities in the Secondary School] **(1)**

582. [I ED. *425] **Safety and Accident Prevention in Occupational Education.** [Industrial Accident Prevention] **(3)**

590. Master's Seminar. (3)

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. Field Experiences. (3-6, to a maximum of 12), Offered on a CR/NC basis only.

596. Internship. (3-6, to a maximum of 12) Offered on a CR/NC basis only.

597. [509] **Field Experience & Internship Seminar**[Seminar in Supervision of Field Experiences] **(1)**

598. Directed Readings in Technological and Occupational 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.

690. Dissertation Proposal Seminar. [Dissertation Seminar] **(3-6)**
Offered on a PR/CR/NC basis only.

696. Internship. (3-6, to a maximum of 12) Offered as a CR/NC basis only.

698. Directed Readings in Technological and Occupational Education. (3-6, to a maximum of 6)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

BUSINESS/MARKETING EDUCATION (BUS ED)

Curriculum for students majoring in Business/Marketing Education:

NOTE: Students interested in the Bachelor of Science degree, with a major in teaching business/marketing subjects, should consult with the TOE/Business Education advisor before enrolling in courses.

INDUSTRIAL TECHNOLOGY EDUCATION (I ED)

Curriculum for students majoring in Industrial/Technical Education:

TECHNICAL CONTENT AREAS:

*COMMUNICATION
*CONSTRUCTION
*MANUFACTURING
*TRANSPORTATION

NOTE: Negotiations are currently in progress to transfer technical content course offerings to other institutions, such as the Albuquerque Technical-Vocational Institute. Students are encouraged to check with department advisors as to the current status of courses.

110L. Machine Woodworking. (3)

111L. Introduction to Graphic Communication. (3)

112L. Intermediate Graphic Communication. (3)

120L. Metal Technology. (3)

165. Safety, Service, and Preventive Maintenance. (3)

230L. Power Mechanics. (3)

280L. Introduction to Electronics. (3)

285L. Welding. (3)

312L. Architectural Drafting. (3)

320L. Manufacturing Technology. (3)

335L. Intermediate Power Mechanics. (3)

350L. Cabinet Making. (3)

361L. Advanced Technical Drafting. (3)

365L. Advanced Machine Metalworking. (3)

380L. Advanced Electronics. (3)

386L. Metal Fabrication. (3)

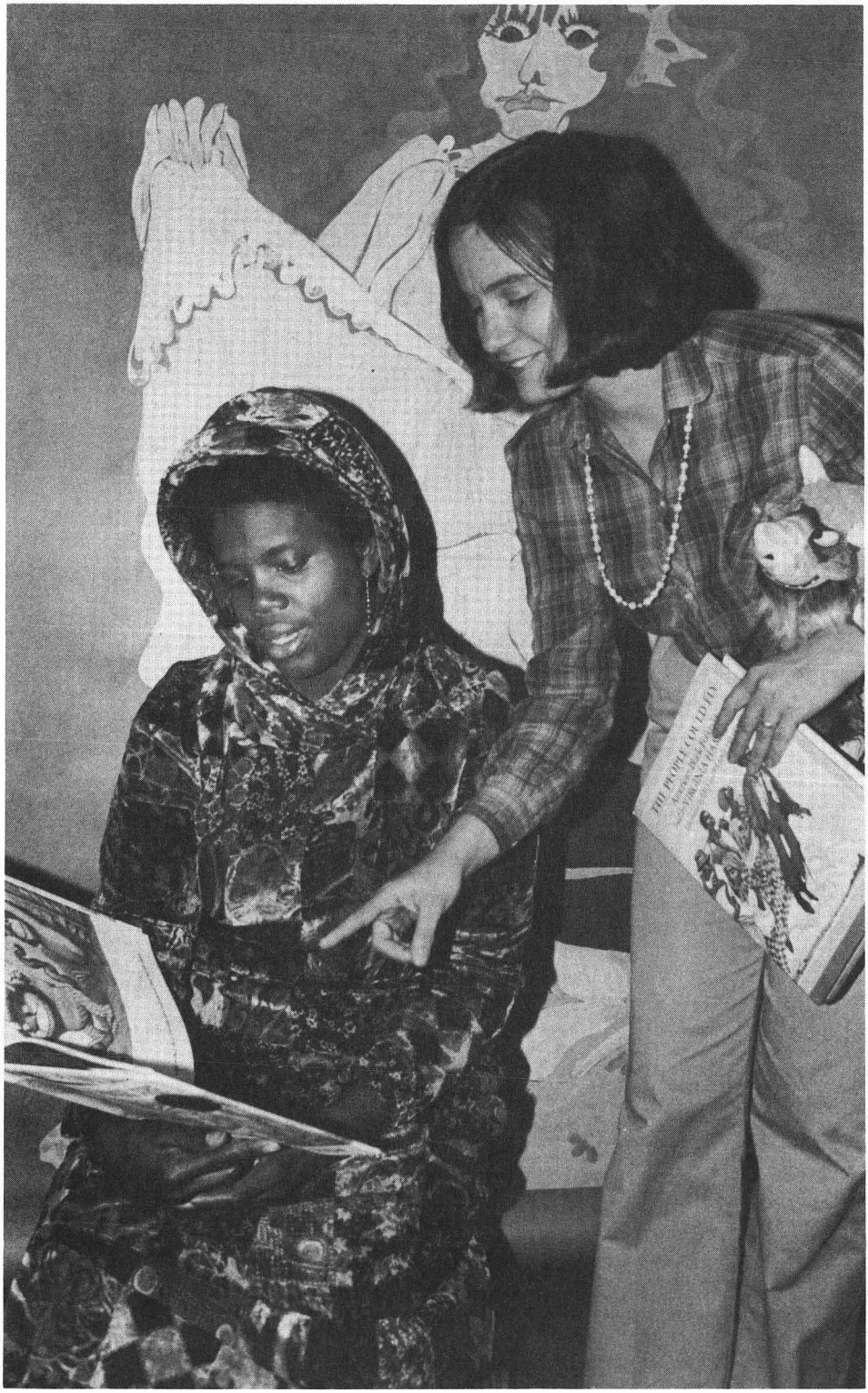
***410L. Industrial Plastics. (3)**

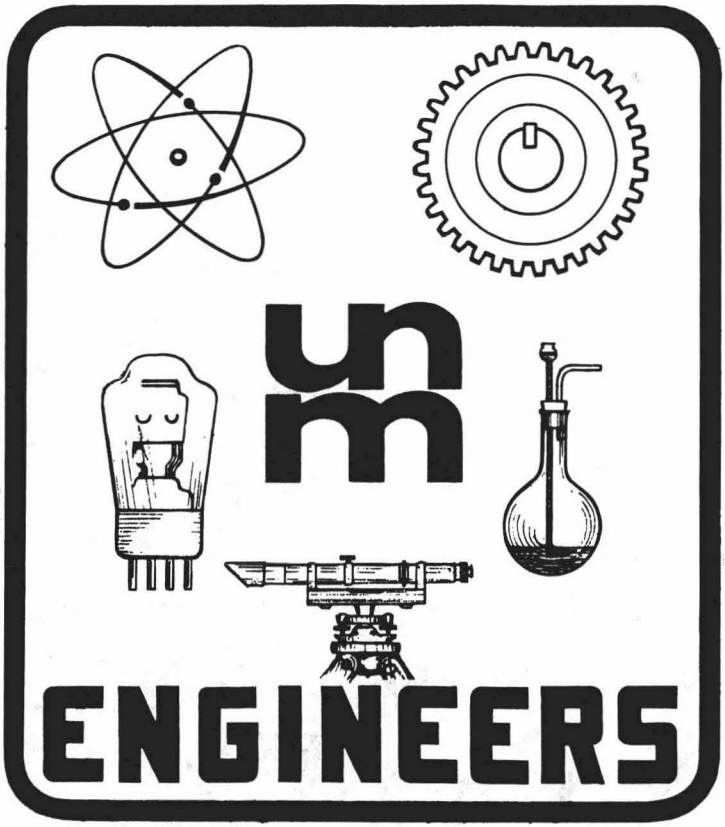
415L. Hot Metal Processes. (3)

470L. Construction Technology. (3)

475L. Metal Technology. (1-3)

480L. Wood Technology. (1-3)


THE PEOPLE'S COLLECTIVE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ENGINEERS

COLLEGE OF ENGINEERING

James E. Thompson, Dean
College of Engineering
Farris Engineering Center 107, 277-5521

ENGINEERS are creators, problem solvers, 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, 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 New Mexico Engineering Research Institute, which performs research related to soils, blasts, instrumentation, energy and environmental matters, is closely associated with the College of Engineering. Research institutes housed in the College include the Center for High Technology Materials, the Center for Micro-Engineered Ceramics and the Institute for Space Nuclear Power Studies.

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. High school courses in calculus and computer programming are not required, but students who have had them may be able to progress faster toward their degrees.

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 students in University College intending to study for an Engineering College bachelor's degree take the Course of Study for Engineering Students, First Year, listed in section entitled "Curricula Requirements" in the College of Engineering, except students planning to enter computer science. These students should take a course of study as prescribed in the degree description for computer science.

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 2.2 grade point average for all courses presented, it is required that the 18 credits also yield at least a 2.2 grade point average and a grade of "C" or better in each course.

For additional requirements to enter the departments of Computer Science or Electrical and Computer Engineering, see the requirements listed by the department.

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.*)

Students transferring into the College of Engineering from other universities will normally be admitted on a PROVISIONAL basis until official transcripts of all of their previous work have been evaluated by College of Engineering advisors.

A transfer student from another university who does not meet the above requirements for acceptance in the College of Engineering may be eligible to enroll in the University College to make up any deficiencies in admission requirements. If such a transfer student is ineligible to enroll in the University College because he/she has a total of 64 or more credits, the student should seek advisement in the Engineering Advisement Office.

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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 with the assigned academic advisor in his/her major field priot to registration. This applies to students still in University College as well as to students in the College of Engineering.

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. 0.
2. A student enrolled in the College of Engineering will be placed on **College of Engineering 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 below 2. 0.
   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 College of Engineering.

A student who accumulates 30 or more attempted credit hours of D, F, or WF shall be dismissed from the College of Engineering.

A student on College of Engineering Probation during any regular semester or summer session may, at the end of that semester or session, be dismissed from the College if the condition for the College Probation has not been removed.

No student is subject to suspension from the University of 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. Also, a student who has been suspended from the University, while enrolled in the College of Engineering, and who has been admitted to any unit of the University other than the College of Engineering after the suspension is terminated, 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, mechanical and nuclear engineering are accredited by the Accreditation Board for Engineering and Technology. The curriculum in computer science is accredited by the Computer Sciences Accreditation Board.

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, Construction Engineering and Contruction Management, and the Bachelor of Engineering. These curricula are designed as four-year programs for students who enter without deficiencies and who are capable of carrying the required scholastic loads indicated under the respective departmental programs. Students should anticipate more than eight regular semesters to complete requirements for their degree if they have deficiencies or if they do not carry a full load each semster.

Options and Special Fields. In addition to the major professional fields of study listed above, in which the bachelor of science degree is offered, four options are currently available in the bachelor of engineering program. These options are: biomedical engineering, energy and power systems, microelectronics processing, and manufacturing engineering and robotics. It is expected that in the future additional options may be available within the bachelor of engineering degree program to meet changing needs 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 Catalog 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 a student wishes to secure a degree in another college together with an engineering degree, he/she is urged to seek advice early in the college program from the deans of the colleges concerned. With care in selection of the program of studies, it is possible for students to secure two degrees in one additional year.

Military Studies. Students enrolled in the Air Force, Army, or Naval ROTC 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 programs.

Minority Programs. The College of Engineering recognizes that the role of minorities in the engineering profession is expanding and that this role is particularly important in New Mexico. To encourage this expansion, the College of Engineering sponsors the Native American Program in the College of Engineering (NAPCOE), the Hispanic Engineering Organization (HEO), and chapters of the American Indian Science and Engineering Society (AISES), the National Society of Black Engineers (NSBE), and the Society of Women Engineers (SWE). 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.

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 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 2.0 may enter the Engineering Co-op Program if a suitable employer can be found to sponsor the student. A 2.5 GPA is required of students majoring in computer science, computer engineering, or electrical engineering, and 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 have 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 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. For computer science majors, Co-op may be applied for credit only as a general elective.

Students wishing to know more about the Engineering Cooperative Education Program should contact its director.

Graduate Study. A fifth year of study leading to the master's degree is strongly recommended for students of academic ability. 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 program in mechanics is offered jointly by the Departments of Civil and Mechanical Engineering. A masters program with an emphasis on manufacturing engineering is available through the Departments of Mechanical and Electrical and Computer Engineering.

The College of Engineering offers programs leading to the 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 section in General Academic Regulations entitled Scholastic Regulations). Special attention is called to the rules on probation and suspension of the College of Engineering. (see Probation and Suspension).

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 except by prior approval of the appropriate Department Chairman and the College Dean.

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 responsible for completing all requirements for graduation.
2. 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.
3. Each candidate for a degree must have at least a 2. 0 grade point average on work taken at the University of New Mexico which is counted toward graduation. Among the credits presented for graduation not more than 9 credit hours shall be D.
4. For minimum residence requirements, see Graduation Requirements under General Academic Regulations.
5. Physical education activity courses are not acceptable toward bachelor degree requirements in the College of Engineering.
6. Introductory Studies courses are not acceptable toward bachelor degree requirements in the College of Engineering.
7. Total number of hours required for graduation varies, depending on the specific program.
8. The normal method for satisfying the requirement for competence in English writing (see: Graduation Requirements under General Academic Regulations) in the College of Engineering is to pass Engl 102 with a grade of C- or better. Transfer credit for a course equivalent to Engl 102 from another institution also satisfies this requirement as does credit earned through appropriate CLEP or AP tests.
9. Requirements for all B. S. engineering degrees in the College of Engineering (excluding computer science) include at least 18 credit hours of humanities and social science courses distributed as follows:
   a. At least 6 credit hours in humanities.
   b. At least 6 credit hours in social science.
   c. At least 6 credit hours must be taken from one department. Three of these credit hours must be non-introductory.

All students in the College of Engineering (including computer science) are required to take H&SS electives. All students should therefore see their academic advisors for departmental H&SS regulations and lists of acceptable H&SS electives.

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.

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Course of Study for Engineering Students

FIRST YEAR

First Semester

	Cr.	Hrs. Lect/Lab
Chem 121L Gen Chemistry	4	(3-3)
Engl 101 Wrtg w/Rdgs in Expos	3	(3-0)
†H&SS Elective	3	(3-0)
Engr-F 120L Engr Computing	3	(2-2)
Math 162 Calculus I	4	(4-0)
	17	(15-5)

Second Semester

Engr-F 122L Intro Engr Methods	3	(2-2)
Physcs 160 Gen Physics	3	(3-0)
Math 163 Calculus II	4	(4-0)
Engl 102 Analytic Wrtg	3	(3-0)
Chem 122L Gen Chemistry	4	(3-3)
	17	(15-5)

Notes

1. Special freshman requirements for students majoring in computer science are shown in the section on Computer Science.
2. Students in computer engineering should substitute CS 155 for Engr-F 122L.
3. Students in mechanical engineering, manufacturing engineering and robotics, or energy and power systems engineering may substitute a science elective for Chem 122L. A departmental advisor should be consulted for a list of suitable science electives.
4. Chem 131L and 132L may be substituted for Chem 121L and 122L. This substitution is encouraged for students who major in chemical engineering, biomedical engineering, or nuclear engineering.
5. 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 additional preparatory mathematics courses.
6. Students with unsatisfactory scores in the ACT English area will be required to take remedial English.
7. 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 section on Grading under General Academic Regulations for an explanation of the grading system).

Chemical Engineering

The chemical engineering program is offered under the administration of the Department of Chemical and Nuclear Engineering.

Chemical engineering has long played the primary role in the extracting, refining, and transporting of the nation's energy resources--natural gas, crude oil, and other fossil fuels. We continue to play a vital role in developing energy resources for the future--nuclear, geothermal, solar, and coal gasification. In addition, chemical engineers have developed processes to produce a host of industrial chemicals which are used in every sector of modern life. Chemical engineers are beginning to play major roles in several developing technologies, including integrated circuit manufacturing, ceramics processing, and the production of genetically engineered biological products. Our training prepares us to function effectively in environmental clean up activities 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 continue to be expanded.

The goal of chemical engineering education is the development of the ability to apply the chemical and physical principles to alter molecules to resolve 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 topics of mass transport, chemical separations, chemical reaction engineering and design. The student may choose to concentrate electives in order to gain additional expertise in a given area. A concentration consists of 3 advanced chemistry or science courses and 3 technical electives which are focused. In addition, the major project in the advanced design course may also be in this area. Concentrations currently exist in traditional chemical processing, biotechnology, materials processing and preparation for graduate studies.

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, polymers, detergents, paints, medical supplies, processed foods, cosmetics, and synthetic rubbers. There are also abundant opportunities for students desiring to work toward advanced degrees.

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

Computers provide the basic computational tool for today's modern engineer. Freshman engineering students are introduced immediately to the University's DEC/VAX computers. Numerical analysis is an important part of each year's instruction in chemical engineering, and by the senior year students make extensive use of the sophisticated process simulation code, ASPENPLUS, and gain experience with other sophisticated computer software.

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 should consult with advisors for a list of acceptable humanities and social science (H&SS) electives.

Curriculum in Chemical Engineering

The Bachelor of Science Program in Chemical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Hours required for graduation: 138

SECOND YEAR

First Semester

	Cr	Hrs. Lect/Lab
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen Physics	3	(3-0)
Chem 301 and 303L Organic Chem	4	(3-3)
Ch-NE 251 Chem Proc Calc	4	(4-0)
Econ 200 Prin and Prob	3	(3-0)
	18	(17-3)

Second Semester

Math 316 App Ord Diff Eq	3	(3-0)
Ch-NE 302 ChE Thermo	4	(4-0)
Advanced Chem for Concentration	4	(3-3)
Basic Sci for Concentration	3	(3-0)
†Engl 219 Tech Writing	3	(3-0)
	18	(12-11)

THIRD YEAR

First Semester

	Cr.	Hrs Lect/Lab
Ch-NE 311 Intro Transpt Phenma	4	(4-0)
Ch-NE 317 Chem Engr Analysis	3	(3-0)
Ch-NE 450 Ch-NE Economics	3	(3-0)
Adv Chem for Concentration	4	(4-0)
ΔH&SS Elective	3	(3-0)
	17	(17-0)

Second Semester

Ch-NE 312 Unit Ops II	4	(4-0)
Ch-NE 393L Int to ChE Design	3	(2-3)
Basic Engineering Elective	3	(3-0)
Adv Chem for Concentration	4	(4-0)
ΔTech Elective	3	(3-0)
	17	(16-3)

FOURTH YEAR*

First Semester

	Cr.	Hrs Lect/Lab
Ch-NE 314L Chem Engr Lab I	2	(1-5)
Ch-NE 451 Senior Seminar	1	(1-1)
Ch-NE 461 Chem Engr Kinetics	3	(3-0)
Ch-NE 493L Chem Engr Design	3	(2-3)
ΔH&SS Elective	3	(3-0)
ΔTechnical Elective	3	(3-0)
	15	(13-9)

Second Semester

Ch-NE 415L Chem Engr Lab II	3	(2-8)
Ch-NE 454 Proc Dynamics&Contrl	3	(3-0)
Ch-NE 494L Avd Ch E Design	3	(2-3)
ΔH&SS Elective	3	(3-0)
ΔH&SS Elective	3	(3-0)
ΔTechnical Elective	3	(3-0)
	18	(16-11)

Notes

1. Technical electives are chosen from approved upper division courses in engineering, mathematics, and science. The department requires that these courses be part of an approved concentration. The chairperson may allow up to 6 hours of technical electives for students taking required ROTC courses in aerospace or naval science.
2. Students may select EECE 202 or 203, CE 202, or ME 206L as their basic engineering elective.
3. 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.

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

† Econ 200 and Engl 219 may be taken in either semester of the sophomore year.

Δ Electives and general courses are flexible and should be taken whenever convenient.

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Construction Option

Glenn A. Sears, advisor.

Students who are interested in careers in the construction industry can follow the Construction Option program which leads to a Bachelor of Science in Civil Engineering. This program provides a background in accounting and economics as well as a working knowledge of construction costs, administration, contracts, management, methods, and equipment. Two additional construction oriented programs are available. The first program is in the area of construction engineering, a traditional engineering curriculum with courses pertaining to the technical aspects of construction and leading to a Bachelor of Science degree in Construction Engineering. The second program is in the area of construction management. This curriculum includes approximately equal emphasis in engineering science, business and management, and construction operations; leading to a Bachelor of Science degree in Construction Management. For further information on each of these programs, contact the Civil Engineering Department.

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 advisors, departmental advisors, 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. *** 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. The student should begin planning for a combined program during the sophomore year. 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 minicomputers available for student use as well as remote terminals connected to the University's central computer system.

Curriculum in Civil Engineering

The Bachelor of Science Program in Civil Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Hours required for graduation: 134

FIRST YEAR

First Semester

	Cr	Hrs Lect/Lab
Engl 101 Wrtg/Exps	3	(3-0)
Math 162 Calculus I	4	(4-0)
Chem 121 Gen Chem I	4	(3-3)
EngrF 120L Engr. Computing	3	(2-2)
H&SS Elective	3	(3-0)
	17	(15-5)

Second Semester

Engl 102 Analytical Wrtg	3	(3-0)
Math 163 Calculus II	4	(4-0)
Chem 122 Gen Chem II	4	(3-3)
EngrF 122 Intro Engr Methods	3	(2-2)
Phys 160 Gen Physics I	3	(3-0)
	17	(15-5)

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen Physics	3	(3-0)
C E 202 Engr Statics	3	(3-0)
C E 281L Engr Meas	2	(1-3)
Econ 200 Prin & Prob	3	(3-0)
Engl 219 Tech Wrtg	3	(3-0)
	18	(17-3)

Second Semester

Math 314 Linear Algebra	3	(3-0)
Physcs 262 Gen Physics	3	(3-0)
C E 282L Geo Trans Systems	2	(1-3)
M E 206L Dynamics	3	(2-3)
C E 252 Comp Appl CE	2	(2-0)
C E 270L Const Mat	1	(0-3)
H&SS elective	3	(3-0)
	17	(14-9)

THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 316 Diff Eq	3	(3-0)
C E 302 Mech of Mat	3	(3-0)
C E 303L Mech of Mat Lab	1	(0-3)
C E 331L Fluid Mech	4	(3-3)
C E 382 Transp Engr	3	(3-0)
H&SS Elective	3	(3-0)
	17	(15-6)

Second Semester

C E 360L Soil Mech	4	(3-3)
C E 308L Struc Anal	4	(3-3)
C E 324 Struc Des in Metals	3	(3-0)
C E 332 Intro to Hydrology	3	(3-0)
EECE 203 Circuit Analysis I or CH-NE/ME 301 Thermodynamics	3	(3-0)
	17	(15-6)

FOURTH YEAR*

First Semester

	Cr	Hrs Lect/Lab
C E 411L Reinf Concr Des	3	(2-3)
C E 435 Wtr & Wast Wtr	3	(3-0)
C E 370 Engr Mat Science	3	(3-0)
C E 350 Engr Econ	3	(3-0)
Tech Elective	3	(3-0)
	15	(14-3)

Second Semester

C E 472 Constr Contract	3	(3-0)
C E 490 Prof Prac	1	(1-0)
Tech Electives	6	(6-0)
H&SS elective	6	(6-0)
	16	(15-0)

Notes
1. H&SS electives are to be chosen from humanities and social sciences list. See Department for list of approved courses.
2. See Department for list of approved technical electives. Approval of Advisor required.

Curriculum in Construction Management

Construction management is a four year professional program which combines quantitative skills, management expertise, and field construction know-how. The program has been designed to meet the accreditation requirements of ACCE (American Council for Construction Education) and will seek this accreditation at the earliest date. This program provides engineering courses through soil mechanics, and structural design. It provides management courses going from accounting and small business through finance and contract law. Additionally, the program includes courses in construction, covering topics from contract documents and graphics to estimating and network scheduling techniques. It is anticipated that this program will be of interest to students who have grown up around the construction industry or have a strong entrepreneural interest. The basic emphasis of the program will be in the area of building construction. Graduates from this program can anticipate careers as owners or managers of medium to large construction firms.

Both this program and the Construction Engineering program have strong support from the local construction industry. The curricula for both programs were developed with the assistance of an Advisory committee of the New Mexico Building Branch of the Associated General Contractors of America. In addition, the Building Branch has endowed a chair in the Department to support the Construction Engineering and Construction Management programs.

Total hours for graduation: 134

FIRST YEAR

Fall Semester

Chem 121L Gen Chemistry	4
Engl 101 Wrtg w/Rdgs in Exp	3
C E 171L Const Orientation	3
Engr 120/CS 150 Programming	3
Math 162 Calculus I	4
	17

Spring Semester

Arch 104 Intro to Design Skills	3
Physcs 160 Gen Physics	3
Math 163 Calculus II	4
Engl 102 Analytic Writing	3
Psych 101 Gen Psychology	3
	16

SECOND YEAR

Fall Semester

Physcs 161 Gen Physics	3
Geol 101 Physical Geology	3
C E 202 Engr Statics	3
C E 281L Engr Measurements	2
Econ 200 Prin & Prob	3
H&SS Elective	3
	17

Spring Semester

Engl 219 Tech Writing	3
Econ 201 Prin of Econ	3
C E 282L Geomety of Transp	2
Mgt 202 Accounting	3
H&SS Elective	3
H&SS Elective	3
	17

THIRD YEAR

Fall Semester

Mgt 290 Statistical Meth OR Math 345 Statistical Meth	3
C E 302 Mech of Matls	3
C E 303L Mech Matls Lab	1
C E 312 Arch Struc	3
C E 350 Engr Economy	3
C E 270 Const. Materials	1
H&SS Elective	3
	17

Spring Semester

C E 360L Soil Mech	4
C E 372 Methods Improv	3
Mgt 310 Law of Contracts	3
Mgt 303 Acct for Mgt	3
Mgt Elective	3
	16

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

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FOURTH YEAR

Fall Semester

C E 474 Plan & Sched	3
C E 472 Const Cont	3
C E 470 Const Meth & Equip	3
C E 478 Des of Temp Str	3
Mgt Elective	3
Technical Elective	3
	18

Spring Semester

C E 471 Building Const	3
C E 477/Arch 388 Envir Ctrl	3
C E 473L Const Cost Anal	3
C E 490 Aspcts Prof Pract	1
Mgt 361 Org Thry	
or Mgt 495 Small Business	3
Mgt Elective	3
	16

Curriculum in Construction Engineering

Total hours for Graduation: 136

FIRST YEAR

Fall Semester

Chem 121L Gen Chemistry	4
Engl 101 Wrtg w/Rdgs in Exp	3
H&SS Elective	3
Engr-F 120L Engr Computing	3
Math 162 Calculus I	4
	17

Spring Semester

Engr-F 122L Intro to Engr Meth	3
Physcs 160 Gen Physics	3
Math 163 Calculus II	4
Engl 102 Analytic Writing	3
Geol 101 Physical Geology	3
	16

SECOND YEAR

Fall Semester

Math 264 Calculus III	4
Physcs 161 Gen Physics	3
Mgt 202 Accounting	3
Econ 200 Prin & Prob	3
C E 202 Engr Statics	3
C E 281L Engr Measurements	2
	18

Spring Semester

Math 314 Linear Algebra	3
Physcs 262 Gen Physics	3
M E 206L Dynamics	3
Engl 219 Tech Writing	3
C E 270L Const. Material	1
C E 282L Geometry of Transp	2
C E 252 Computer Applications	2
	17

THIRD YEAR

Fall Semester

Math 345 Stat Methods	
or C E 450 Prob Meth in Engr II	3
C E 302 Mech of Matls	3
C E 303L Mech Matls Lab	1
C E 331L Fluid Mech	4
C E 350 Engr Economy	3
H&SS Elective	3
	17

Spring Semester

C E 360L Soil Mech	4
C E 308L Str Anal	4
C E 324L Str Des in Meth	3
Mgt 303 Account for Mgt	3
H&SS Elective	3
	17

FOURTH YEAR

Fall Semester

C E 474 Plan & Sched	3
C E 472 Const Cont	3
C E 470 Const Meth & Equip	3
C E 411 Reinforced Conc	3
C E 372 Methods Inprovmt	3
C E 478 Des of Temp Str	3
	18

Spring Semester

C E 490 Aspcts Prof Pract	1
C E 477 Environ Control Sys	3
C E 473L Const Cost Anal	3
Mgt 495 Small Business	
or Mgt 496 Venture Capital	3
Mgt Elective	3
H&SS Elective	3
	16

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 program is accredited by the Computer Science Accreditation Board. The core requirements in mathematics, computer science and electrical engineering cover the basic principles and methodologies of discrete mathematics, problem analysis and algorithmic development, assembly language, high level programming languages (PASCAL, FORTRAN, C), 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 30 hours of credit acceptable toward the degree with a grade of C or better in all courses counted in the 30 hours and an overall academic average for all courses taken at UNM of not less than 2. 5.
2. 24 hours taken from among the English writing, computer science, mathematics, and laboratory science graduation requirements, with an academic average of not less than 3. 0 in the 24 hours. Engl 101, Engl 102, CS 154, CS 155L, and Math 162 must be included in the 24 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 advisor 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 40 hour computer science course work graduation requirement. Courses not accepted toward the 40 hours may be applied toward the 130 semester hour graduation requirement as general electives at the discretion of an undergraduate advisor.

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. The following courses cannot be used to satisfy any of the requirements listed below: Reserve Officers Training Corp (ROTC), recreational physical education (PE-NP), Business Education (BUS ED), courses offered by University College, Introductory Studies courses (e.g., Engl 100), and mathematics courses prior to Math 123. If in doubt about the applicability of a course contact an undergraduate advisor in the Department of Computer Science.

1. Completion of 130 semester hours.
2. Completion of at least 42 hours in courses numbered 300 or above.
3. Completion of 40 hours in computer science with a GPA of not less than 2. 5 in the 40 hours presented. The 40 hours must include the following courses, which total 34 hours:
   CS 154 Foundations of Computing Science
   CS 155L Introduction to Computer Programming
   CS 253L Intermediate Programming
   CS 255L Introduction to Computing Systems
   CS 303 Fundamentals of Algorithms
   CS 355 The Syntax and Semantics of Programming Languages
   CS 363L Fundamentals of Data Structures
   CS 387 Operating Systems Principles
   CS 460 Software Engineering
   EECE 238L Computer Logic Design

   The remaining six hours are technical electives of the student's choosing to be taken from among the Department of Computer Science offerings. The following courses in the Department of Electrical and Computer Engineering are also acceptable as technical electives:
   EECE 344L Microprocessors
   EECE 438 Design of Computers

   CS 259L may be substituted for CS 155L and CS 253L. Only five hours credit is awarded. The compute science hour requirement is reduced to 37, but the overall graduation requirement remains at 130 and the number of hours of quantitative studies remains 75.

   The following additional rules apply.
   a. Department offerings below the 300 level cannot be used as technical electives. CS 390, 420, 421, 490, 493, 494, and 495 cannot be used as technical electives.
   b. At most 3 hours of CS 499 may be used toward satisfaction of this requirement.
   c. At least 15 credits at or above the 300 level used to satisfy this requirement must be taken from full-time University of New Mexico Department of Computer Science faculty.
4. Completion of the mathematics sequence:
   Math 162 and 163 (Calculus I and II)
   Math 317 (Elementary Combinatorics)
   Math 375 (Introdution to Numerical Computing)
   One additional mathematics course: either
   Math 264 (Calculus III) or a course at the 300 level or above. Mathematics courses for teachers and education students may not be used to satisfy this requirement. Math 314 or 321 (Linear Algebra) or Math 316 (Applied Ordinary Differental Equations) are recommended, as they better prepare the student for Math 375.
5. Six hours of writing skills: Engl 101 and 102.
   This requirement may be satisfied by passing an authorized proficiency examination. The department generally follows the rules used by the College or Arts and Sciences. Note that for a score of 25 or better on the English portion of the ACT Engl 101 and 102 are waived, but no credit toward the 130 hour graduation requirement is granted.
6. Nine hours in humanities. The following general areas are considered humanities: English, Literature, Modern & Classical Languages, Philosophy, Art, Music, Fine Arts, Architecture, American Studies, History.
7. 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, Communication.
8. 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, 102L
   Physics 160 -- 161, 163L
   Physics is recommended.
9. Seventy five hours of quantitative studies. Courses used to satisfy other requirements may also be used to satisfy this requirement. Additional hours can come from additional mathematics, additional laboratory science, engineering, and certain quantitative social science classes. At most forty hours from Computer Science courses may be used to meet this requirement. Mathematics below the level of calculus, CS 150, Engr-F 120L, and laboratory science courses for non-science and engineering majors are not acceptable. If in doubt about the applicability of a class, obtain the approval of an undergraduate advisor in the department.

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10. Course work sufficient to satisfy requirements of a minor. Minors approved by the College of Arts and Sciences are generally acceptable for Computer Science majors. The University of New Mexico Catalog 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.

The following concentration of courses taken from the Department of Electrical and Computer Engineering satisfies this requirement: EECE 203, 206L, 213, 344L, either (EECE 323 and 325L) or EECE 314, an additional course numbered 300 or above, and a total of 20 credits in EECE.

The following courses may not be used in building the concentration: EECE 204, 238L (required of all CS majors), EECE 337 and 437.

Mathematics minors may not use Department of Mathematics Courses for Teachers and Education Students in constructing the minor.

Students enrolling in the three-two MBA 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 requirement of categories 1, 2, 5, 6, 7, 8, and 9.

All courses taken to satisfy these requirements are subject to final approval by an undergraduate advisor. A maximum of 24 semester hours taken for CR/NC may be applied toward the baccalaureate degree. Courses taken for CR/NC may only be used to satisfy the requirement of 130 hours.

Certain courses offered by departments in the College of Arts and Sciences may not be used to satisfy the humanities and social science elective requirements because they do not satisfy the spirit of these requirements, which is to broaden the perspectives of the student. In particular, Phil 156 (Introduction to Logic) and Phil 257 (Introduction to Symbolic Logic) may not be used to satisfy the humanities requirement and Psych 200 (Statistical Principles), and numerous technical courses in the Department of Geography may not be used to satisfy the social science requirement. Students who speak a foreign language fluently are encouraged of to take literature courses taught in the foreign language, but the applicability of basic language and grammar courses toward the humanities requirement will be decided on an individual basis after consultation with the Department of Modern and Classical Languages. If there is any doubt regarding applicability of a course, an undergraduate advisor in the Department of Computer Science should be consulted.

Students may not take elementary courses in a department after progressing past a certain point in the course offerings of that department. Some examples are: taking CS 150 after having taken CS 253L and taking Math 145 and/or Math 245 after having taken advanced mathematics courses. Courses taken out of sequence in this manner may not even be used as general elective credits to satisfy the requirement of 130 hours. *Students may not go back and retake elementary computer science courses in order to raise their grade point average in computer science to 2. 5.*

No one course may be used to satisfy more than one requirement of categories 3, 4, and 10. Due to the cross listing of various courses within the university and the different requirements for the minor from department to department this has a number of implications. In particular, EECE minors cannot count EECE 344L toward the major. CS 441/EECE 401 (Modern Computer Architecture), CS 432/EECE 432 (Introduction to Image and Pattern Analysis), and CS 433/EECE 433 (Computer Graphics) can be used as either a technical elective within the 40 hour requirement or to fulfill the requirements of the minor, but not both. Mathematics minors cannot count the required sequence in mathematics toward the minor in mathematics.

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 155L, CS 253L, EECE 238L, CS 255L, and CS 363L
CS 259L, may be substituted for CS 155L and CS 253L.

No course with a grade of less than C may be counted toward the minor.

Advising

Students are required to see an undergraduate advisor within the department each semester prior to registering for classes. The student should check with an advisor about the admissibility of classes used to satisfy graduation requirements 6, 7, 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 University College more suited to their needs and interests. Students should contact the department or the University 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 material 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 advisor 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 (Advanced Algebra). General electives include courses in humanities, social and behavioral sciences. It is recommended that a student not 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
	17

Second Semester

††Engl 102 Analytic Writing	3
CS 155L Intro Comp Prog	4
CS 154 Fdn of CS	3
Math 163 Calculus II	4
Laboratory Science II	4
	18

SECOND YEAR

Third Semester

CS 253L Interm Programg	4
EECE 238L Comp Logic Dsgn	4
Minor/General elective	9
	17

Fourth Semester

CS 255L Intro Comp Sci	3
Math 264 Calculus III or Math 3XX	3
Minor/General elective	9
	15

THIRD YEAR

Fifth Semester

CS 363L Fdn of Data Struct	4
Math 317 Elem Combinatorics	3
Minor/General elective	9
	16

Sixth Semester

CS 303 Fdn of Algorithms	3
CS 355 Syntx/Semtc Prog Lang	3
Math 375 Num Comp	3
Minor/General electives	9
	18

FOURTH YEAR

Seventh Semester

CS 387 Operating Sys Princ	3
CS elective	3
Minor/General electives	9
	15

Eighth Semester

CS 460 Software Engr	3
CS elective	3
Minor/General electives	9
	15

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 stress fundamental concepts as well as current application methods.

Minor Studies

A minor in electrical and computer engineering is offered in conjunction with major study in other departments such as Physics, Mathematics, and Computer Science. Prior approval of the minor and attendant courses must be obtained from the department of interest and the Electrical and Computer Engineering Department.

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 advisors, departmental advisors, 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.

Computer Facilities

The department has a number of computer systems for student instruction and student/faculty research. All these systems are interconnected through a state-of-the-art ethernet system, and hence readily accessible. These systems include:

- A VaxStation II system that supports a general purpose laboratory with fourteen VT240 terminals, and three high-speed printers.
- A SUN-3/180S file server with a color work station, six SUN3-50 monochrome work stations, and a color Versatec plotter for VLSI design work.
- A VaxStation II GPX color image processing system with two work stations.
- Twelve M68000 microporcessor stations supported by a microvax.
- Three DEC VT 103 computer systems that support an advanced microprocessor laboratory.
- A computer-aided design (CAD) laboratory with several IBM PC supported work stations.
- A hypercube laboratory consisting of several SUN-3 computer systems and an Encore computer system.
- A signal processing laboratory with two SUN-2 systems and a VaxStation II system.

* 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.

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- A real time signal processing facility that is supported by several IBM PC's, signal processing chips, and A/D and D/A hardware.
- A state-of-the-art computer vision laboratory.
- Seven high resolution Hewlett-Packard PC systems that support a software engineering laboratory.
- A VaxStation II and laser printer system accessible to faculty and staff for word processing. The above systems are supported with a variety of peripherals, including disk and tape drives, terminals, line printers and laser printers. Hands on experience with computers is stressed. The department also has access to several VAX computer systems in the UNM Computing Center via a campus wide computer network.

Electrical and Computer Engineering Laboratories

Laboratories emphasize the major specialty areas of electrical and computer engineering. Laboratory courses are organized around design and the solution of engineering problems rather than a pattern of routine experiments.

Admission to Baccalaureate Programs

Of the 18 semester hours required by the College of Engineering for admission, a grade point average of 2. 5 in those courses is required for admission to study toward a baccalaureate in either electrical engineering or computer engineering.

Graduate Credit Policy

Department graduate students may receive Graduate credit only for 400-level EECE courses marked by *, subject to approval of the departmental graduate coordinator.

Electrical Engineering

Electrical engineering uses mathematics, physics, and other sciences in the design of electrical devices and systems, including lasers, transistors, optical fibers, integrated circuits, communication systems, satellite systems, electronic medical systems, and electrical power systems. As such, electrical engineering is a very sophisticated, rapidly changing discipline. It is also a discipline that requires rigorous training in advanced mathematics and the basic sciences. At UNM, this field is divided into several areas of concentration: electronics, microelectronics, optoelectronics, computers and digital systems, networks and control systems, power systems, and signal processing and communications. The B. S. in electrical engineering is the basic degree offered at UNM, and is accredited by the Engineering Accreditation Commission of ABET.

Curriculum in Electrical Engineering

The Bachelor of Science Program in Electrical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Hours required for graduation: 133

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Physcs 161 Gen Physics	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)
	16	(15-3)

Second Semester

EECE 206L EE Lab I	2	(1-3)
EECE 213 Circuit Analysis II	3	(3-0)
Physcs 262 Gen Physics	3	(3-0)
Math 264 Calculus III	4	(4-0)
C E 202 Engr Statics	3	(3-0)
†H&SS Elective	3	(3-0)
	18	(17-3)

THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
EECE 340 Prob Methods	3	(3-0)
EECE 344L Microprocessors	4	(3-3)
EECE 323 Intro Digital Electr	3	(3-0)
M E 206L Dynamics	3	(2-3)
EECE 361 Fields and Waves I	3	(3-0)
	16	(14-6)

Second Semester

Ch-NE/M E 301 Thermodynamics	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 314 Signals and Comm	3	(3-0)
††Math elective	3	(3-0)
	17	(16-3)

FOURTH YEAR*

First Semester

	Cr	Hrs Lect?Lab
EECE 371 EE Mat and Dev	4	(4-0)
EECE 445 Intro to Control	3	(3-0)
EECE 419L Projects Lab	3	(0-9)
†H&SS Electives	6	(6-0)
	16	(13-9)

Second Semester

**Technical Electives	11	(11-0)
**EECE Lab Elective	2	(0-6)
†H&SS Elective	3	(3-0)
	16	(14-6)

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 exceed the supply for the

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) *during their senior year.* This is in preparation for professional registration examination.

† See approved list of Humanities and Social Science Electives.

†† 300-level or higher math elective and approval of advisor

** Approval of advisor required

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 Pascal, 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.

Curriculum in Computer Engineering

The Bachelor of Science Program in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET.

Hours required for graduation: 133

FIRST YEAR

First Semester

	Cr	Hrs Lect/Lab
Chem 121L Gen Chem	4	(3-3)
Engl 101 Wrtg w/Rdgs in Exp	3(	3-0)
Engr-F 120L Fortran	3	(3-0)
Math 162 Calculus I	4	(4-0)
H&SS Elective	3	(3-0)
	17	(16-3)

Second Semester

CS 155 Intro Comp Prog	4	(4-0)
Physcs 160 Gen Physics	3	(3-0)
Math 163 Calculus II	4	(4-0)
Engl 102 Analytic Writing	3	(3-0)
†H&SS Elective	3	(3-0)
	17	(17-0)

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 Physics	3	(3-0)
C S 253 Intermed. Prog	4	(4-0)
	17	(16-3)

Second Semester

EECE 344L Microprocessors	4	(3-3)
EECE 213 Circuit Analysis II	3	(3-0)
EECE 206L EE Lab I	2	(1-3)
Physcs 262 Gen Physics	3	(3-0)
***Science Elective	4	(3-3)
	16	(13-9)

THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
EECE 323 Intro Digital Electr	3	(3-0)
EECE 340 Probabilistic Methods	3	(3-0)
EECE 231 Data Strc in C Prog	4	(4-0)
Math 264 Calculus III	4	(4-0)
†H&SS Elective	3	(3-0)
	17	(17-0)

Second Semester

EECE 337L Intro Comp Arch & Op Sys	3	(3-1)
EECE 314 Signals and Comm	3	(3-0)
EECE 325L Electr Lab I	2	(1-3)
Math 314 or 321 Linear Algegra	3	(3-0)
†H&SS Elective	3	(3-0)
Math 327 Discrete Math	3	(3-0)
	17	(16-4)

FOURTH YEAR*

First Semester

	Cr	Hrs Lect/Lab
EECE 435 Comp Engr Design	3	(3-0)
EECE 437L Operating Systems	3	(3-1)
CE/ME 350 Engr Econ	3	(3-0)
EECE 438 Design of Comp	3	(3-0)
†H&SS Electives	3	(3-0)
	15	(15-1)

Second Semester

EECE 440 Computer Networks	3	(3-0)
EECE 447L Comp Design Lab	2	(1-3)
**Tech Electives	6	(6-0)
°Free Elective	3	(3-0)
†H&SS Elective	3	(3-0)
	17	(16-3)

Mechanical Engineering

Profession

Mechanical engineering is a very diversified branch of engineering. It is broadly concerned with energy, dynamic systems, manufacturing processes, CAD/CAM, applied mechanics and robotics. Mechanical engineers conceive, plan,

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

† See approved list of Social Science/Humanities electives.

** Technical electives: These electives will be developed in consultation with the computer engineering advisor from courses in EECE, CS, Math, Physics, and other areas of engineering to satisfy restrictions.

° Consult the computer engineering advisor for restrictions on this elective.

*** See approved list of Science electives. The Science elective may be taken during the freshman year.

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design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems for energy conversion, flexible automation, 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 robot manipulators, CAD/CAM systems, and heat pumps are conducted. The department has a large number of laboratories including materials testing, vibration, fluid mechanics, heat transfer, automotive, robotics, manufacturing, microcomputer, tribology, solar combustion, granular materials, HVAC, solar energy, instrumentation, rheology, as well as a large CAD/CAM laboratory, a large machine shop, a robotics laboratory and a PC laboratory to which all students have access.

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 Assistance

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

The Bachelor of Science Program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Hours required for graduation: 133§

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen Physics	3	(3-0)
Econ 200 Prin and Prob	3	(3-0)
ME 201L Intro to Mech	2	(2-4)
CE 202 Engr Stat	3	(3-0)
†Elective	3	(3-0)
	18	(18-4)

Second Semester

Math 311 Vector Analysis	3	(3-0)
Physcs 262 Gen Physics	3	(3-0)
ME 206L Dynamics	3	(2-3)
EECE 203 Circuit Analysis I	3	(3-0)
†Elective	3	(3-0)
	5	(14-3)

THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 316 Diff Eq	3	(3-0)
ME 301 Thermodynamics	3	(3-0)
ME 314L Dyn of Mech Sys	3	(2-3)
ME 317 Fluid Mech	3	(3-0)
EECE 204 Intro to Elec Engr	3	(3-0)
CE 302 Mech of Mat	3	(3-0)
	18	(17-3)

Second Semester

ME 302 Thermodynamics II	3	(3-0)
ME 318L ME Lab I	2	(3-6)
ME 320 Heat Transfer	3	(3-0)
ME 357 Intro to Mech Vib	3	(3-0)
ME 370 Engr Mat Science	3	(3-0)
†Elective	3	(3-0)
	18	(18-6)

§ 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 student's advisor.

FOURTH YEAR*

First Semester

	Cr	Hrs Lect/Lab
ME 351L ME Lab II	2	(3-6)
ME 358L Design of Sol Sys	3	(2-3)
†Elective	3	(3-0)
Tech elective	9	(9-0)
	17	(17-9)

Second Semester

ME 352 ME Lab III	2	(0-6)
ME 359L Mech Eng Design	4	(1-6)
ME 363L Anal of Eng Sys	3	(2-3)
ΔTech Elective	5	(5-0)
	14	(10-15)

NOTE

1. Technical electives taken for degree requirements must be approved by the Department Chairperson. They may be selected from ME 273, 341, 350, 355, 356, 365, 367, 373L, 382, 401, 402, 404, 414, 425, 428, 430, 451-452, 455, 456, 461-462, 465, 470, 471, 475, 480, 481, 482, 483, 484, 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 an exciting, rapidly-evolving field which requires engineers capable of continuously developing new ideas and concepts. Nuclear engineers are primarily concerned with the energy released in nuclear processes and in its control, monitoring and use. Some nuclear engineers are helping to solve our immediate energy needs by designing environmentally-sound, passively safe nuclear fission reactors. Others are looking to our future energy needs by seeking a means to control nuclear fusion which will be a safe and virtually inexhaustible energy source. Nuclear engineers also help in the exploration and utilization of outer space by developing the nuclear power sources that will be essential for carrying our many planned missions. In addition to developing energy sources, nuclear engineers also help to develop a wide variety of uses for radioisotopes. Applications have included the treatment and diagnosis of diseases; food preservation; manufacturing development, processing and quality control; low-power, long-life energy sources; tracing biological and mechanical processes; oil well logging; and many types of basic research.

The goal of nuclear engineering education is to give the student an excellent understanding of both nuclear processes and the physics and engineering principles necessary to develop useful applications based on these processes. The course of study in nuclear engineering will give the student broad training in the fundamentals of mathematics, physics, chemistry, and the engineering sciences, followed by distinctly professional courses in radiation, nuclear detection and safety, reactor theory, thermal-hydraulics, and nuclear design. Students will also select three technical electives which will allow them to explore in depth, areas of nuclear engineering that are of particular interest to the student.

The graduate nuclear engineer will find a wide variety of career opportunities. Many will find jobs supporting nuclear power in areas such as nuclear fuel processing, waste management, transportation, safety and safeguards, design of new plants and modification of existing plants in addition to actually working at a nuclear reactor. Others will find opportunities in fusion research, space nuclear power, or in industrial and research applications of radioisotopes and nuclear processes. The graduate from our program will also be well-prepared to pursue advanced graduate studies.

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 nuclear engineering laboratories are equipped with an AGN-201M critical reactor; a 3,000 curie Co-60 facility; pulsed neutron generators; a natural uranium, sub-critical reactor; a graphite pile; and supporting radiation counting equipment. In addition to the well-equipped laboratories on campus, the advanced reactors and radiation equipment of the Sandia National Laboratories, Los Alamos National Laboratory, and the Air Force Weapons Laboratories are utilized for both instruction and research.

Computer Facilities

Computers provide the basic computational tool for today's modern engineer. Freshman engineering students are introduced immediately to the University's 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.

Curriculum in Nuclear Engineering

The Bachelor of Science Program in Nuclear Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Hours required for graduation: 136

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

† The electives are to be chosen from the humanities and social sciences, with the approval of the student's advisor.

Δ Credit may vary depending on the freshman science elective.

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SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen Physics	3	(3-0)
Ch-NE 230 Prin Nuclear Engr	3	(3-0)
CE 202 Statics	3	(3-0)
Econ 200 Prin & Probs	3	(3-0)
	16	(16-0)

Second Semester

	Cr	Hrs Lect/Lab
Math 316 App Ord Diff Eq	3	(3-0)
Physcs 262 Gen Physics	3	(3-0)
Ch-NE 231 Radiation Safety Engr	3	(3-0)
Ch-NE 301 Thermodynamics	3	(3-0)
Engl 219 Technical Writing	3	(3-0)
EECE 202 Elec Engr I	3	(3-0)
	18	(18-0)

THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
Ch-NE 317 Chem & Nucl Engr Analysis	3	(3-0)
Ch-NE 450 ChNE Economics	3	(3-0)
CH-NE 311 Unit Operations I	4	(4-0)
Ch-NE 323L Rad & Det Meas	3	(2-3)
ΔH&SS Elective 3(3-0)		
	16	(15-3)

Second Semester

Ch-NE 313L Nuclear Systems	4	(3-3)
Ch-NE 370 Engr Mtls Sci	3	(3-0)
Ch-NE 330L Nucl Engr Science	4	(3-3)
Physcs 330 Atom/Nucl Physics	3	(3-0)
ΔTech Elective	3	(3-0)
	17	(15-6)

FOURTH YEAR*

First Semester

	Cr	Hrs Lect/Lab
Ch-NE 410 Nuc Rctr Theory I	3	(3-0)
Ch-NE 464 Thermal-hydraulics	3	(3-0)
Ch-NE 497L Intro NE Design	3	(2-3)
ΔTech Elective	3	(3-0)
Δ H&SS Elective	6	(6-0)
	18	(17-3)

Second Semester

Ch-NE 413L Nucl Engr Lab I	3	(1-6)
Ch-NE 498L NE Design	4	(1-9)
Ch-NE 468 Space Nucl Power or Ch-NE 485 Fusion Technology	3	(3-0)
Ch-NE 452 Seminar	1	(1-0)
ΔTech Elective	3	(3-0)
ΔH&SS elective	3	(3-0)
	17	(12-15)

NOTES:

1. 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.
2. Prior to the completion of 95 semester hours, the student must file an application for the B. S. degree.

Bachelor of Engineering Options

A student who wishes 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 College of Engineering Records office at the time he or she transfers into the College. The College Records office will assign an advisor appropriate for the option that the student plans to pursue. The student will work with this advisor 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 numerous challenging problems in the life sciences and in clinical medicine. For example, research-oriented biomedical engineers may wish to participate in the design of 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: 133

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 Physics	3	(3-0)
CE 202 Eng Statics	3	(2-3)
Math 264 Calculus III	4	(4-0)
	18	(15-9)

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

Δ Electives and general courses are flexible and should be taken whenever convenient.

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 Physics	3	(3-0)
Chem 315 Phys Chem	4	(4-0)
Comm 130 Pub Spkng	3	(3-0)
†Tech electives	7	(7-0)
	17	(17-0)

Second Semester

Chem 423 Biochem	3	(3-0)
Engr electives	3	(3-0)
H&SS electives	6	(6-0)
†Tech elective	4	(4-0)
	16	(16-0)

FOURTH YEAR*

First Semester

	Cr	Hrs Lect/Lab
Life science elective	4	(3-3)
†Tech electives	6	(6-0)
ΔElectives	6	6-0)
	16	(15-3)

Second Semester

Life Science electives	3	(3-0)
H&SS elective	3	(3-0)
†Tech electives	7	(7-0)
ΔElective	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 College of Engineering to enable students to formulate programs of studies especially designed to meet their educational objectives by cutting across 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 advisor 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 so 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, or 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: 133

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen Physics	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 Physics	3	(3-0)
†Tech elective	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
Communications elective	3	(3-0)
	15	(15-0)

† Tech electives: These electives will be developed in consultation with an option committee advisor 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 27 hours will include 10 hours from engineering science courses.

Δ Unrestricted electives.

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

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THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
ME or Ch-NE 301 Thermodynamics	3	(3-0)
Ch-NE 252 or ME 317 Fluid Mech	3	(3-0)
†Tech electives	6	(6-0)
ΔElective	6	(6-0)
	18	(18-0)

Second Semester

ME or Ch-NE 302 Thermodynamics	3	(3-0)
Ch-NE 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	9	(9-0)
H&SS elective	3	(3-0)
	15	(15-0)

Second Semester

Ch-NE 430 Intro to NE	3	(3-0)
Engr-F 301 Seminar in Engr Prac.	1	(1-0)
CE/ME 350 or ChE 450 Engr Econ	3	(3-0)
†Tech electives	4	(4-0)
ΔElectives	6	(6-0)
	17	(17-0)

Manufacturing Engineering and Robotics Program

The widespread realization of the declining competitive position of American industry has led to renewed interest in and increasing importance of Manufacturing Engineering. To respond to this neglect of nationwide concern and to increase the human and technological resources of the state, a Bachelor of Engineering Degree Progam in Manufacturing Engineering and Robotics has been established.

The focuses of this program are the equipment and technology aspects of modern manufacturing and their expected lines of development. A research study commissioned by General Electric which studies the ultimate cost savings available in typical fabricating and assembly plants showed that:

- *20% of ultimate cost savings come from productivity* improvement programs - what has traditionally been called efficiency increase.
- 40% of total savings can be attributed to manufacturing policy and structure changes. These are aspects of management functions.
- The remaining 40% is attributed to new equipment and pro*cess technologies which incorporate information processing* into manufacturing operations.

These new equipment concepts and technologies, such as computer integrated manufacturing, flexible manufacturing systems and robotics, permit the manufacture of a variety of products on the same equipment with shorter lead times and consistent, higher quality. This new equipment is expensive and requires highly skilled and creative professionals for its design and implementation.

The curriculum requires that all students design an elective course sequence, in consultation with a faculty advisor, aimed at an important area of manufacturing.

Curriculum in Manufacturing Engineering and Robotics Option

Hours required for graduation: 135

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Phys 161 General	3	(3-0)
Math 264 Calculus III	4	(4-0)
C E 202 Statics	3	(3-0)
Communication Skills	3	(3-0)
H&SS Elective	3	(3-0)
	16	(16-0)

Second Semester

Math 345 Stat Math	3	(3-0)
EECE 203 Crt Anal	3	(3-0)
M E 206L Dynamics	3	(2-3)
C E 302 Mec of Mat	3	(3-0)
Science Elective	3	(3-0)
H&SS Elective	3	(3-0)
	18	(17-3)

THIRD YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 316 Diff Eng	3	(3-0)
EECE 204 Intro Elec Eng	3	(3-0)
EECE 238L Comp Log Des	4	(3-3)
M E 301 Thermodyn	3	(3-0)
M E 317 Fluid Mech	3	(3-0)
	16	(15-3)

Second Semester

M E 370 Matl Sci	3	(3-0)
M E 362 Robotics	3	(3-0)
M E 314L Dyn Mech Sys	3	(2-3)
M E 381L ME Lab	2	(0-6)
M E 373 Manf Proc	3	(3-0)
†Technical Elective	3	(3-0)
	17	(14-9)

† Tech electives: These electives must be developed in consultation with an option committee advisor 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.*

Δ Unrestricted elective.

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

FOURTH YEAR

First Semester

	Cr	Hrs Lect/Lab
M E 358L Des Solid Sys	3	(2-3)
M E 480 Mech Crtl	3	(3-0)
M E 470 Microproc	3	(3-0)
H&SS Elective	3	(3-0)
†Technical Elective	6	(6-0)
	18	(17-3)

Second Semester

M E 350 Engr Econ	3	(3-0)
M E 359L Mech Eng Des	4	(1-6)
M E 482 Robot Eng	4	(4-0)
H&SS Elective	3	(3-0)
†Technical Elective	3	(3-0)
	17	(14-6)

Microelectronics Processing Option

Microelectronics is one of the most exciting fields for the 1990s. 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 future. As the microelectonics 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 maintaining 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 curriculum under the Bachelor of Engineering degree, the Microelectronics Processing Option. It emphasizes electrical engineering and chemistry, as well as mathematics, physics, and communication skills.

Curriculum in Microelectronics Processing Option

Hours required for graduation: 133

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 316 App Ord Diff Eq	3	(3-0)
Physcs 161 Gen Physics	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 Gen Physics	3	(3-0)
EECE 213 Circuit Analysis II	4	(4-0)
EECE 206L EE Lab I	2	(1-3)
M E 317 Fluid Mechanics	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)
Tech Elective	1	(1-0)
	16	(14-6)

Second Semester

Ch-NE or ME 301 Thermodynamics	3	(3-0)
CE 202 Engr Statics	3	(3-0)
ME or CE 350 or Ch-NE 450 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)
Engl 219 Tech Writing or Comm 130 Pub Spkg	3	(3-0)
	17	(13-12)

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

† Technical electives must be selected in consultation with the Chairman of the Manufacturing Engineering and Robotics Committee.

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

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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.

Admission

The admission requirements for this program are the same as those for University College, *see Admissions section of this* catalog.

Degree Requirements

1. Completion of all courses in the curriculum (or equivalent), a total of 65 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
Math 162 Calculus I	4	(4-0)
Engl 101 Wrtg w/Rdgs in Expos	3	(3-0)
Chem 121L Gen Chemistry	4	(3-3)
Engr-F 120L Engr Computing	3	(2-2)
†H&SS Elective	3	(3-0)
	17	(15-5)

Second Semester

Engr-F 122L Intro to Engr Mthds	3	(2-2)
Physcs 160 Gen Physics	3	(3-0)
Math 163 Calculus II	4	(4-0)
Engl 102 Analytic Wrtg	3	(3-0)
Chem 122L Gen Chemistry	4	(3-3)
	17	(15-5)

SECOND YEAR

First Semester

	Cr	Hrs Lect/Lab
Math 264 Calculus III	4	(4-0)
Physcs 161 Gen Physics	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 Physics	3	(3-0)
EECE 203 Circuit Analysis I	3	(3-0)
*Tech elective	6	(6-0)
	15	(15-0)

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. {Offered upon demand}

****322. Special Topics. (1-3)**
Selected topics in technologies of current interest. {Offered upon demand}

****325. Technology and Society.** [Technology and Culture] **(3)**
(Also offered as Am St 325.) Surveys the history of technological development in America, transfer from Europe, and new transfer to other countries. Identifies ways in which technology has impacted and been impacted by culture. Examines current and potential trends.

****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. {Offered upon demand}

****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. {Offered upon demand}

* Students are encouraged to take the Fundamentals of Engineering Examination (EIT) during their senior year. This is in preparation for the professional registration examination.

** Selected from departmental required courses. Consult academic advisor prior to selection.

† Students should consult with program advisor for a list of acceptable Humanities and Social Science electives.

****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. {Offered upon demand}

****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. {Offered upon demand}

****380. Applications of 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 socio-economic considerations. {Offered upon demand}

****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. {Offered upon demand}

****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. {Offered upon demand}

****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. {Offered upon demand}

****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-F)

116. Introduction to Engineering. (1)
Description of the engineering profession, orientation to engineering education, introduction to the engineering design process. 2 hrs. lecture and demonstrations. {Offered upon demand}

120L. Engineering Computing. (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: 120L; pre- or corequisite: Math 162. 2 hrs. lecture, 2 hrs. 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. **Graded on CR/NC option.** {Spring}

Students enrolled in the Cooperative Education Program (see section entitled "Cooperative Education Program") are required to register in E Coop 105 while on work phase and encouraged to enroll in one of the appropriate evaluation courses during the semester immediately following each work phase.

III. COOPERATIVE EDUCATION PROGRAM (E COOP)

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

Frank L. Williams, Chairperson
Farris Engineering Center 209A, 277-5431

PROFESSORS:

Chen Yen Cheng, Ph. D., Kyoto University
Mohamed S. El-Genk, Ph. D., University of New Mexico
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

ASSOCIATE PROFESSORS:

Harold M. Anderson, Ph. D., Wayne State University
Gary W. Cooper, Ph. D., University of Illinois
Abhaya K. Datye, Ph. D., University of Michigan

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David Kauffman, Ph. D., University of Colorado*
Richard W. Mead, Ph. D., University of Arizona*
Douglas M. Smith, Ph. D., University of New Mexico

PROFESSOR EMERITUS:

Glen A. Whan, Ph. D., Carnegie Institute of Technology

DEPARTMENTAL CURRICULA:

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CHEMICAL-NUCLEAR ENGINEERING (CH-NE)

230. Principles of Nuclear Engineering. (3)
Introduction to nuclear engineering and nuclear processes; nuclear fission, chain reactions, reactor principles, radiation, fusion, the nuclear fuel cycle. Includes open-ended exercises.
Prerequisites: Chem 121L, Engr-F 120L. 3 lectures. {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, radiation safety, shielding principles, and design project.
Prerequisite: 230 or permission of instructor. {Spring}.

251. Chemical Process Calculations. (4)
Extensive problem work in material and energy balances and basic thermodynamics for both steady state and transient processes. Students will utilize physical properties, chemistry, and computer skills to obtain solutions. Detailed examination of case studies demonstrating the fundamentals of process analysis.
Prerequisites: Chem 122L or 132L, Engr-F 120L. 4 lectures. {Summer, Fall}

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. (4)**
Analysis of flow processes with the second law; efficiency of chemical engineering processes; physical and chemical equilibria. Open-ended projects investigating the thermody-namics of industrial systems.
Prerequisite: C or better in 251. {Spring}

311. Introduction to Transport Phenomena. (4)
The mechanisms and the related mathematical analysis of momentum, heat, and mass transport in both the molecular and turbulent regimes. Similarities and differences between transport types and the prediction of transport properties will be studied.
Prerequisite: C or better in 231 or 302; corequisite: 317.

312. Unit Operations. (4)
A study of the unit operations involved with momentum, heat, and mass transfer. Focus will be on the basics of equipment design and how to synthesize a process from the basic units. Will make extensive use of computer techniques and design exercises.
Prerequisites: C or better in 251 and 311.

313L. Nuclear Systems. (4)
Nuclear technology and systems; energy conversion; heat and momentum transfer applications and design projects; design and analysis of relevant laboratory experiments.
Prerequisites: 301, 311. {Spring}

314L. Chemical Engineering Laboratory I. (2)
Laboratory practice and experimental study of unit operations. Focus will be on the development of an experimental plan and the written presentation of results.
Prerequisites: 311, 312, Engl 219. 6 hrs. lab. {Fall, Spring}

****317. Chemical and Nuclear Engineering Analysis. (3)**
Application of analytical and numerical techniques to the solution of frequently encountered 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 231 or 302, Math 316. {Fall}

****323L. Radiation Detection and Measurement. (3)**
Radiation interaction with matter and detection techniques for nuclear radiations. Experiments will be performed using gas, scintillation, and semiconductor counters and include the design of experiments and identification of unknown radionuclides.
Prerequisite: 231 or equivalent. 2 lectures, 3 hrs. lab. {Fall}

****330L. Nuclear Engineering Science. (4)**
Nuclear properties, nuclear stability, radioactivity, decay modes, macroscopic and microscopic cross sections, nuclear reactions, and reaction ratios, neutron interactions, prompt/delayed neutrons, diffusion theory, neutron detection, open-ended problems, and experimental design.
Prerequisites: 231, 323L, Math 316 or permission of instructor. 2 lectures, 3 hrs. lab.

370. Engineering Materials Science. (3)
(Also offered as C E 370.) Structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials: metals, ceramics, and polymers.
Prerequisite: 301 or 302; C E 302 recommended. {Fall Spring}

393L. Introduction to Chemical Engineering Design. (3)
Introduction to principles used in chemical engineering design, including: process flowsheets, feasibility studies, equipment specification, and related topics. Emphasis on process modeling and simulation as a design tool. Scale-up techniques,
Corequisite: 312.

***410. Nuclear Reactor Theory I. (3)**
Nuclear transport theory, critical system analysis, reactor kinetics, core design problems, computer methods and applications.
Prerequisites: 317, 330L, or equivalent. {Fall}

***413L. Nuclear Engineering Laboratory. (3)**
Laboratory investigations of the theory and practice of nuclear chain-reacting systems including open-ended experiments and experimental design, covering reactor kinetics, importance functions, and criticality.
Prerequisites: 323L, 330L, 410. 1 lecture, 6 hrs. lab. {Spring}

415L. Chemical Engineering Laboratory II. (3)
Capstone laboratory experience. Includes experiments in mass transfer, chemical kinetics, process control and areas of current developments. Students will be expected to tailor a group of experimental investigations to attack an assigned problem.
Prerequisites: 314L, 461; corequisite: 454. 2 lectures, 8 hrs. lab.

****430. Introduction to Nuclear Engineering. (3)**
Principally for non-nuclear engineering majors. The nucleus and nuclear properties; fission process and chain reaction; survey of design and operation of reactors and associated equipment; effects, uses, and detection of radiation. {Spring}

* Registered Professional Engineer.

***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}

***436. Biomedical Technology. (3)**
Fundamental concepts of the transport processes in the human body. Applications of the basic transport principles to the biomedical systems, e. g. artificial organs, and the measurement of the rheological properties of blood. Use of biomaterials.

***438. Vacuum Science Technology. (3)**
Calculations, performance evaluation and fundamental concepts of vacuum science technology. Applications to chemical processes, microelectronic processing, high vacuum physics and material technologies.
Prerequisite: Math 316. {Spring}

***441. Air Pollution Control. (3)**
Technical analysis of air pollution control: air pollution sources, environmental effects, regulations, control technology. Emphasis is on practical projects, especially those related to local air pollution problems.

***445. Ceramics Science I. (3)**
Study of ceramics science including ceramic powder synthesis, advanced characterization techniques, powder and colloidal processing and sintering of single phase and composite materials.
Prerequisite: 370 equivalent materials background.

450. Chemical and Nuclear Engineering Economics. (3)
A study of the factors, other than the scientific basis for design, that determine the feasibility of entering a given venture. Includes a design project which covers such topics as raw materials markets, patents, competition and profitability.
Prerequisite: Econ 200 or equivalent. {Fall}

451-452. Senior 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}

***464. Thermal-Hydraulics of Nuclear Systems. (3)**
Nuclear system heat transfer and fluid flow; convection in single and two phase flow; liquid metal heat transfer pressure loss calculations; fuel element design and heat transfer; thermal-hydraulics design of nuclear systems.
Prerequisites: 311, 313, 317 or equivalent. {Fall}

***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: 330L or 430, Math 316. {Offered upon demand}

***468. Introduction to Space Nuclear Power. (3)**
Introduction to design and mass optimization of Space Power Systems, passive and active energy conversion systems, and design of RTG's, radiation shield, heat pipe theory, design and applications, advanced radiators, TE-EM pumps, and orbital lifetime calculations and safety.
Prerequisites: 230 or 430, 311; recommended: 410, 464.

***470. Nuclear Fuel Behavior and Reactor Safety. (3)**
Crystal structure, chemical equilibrium, point defects, dislocation, fuel and cladding behavior during irradiation, fission products behavior, mechanical properties of fuel, modeling of fuel elements, cladding/fuel interaction.
Prerequisites: 330L and 370 or their equivalents. {Offered upon demand}

***472. Chemical Engineering Materials. (3)**
Modern theory of corrosion, electrochemical principles, and electrolytic processes with applications. Methods of production of polymers and effect of controlled structure on properties. Use of polymers as engineering material.
{Offered upon demand}

***474. Polymer Science and Engineering. (3)**
Basic chemistry and synthesis reactions of polymers. Effect of polymer structure and composition on mechanical properties. Viscoelastic behavior of amorphous polymers and response of crystalline polymers to stress. Electrical and optical properties. Fabrication, selection, and evaluation of plastics.
Prerequisite: 461 or equivalent; recommended: Chem 301. {Offered upon demand}

***476. Nuclear Chemical Engineering. (3)**
Fuel cycles in nuclear reactors; production of reactor fuels; processing of spent fuels by precipitation, solvent extraction, etc. ; and separation of isotopes.
Prerequisite: 430 or equivalent. {Offered upon demand}

***477. Structure and Interfacial Phenomena in Semiconductor Materials. (3)**
Principally for non-electrical engineering majors desiring an understanding of semiconductor IC devices, solid-state physics and interfacial phenomena in micro-circuits. VLSI process integration and surface science diagnostic techniques.
Pre- or corequisite: Chem 312. {Fall}

***478. VLSI Process and Material Technology. (3)**
Modern principles and practices of microelectronic device fabrications of chemical engineering unit operation principles to VLSI processing including oxidation, diffusion deposition, lithography, plasma etch, ion implantation and metalization. Computer aided process simulation.
Prerequisite: 312 or permission of instructor. {Fall}

479. Material Technology and Manufacturing Science. (3)
Material properties for advanced manufacturing technologies, product design and performance problem solving. Topics include: ceramics, polymers, metals, composites, electronic and photonic materials.
Prerequisite: 370 or equivalent materials background. {Fall}

***485. Fusion Technology. (3)**
The technology of fusion reactor systems including basic magnetic and inertial confinement physics; system designs; material considerations; shielding; blanket design; fuel cycle; plant operations; magnets; and ICF drivers. Students will design a fusion reactor.
Prerequisite: 330L or senior standing in engineering or physical sciences.

491-492. Undergraduate Problems. (1-3 to a maximum of 6)Δ
Advanced studies in various areas of chemical and nuclear engineering. {Summer, Fall, Spring}

493L. Chemical Engineering Design. (3)
Practice in engineering creativity and decision-making. Selection of the optimum process for making a given product. Process design of equipment.
Prerequisites: C or better in 312, 393L. 2 lectures, 2 hrs. lab. {Fall}

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494L. Advanced Chemical Engineering Design. (3)
Continued practice in creative engineering design and problem solving emphasizing *in-depth* design of laboratory, pilot-plant and commercial-scale processes. Content tailored to individual student interests. Detailed study of at least one major problem, based on a written proposal by the student, both written and oral final reports will be presented.
Prerequisite: C or better in 493L. 2 lectures, 2 hrs. lab. {Spring}

495-496. Chemical and Nuclear Engineering Honors Problems I& II. (1-6, 1-6, to a maximum of 6)Δ
Senior thesis for students seeking departmental honors. {Summer, Fall, Spring}

497L. Introduction to Nuclear Engineering Design. (3)
A number of open-ended problems will be used to emphasize nuclear engineering design principles and institutional issues.
Pre- or corequisites: 410, 464. 1 lecture, 3 hrs. lab. {Fall}

498L. Nuclear Engineering Design. (4)
Students will work in teams on a capstone design project requiring the application of nuclear engineering principles and the integration of material from other disciplines, with emphasis on creativity, decision-making, and interactive design.
Prerequisite: 497L. 1 lecture, 6 hrs. lab. {Spring}

***499. Selected Topics. (1-3)**
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)Δ
{Fall, 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}

515. Special Topics. (1-3, to a maximum of 9)Δ#
{Offered upon demand}

520. Radiation Interactions and Transport. (3)
Prerequisites: 317 and 323L or equivalent. {Spring, upon demand}

521. Advanced Transport Phenomena I. (3)
Prerequisite: Math 316 or equivalent. {Fall}

522. Advanced Transport Phenomena II. (3)
Prerequisite: 521 or equivalent. {Spring}

523L. Advanced Nuclear Measurements. (1-3)
Prerequisite: 323L or permission of instructor. 2 lectures, 3 hrs. lab. {Fall}

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}

530. Process Optimization. (3)
{Offered upon demand}

531. Advanced Separation Processes. (3)
{Offered upon demand}

534. Plasma Physics I. (3)
(Also offered as Physcs 534.)
Prerequisite: permission of instructor. {Fall}

535. Plasma Physics II. (3)
(Also offered as Physcs 535.)
Prerequisite: 534 or Physcs 534. {Spring 1989 and alternate years}

541. Catalysis. (3)
{Offered upon demand}

542. Advanced Chemical Engineering Thermodynamics. (3)
{Fall}

543. Irreversible and Statistical Thermodynamics. (3)
{Offered upon demand}

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. {Offered upon demand}

546. Topics in Charged Particle Accelerator Technology. (3, to a maximum of 9)Δ
Prerequisite: 545. {Offered upon demand}

551-552. Problems. (1-3, 1-3 each semester)Δ

553L. Experimental Plasma Physics and Pulsed Power. (3)
(Also offered as EECE 553L.)
Prerequisites: Undergraduate E&M and Physics 534 (or permission of instructor).

554. Advanced Process Dynamics and Control. (3)
Prerequisite: 454L. {Offered upon demand}

560. Nuclear Reactor Kinetics and Control. (3)
Prerequisite: 511; recommended: EECE 446. {Fall upon demand}

561. Kinetics of Chemical Processes. (3)
{Spring}

564. Nuclear Reactor Safety Analysis. (3)
Prerequisites: 410 and 464. {Spring}

566. Methods of Nuclear Safety and Safeguards. (3)
Prerequisites: 231, 410, or permission of instructor.
{Spring upon demand}

567. Safety of Space Nuclear Power Systems. (3)
Prerequisites: 410, 464, 468; recommended: 511.

568. Thermal Management of Space Nuclear Power Systems. (3)
Prerequisites: 410, 464, 468.

571. Thermodynamics of Materials. (3)
Recommended prerequisite: 542 or equivalent. {Offered upon demand}

575. Selected Topics in Material Science. (1-3)Δ
{Offered upon demand}

576. Selected Topics in Aerosol Science. (3)
{Offered upon demand}

578. Plasma and Beam Process Technology. (3)
Prerequisites: 478, 534 or equivalent, or permission of instructor. {Spring}

579. Material Technology and Manufacturing Science. (3)
(Also offered as M E 579.)
Prerequisite: 370 or equivalent materials background. {Fall}

Registration for less than 3 credits only with approval of instructor.

580. Advanced Plasma Physics. (3)
(Also offered as Physcs 580.)
Prerequisite: 534 or Physcs 534. {Spring 1990 and alternate years}

581L. Plasma Physics Laboratory. (1-3)
Pre- or corequisite: 534 or permission of instructor. 1 lecture, 6 hrs. lab. {Spring}

582. Inertial Confinement Fusion. (3)
Pre- or corequisite: 534 or permission of instructor. {Offered upon demand}

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

610. Advanced Nuclear Reactor Theory. (3)
Prerequisite: 511. {Fall upon demand}

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

CIVIL ENGINEERING

Stephen P. Shelton, Chairperson
Tapy Hall, Room 209, 277-2722.

PROFESSORS:

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Marion M. Cottrell, M. S., University of New Mexico*
Jerome W. Hall, Ph. D., University of Washington*
Roy L. Johnson, Jr., Ph. D., University of Wisconsi*
Gerald W. May, Ph. D., University of Colorado*, (President)
Glenn A. Sears, Engr., Stanford University*
Stephen P. Shelton, Ph. D., University of Tennessee*

ASSOCIATE PROFESSORS:

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Gregory A. Howell, M. S., Standford University*
James R. Matthews, Ph. D., University of Missouri Rolla*
Timothy A. Ross, Ph. D., Stanford University*
Bruce M. Thomson, Ph. D., Rice University*
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Walter H. Gerstle, Ph. D., Cornell University*
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William R. Gafford, M. S., University of Texas*
Cornie L. Hulsbos, Ph. D., Iowa State University
J. E. Martinez, M. S., Iowa State University
Marvin C. May, M. S., Oklahoma State University
George A. Triandafilidis, Ph. D., University of Illinois

CURRICULUM

See p. 243.

CIVIL ENGINEERING (C E)

171L. Construction Orientation. (3)
Elementary graphics techniques; light construction principles; typical architectural details; working drawings of a small residence. 1 lecture, 6 hrs. lab. {Fall}

172. Construction Documents. (3)
The study of construction documents with emphasis on content, application, interpretation and the interrelation-ship between documents.
Prerequisite: 171L. 2 lectures, 3 hrs. lab. {Spring}

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. (2)
Principles of physical measurements and error theory including evaluation and reduction of cumulative errors and application of statistical accuracy to remaining errors. Application is through the use of engineer's levels and theodolites for horizontal and vertical control surveys, traversing and division of land.
Prerequisite: Math 162 or permission of instructor. 1 lectures 3 hrs. lab. {Fall}

282L. Geometrics of Transportation Systems. |Engineering Surveys.| **(2)**
Office procedures and field work relating to route designand layout; transportation facility design elements andstandards; sight distance considerations, horizontal andvertical alignment design, and earthwork calculations.
Prerequisite: 281L. 1 lecture, 3 hrs. lab. {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 indicating devices directed at verification of fundamental principles developed in 302; mechanical, electrical, and photoelastic equipment usage.
Corequisite: 302. 3 hrs. lab. {Fall, Spring}

308L. Structural Analysis. (4)
Analysis of determinate and indeterminate structural systems subjected to both fixed and moving loads using traditional methods of analysis, moment area, energy principles, moment distribution; matrix and computer formulation, displacement, direct stiffness and flexibility methods; and influence lines.
Prerequisite: 302. 3 lectures, 3 hrs. lab. {Fall, Spring}

* Registered Professional Engineer.

ENGINEERING

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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;introduction to seismic design.
Prerequisite: 211. {Fall}

324. 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: 308. 3 lectures. {Spring}

331L. Fluid Mechanics. (4)
Fluid properties; fluids at rest; fluid flow principles,including continuity, energy, and momentum; incompressible fluid flow; open channel hydraulics; hydraulic machinery; laboratory study of basic principles of fluid mechanics and hydraulics.
Corequisite: M E 206L. 3 lectures, 3 hrs. lab. {Fall}

332. Hydraulic Engineering and Hydrology. (3)
Design of water distribution systems and open channels; selection of pumps and turbines; hydraulics of wells; basic engineering hydrology including precipitation, infiltration, runoff, flood routing, statistical measures, and water resources planning.
Prerequisite: 331L. {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 M E 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. (4)
Physical, chemical, and mechanical properties of soil as an engineering material; relation of properties to engineering problems.
Prerequisite: 302. 3 lectures, 3 hrs. lab. {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 Ch E, M E 370.) The structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials: metals, ceramics, and polymers.
Pre- or corequisite: 302. {Summer, Fall, Spring}

***372L. Methods Improvement. (3)**
Management of productivity, involving preplanning, work sampling, time lapse photography, methods analysis, and methods improvement related to on-site construction. Safety, motivation, and worker satisfaction as related to productivity are included.
Prerequisites: junior standing and Psych 101. 2 lectures, 3 hrs. lab. {Spring}

382. Transportation Engineering. (3)
Multimodal examination of the planning, design and operation of transportation facilities; social aspects and economic evaluation of transportation system improvements; transportation design project.
Prerequisite: 282L. {Fall}

***401. Advanced Mechanics of Materials. (3)**
(Also offered as M E 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 M E 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. {Fall}

411L. 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. 2 lectures 3 hrs. lab
Prerequisite: 308. {Fall}

***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: 308 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: 308 or permission of instructor. {Fall}

***421. Introduction to Structural Dynamics. (3)**
Basic Theory of structural vibrations; structural response/design to dynamic loads; approximate frequency methods for design; response spectra for design; viscous and tuned mass damping; lumped mass systems using matrix methods; periodic and transient response using normal mode method; continuous mass systems.
Prerequisites: 308, M E 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}

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§ No credit allowed in College of Engineering.

435. 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}

***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: 435. {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: 435 or permission of instructor. 2 lectures, 3 hrs. lab. {Fall}

***450. Uncertainty and Risk in Engineering.** [Probabilistic Methods in Engineering II] **(3)**
Statistical characterization of engineering data; basic probability theory; Bayes theory; expected values and correlation; assessment of engineering uncertainty and design risks using Markov chains, queuing and reliability models; risk simulation on a computer.
Prerequisite: Math 163 or permission of instructor. {Fall}

***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: C E 252L, 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: C E 252L, 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}

***473L. Construction Cost Analysis. (3)**
Techniques for transforming contract documents into detailed construction estimates. Includes quantity take off methods, pricing of labor, equipment, materials, jobsite overhead costs and markup. Determination of production rates and unit costs, construction budgeting, and jobsite cost control through cost engineering methods.
Prerequisite: 472 or permission of instructor. {Spring}

***474. Planning and Scheduling. (3)**
The use of bar charts and networking techniques for controlling time and other resources on complex construction projects. Included are project planning, controlling, least cost expediting, resource scheduling, and computer applications.
Prerequisite: senior standing. {Fall}

***475L. Advanced Behavior of Concrete** [Materials Technology.] **(3)**
Constituents, admixtures and new materials. Mechanical behavior: creep, shrinkage, strain rate effects, material modeling, failure theories, fracture, fatigue. Destructive and nondestructive testing, inspection and rehabilitation.
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}

***477. Environmental Control Systems. (3)**
Fundamentals of plumbing, heating, ventilating, air conditioning, electrical transformers, switchgear and distribution systems in commercial and industrial construction.
Prerequisite: permission of instructor. {Spring}

***478. Design of Temporary Support Structures. (3)**
Design and construction of temporary support structures used in the construction industry, including concrete formwork, scaffolding, caissons, cofferdams, and dewatering systems.
Prerequisites: 302, 303. {Fall}

***482. Highway and Traffic Engineering. (3)**
Principles of the geometric design and operation of streets and highways, including planning aspects, traffic design and control, and highway safety. Application of these principles to actual situations.
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}

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490. Civil Engineering Professional Practice. [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. {Spring}

***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. (1-3)
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: 411L. {Spring 1987 and alternate years}

507. Design of Concrete Plates and Shells. (3)
Prerequisite: 411L. {Spring 1986 and alternate years}

510. Advanced Structural Design in Metals. (3)
Prerequisite: 324. {Fall}

515. [523.] Random Vibrations. (3)
(Also offered as M E 515.)
Prerequisites: 520, M E 357, or permission of instructor. {Offered upon demand}

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 M E 542.)
Prerequisites: M E 512, 516 and Math 312, permission of instructor. {Offered upon demand}

520. Vibration of Elastic Systems. (3)
Prerequisites: 421 or M E 414 and Math 312. {Offered upon demand}

521. Design of Structures for Dynamic Loads. (3)
Prerequisites: 415, 421 or M E 414. {Offered upon demand}

531. Physical-Chemical Water and Wastewater Treatment. (3-4)
Prerequisite: 435. {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)
Prerequisite: 463 or permission of instructor. {Fall 1989 and alternate years}

561L. Advanced Soil Mechanics Laboratory. (3)
Corequisite: 463. 1 lecture, 6 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)
Graded on CR/NC basis only. {Offered upon demand}

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

COMPUTER SCIENCE

Brian T. Smith, Chairperson
Farris Engineering Center 307A, 277-3112

PROFESSORS:

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Patricia A. Stans, Ph. D., New Mexico State University

PROFESSOR EMERITUS:

Edgar J. Gilbert, Ph. D., University of California (Berkeley)

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)
Students will use personal computers in campus laboratories to learn use of a word processor, a spreadsheet, and simple database management program and how to program in BASIC. The content is divided equally between packaged applications and programming. Course cannot apply to major or minor in CS.
Prerequisite: Math 120.

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.

155L. Introduction to Computer Programming. (4)
(Also offered as Math 155L.) 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. 3 lectures, 2 hrs. lab.

237. Introduction to Data Processing. (3)
Introduction to the COBOL programming language. Sample programming problems on inventory control, forecasting, production planning, accounting and database management; advances principles of top down, modular design of programs by applying these principles to the solution of the sample programming problems.
Prerequisite: 150, 155L or Engr-F 120L.

253L. Intermediate Programming. (4)
A continuation of 155L. 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: 155L and (154 or corequisite Math 163). 3 lectures, 2 hrs. lab.

255L. 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: 253L and EECE 238L. 2 lectures, 2 hrs. lab.

259L. 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 259L and 155L/253L.
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: 263L and Math 317.

****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 compilation, formal grammars, binding, activation records, data abstraction, and imperative versus functional languages.
Prerequisites: 255L, 363L.

363L. Fundamentals of Data Structures. (4)
A continuation of 253L. 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: 253L or 259L Math 163, Engl 102. 4 lectures, 1 hr. lab.

***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.

****387. 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: 255L, 363L.

****390. Introductory Topics in Programming. (1-3)Δ**
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}

***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: 155L and Math 314.

***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.
Prerequisite: Math 340. Recommended: 387.

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***420. Immigration I. (6)**
A fast paced course for well qualified graduate students whose previous degrees were not in Computer Science. Material covered is equivalent to 253L and 363L. Students should be simultaneously enrolled in 421 and 255L. Students should contact the department one semester before planning to enroll.
Prerequisites: 155L or equivalent and departmental approval. {Fall}

***421. Immigration II. (3)**
A fast paced course for well qualified graduate students whose previous degrees were not in Computer Science. Material covered is equivalent to 154 and Math 317. Students should be simultaneously enrolled in 420 and 255L. Students should contact the department one semester before planning to enroll.
Prerequisites: Math 163 and departmental approval. {Fall}

***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.
Prerequisites: 253L and familiarity with modular arithmetic.

***432. Introduction to Image and Pattern Analysis. (3)**
(Also offered as EECE 432.) Introduction to the concepts and methods of image and pattern analysis: topics include perception of images, image representation, image transformations, enhancement, restoration, feature extraction, segmentation, computer vision. Survey of applications.
Prerequisites: EECE 340 or Math 340, two programming courses, EECE 213 or Math 314.

***433. Computer Graphics. (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.
Prerequisites: Two programming courses and some knowledge of linear algebra.

***438. The Science of Intelligent Systems. (3)**
(Also offered as Psych 467.) Concepts of intelligence from psychology and computer science. Areas considered include production systems, expert systems, computer assisted instruction, models for semantics and human cognitive processes from pattern recognition to output systems. Includes a project.
Prerequisite: 363L or Psych 265 or permission of instructor. Recommended: 457.

***440. Digital Communications and Computer Networks. (3)**
(See EECE 440.)

***441. 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.
Prerequisite: 387 or EECE 437.

***448. Design of Computers. (3)**
(See EECE 438.)

***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: 253L 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.
Prerequisite: 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: 255L, 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: 363L.

***460. Software Engineering. (3)**
Software engineering principles will be discussed and applied to a large team developed project. Other topics relevant to the production of software will also be covered, including ethics, legalities, risks, copyrights, and management issues.
Prerequisite: two of 303, 355 and 387.

***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.

***487. Computer Networks. (3)**
A theoretical and practical study of computer networks, including network structures and architectures; protocols and protocol hierarchies; error handling; routing; reliability; point-to-point networks; broadcast networks; local area networks; efficiency and throughput; communications technologies; case studies.
Prerequisite: 387.

****490. *Computing for* Graduate Students. (3)**
Elementary introduction to the 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)Δ
Undergraduate seminars in special topics in Computer Science. May be repeated for a total of 12 hours.
Prerequisite: permission of instructor.

****493. Computers in the Science Classroom. (4)**
The first of three courses to be offered in summer institutes for teaching in the public schools.
Prerequisites: certification as a science teacher, algebra. Course cannot apply to major, minor, or master's degree in CS.

****494. Computers in the Science Classroom. (4)**
The second of three courses to be offered in summer institutes for science teachers.
Prerequisite: 493. Course cannot apply to major, minor, ormaster's degree in C S.

****495. Computers in the Science Classroom. (4)**
Prerequisite: 493. Course cannot apply to major, minor, or master's degree in C S.

499. Individual Study-Undergraduate. (1-3 hrs. per semester)Δ
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.

501. Mathematical Theory of Formal Languages. (3)
Prerequisite: A 300 level math course involving proofs.

502. Complexity Theory. [Analysis of Algorithms] **(3)**
Prerequisite: 303. Recommended: One of 501, 503, 504.

503. Computability and Complexity. (3)
Prerequisite: A 300 level mathematics course involving proof. Recommended: 501.

504. Algorithm Heuristics. (3)
Prerequisite: 363L. Recommended: 303.

505. Error-Correcting Codes. (3)
(See EECE 531.)

506. Stochastic Optimization in Computer Science. (3)
(Also offered as Math 554.)
Prerequisite: 406. Recommended: 504.

507. Optimization Techniques. (3)
(See EECE 506.)

508. Stochastic Optimization Techniques. (3)
(See EECE 507.)

531. Pattern Recognition. (3)
(Also offered as EECE 517.)
Prerequisites: calculus, Math 340 or EECE 340, and two programming courses.

532. Computer Vision. (3)
(Also offered as EECE 516.)
Prerequisites: Math 340 or EECE 340, Math 317 or 327, and CS 363L or equivalent.

533. Image Processing by Digital Computer. (3)
(See EECE 533.)

537. Automated Reasoning. (3)
Prerequisite: 457 or permission of instructor.

540. Fault Detection and Tolerance. (3)
(See EECE 530.)

548. Design of Digital Systems. (3)
(See EECE 538.)

550. Programming Languages and Systems. (3)
Prerequisite: 355.

551. Individual Study-Graduate. (1-3 hrs. per semester, to a maximum of 6)Δ
Prerequisite: permission of instructor.

552. Advanced Topics in Compiler Construction. (3)
Prerequisite: 454. Recommended: 501.

553. Computer Evaluation of Mathematical Functions. (3)
Prerequisites: 575-576. {Offered upon demand}

557. Selected Topics in Numerical Analysis. (3)†
(Also offered as Math 557.) {Offered upon demand}

559. Master's Computing Project. (3 or 6)Δ
May be repeated to a total of 6 hours.
Prerequisites: 12 semester hours credit toward master's degree and permission of instructor.

563. Design and Use of Database Systems. (3)
Prerequisite: 463.

575. Numerical Analysis I. (3)
(Also offered as Math 504.)
Prerequisites: Math 314, some knowledge of FORTRAN programming; recommended: Math 375 and/or Math 464. {Fall}

576. Numerical Analysis II. (3)
(Also offered as Math 505.)
Prerequisites: Math 316 or Math 361 and some knowledge of FORTRAN programming.

587. Advanced Operating Systems. (3)
Prerequisite: 387 or EECE 437

591. Special Topics-Graduate. (1-6)Δ
May be repeated for a total of 12 hours.
Prerequisite: permission of instructor.

592. Colloquium. (1)Δ
May be repeated up to a total of 4 hours. Credit not applicable toward degree requirements.

640. Fault Tolerance Computers. (3)
(See EECE 630.)

650. Reading and Research. (3)Δ
Prerequisite: permission of instructor before registration.

691. Seminar in Computer Science. (1-6 hrs. per semester, to a maximum of 12)Δ

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

ELECTRICAL AND COMPUTER ENGINEERING

Nasir Ahmed, Chairperson
Tapy Hall 209A, 277-2436 or 4924

PROFESSORS:

Nasir Ahmed, Ph. D., University of New Mexico
Victor W. Bolie, Ph. D., Iowa State University*
Steven J. Brueck, (Director of the Center for High Technology Materials), Ph. D., Massachusetts Institute of Technology
Ronald C. De Vries, Ph. D., University of Arizona
Peter Dorato, D. E. E., Polytechnic Institute of Brooklyn*
Delores E. Etter, (Associate Chairperson for Computer Engineering), Ph. D., University of New Mexico
Shyam H. Gurbaxani, Ph. D., Rutgers University
Charles F. Hawkins, Ph. D., University of Michigan
Stanley Humphries, Jr., Ph. D., University of California (Berkeley)
Mohammad Jamshidi, Ph. D., University of Illinois
Kenneth C. Jungling, Ph. D., University of Illinois
Shlomo Karni, Ph. D., University of Illinois
Ruben D. Kelly, Ph. D., Oklahoma State University*
Don L. Kendall, Ph. D., Stanford University
John R McNeil, Ph. D., Colorado State University*
Joseph H. Mullins, (Director of Manufacturing and Industrial Relations), Ph. D., California Institute of Technology
Russell H. Seacat, Ph. D., Texas A&M University*
Harold D. Southward, (Associate Chairperson), Ph. D., University of Texas (Austin)
James E. Thompson, (Dean of Engineering), Ph. D., Texas Tech University
Richard H. Williams, Sc. D., University of New Mexico*

* Registered Professional Engineer.

ENGINEERING

Symbols - See page 379

ASSOCIATE PROFESSORS:

Rhonda Hill, M. S., Purdue University*
Ann Miller, Ph. D., Saint Louis University
Donald A. Neamen, Ph. D., University of New Mexico
Marek Osinski, Ph. D., Univeristy of Warsaw
John Sobolewski, (Vice President for Computer and Information Resourses and Technology), Ph. D., Washington State University

ASSISTANT PROFESSORS:

Chaouki T. Abdallah, Ph. D., Georgia Institute of Technology
Charles Fleddermann, Ph. D., University of Illinois
John M. Gahl, Ph. D., Texas Tech University
Donald R. Hush, Ph. D., University of New Mexico
Ramiro Jordan, Ph. D., Kansas State University
Woei Lin, Ph. D., University of Texas (Austin)
Neeraj Magotra, Ph. D., University of New Mexico
John G. McInerny, Ph. D., University of Dublin
Sohail H. Naqvi, Ph. D., Purdue University
L. Howard Pollard, Ph. D., University of Illinois
John R. Rasure, Ph. D., Kansas State University
Christian F. Schaus, Ph. D., Cornell University
Edl Schamiloglu, Ph. D., Cornell University

ADJUNCT PROFESSORS:

Roy A. Colclaser, Ph. D., University of New Mexico*
J. Arlin Cooper, Ph. D., Stanford University
Ruth A. David, Ph. D., Stanford University
Arthur Guenther, Ph. D., Pennsylvania State University
Samuel D. Steams, Ph. D., University of New Mexico
William Streifer, Ph. D., Brown University

VISITING PROFESSOR:

John D. Reichert, Ph. D., California Institute of Technology

LECTURER:

Jeanine A. Ingber, M. S., University of Michigan

PROFESSORS EMERITI:

Lewellyn Boatwright, Ph. D., University of Illinoi
Martin D. Bradshaw, Ph. D., Carnegie Institute of Technology*
William J. Byatt, Ph. D., University of Alabama
Ahmed Erteza, Ph. D., Carnegie Institute of Technology*
Wayne W. Grannemann, Ph. D., University of Texas (Austin)
Daniel P. Petersen, D. Eng. Sc., Rensselaer Polytechnic Institute*

CURRICULUM

See p. 249.

ELECTRICAL AND COMPUTER ENGINEERING (EECE)

202. Electrical Engineering I. (3)
Energy and power. Basic electrical elements and sourcesKirchkoff's laws, loop and node analysis, superposition, Thevenin's theorem. AC circuits, phasors, impedance. Single-phase and three-phase power. Systems, sensors, instrumentation, digital circuits.
Prerequisites: Engr-F 120L and Math 163. Corequisite: Physcs 161. {Fall, Spring}

203. Circuit Analysis I. (3)
Basic elements of souces. Energy and power. Ohm's law and Kirchhoff'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-F 120L, Math 163; corequisite: Physcs 161. {Fall, Spring}

204. Introduction to Electrical Engineering. (3)
Electrical, mechanical, and hybrid dynamical systems. Instrumentation and analog and digital signal processing. Electromechanical energy conversion. Basic open-loop and closed-loop systems. Stability analysis.
Prerequisites: 203 and Physcs 161. Corequisite: Math 316 (Normally not taken by EE majors.) {Fall, Spring}

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. (3)
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. {Fall, Spring}

231. Introduction to Data Structures *Using C Language.* (4)
Rapid coverage of the C Language. Presentation of abstract data structures which are then implemented in the C Language with applications in operating systems and real-time processing.
Prerequisites: CS 253 or instructor permission. {Fall, Spring}

238L. Computer Logic Design. (4)
Binary number systems. Boolean algebra. Combinational, sequential, and register transfer locic. Arithmetic/logic unit. Memories, computer organization. Input-output. Microprocessors.
Prerequisite: Engr-F 120L or C S 155 or equivalent. 3 lectures, 3 hrs. lab {Fall, Spring}

****314. Signals and Communications. (3)**
Linear systems analysis. Signal spectra: Fourier series and transform; modulation and demodulation schemes; sampling theorem; discrete-time signals; discrete-time Fourier series and transform; elements of the Z-transform.
Prerequisites: C or better in 213 and 340. {Fall, Spring}

****323. Introductory Digital Electronics. (3)**
Introduction to diodes, bipolar junction and 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 and 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. Digital Electronics Laboratory.** [Electronics Laboratory I] **(2)**
Prerequisite: C or better in 206L. Pre- or corequisite: 323. 1 lecture, 3 hrs. lab. {Fall, Spring}

****326L. Electronics Laboratory.** [Electronics Laborarory II] **(2)**
(For EE majors).
Prerequisite: C or better in 206L. Pre- or corequisite: 324. 1 lecture, 3 hrs. lab {Fall, Spring}

****337L. Introduction to Computer Architecture and Organization. (3)**
Survey of various levels of computer architecture and design: microprogramming and processor architecture, assembly language programming, operating system concepts and input/output via the operating system. 3 lectures, 1hr lab.
Prerequisites: 344L. {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, assembly language 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. Boundary value problems will be stressed in applications.
Prerequisites: C or better in 213, Physics 161, Math 264. {Fall, Spring}

****362. Fields and Waves II. (3)**
Uniform plane wave, transmission lines, waveguides, cavities, antenna elements.
Prerequisite: C or better in 361. {Fall, Spring}

371. Materials and Devices. [Electrical Engineering Materials and Devices] **(4)**
Introduction to quantum mechanics, crystal structures,insulators, metals, and semiconductor material properties, bipolar, field effect, and light emitting devices.
Prerequisite: Physcs 262. Pre- or corequisite: 361. {Fall, Spring}

****384. Electromechanical Energy Conversion. (3)**
Fundamentals of electro-mechanical energy conversion. Synchronous, induction, and D-C machines. Transformers.
Prerequisite: 361.

***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.

***401. Modern Computer Architecture. (3)**
(Also offered as C S 441.) 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 C S 357. {Spring, alternate semesters}

****402. 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 Physcs 161. Prerequisite: Engr-F 120L.

419L. Senior Design Projects Laboratory. (3)
Independent design projects in the various areas of Electrical Engineering. Typically three projects per semester. Oral and formal presentations on theory, methodology and experimental results are required.
Prerequisite: senior standing in Electrical Engineering. {Fall, Spring}

***421. Electronics III. (3)**
Linear circuit analysis and synthesis techniques. Linear and nonlinear waveshaping and generation. Breakpoint and driving-point impedance techniques. Large signal transient responses of diode and transistor circuits. Semiconductor modeling.
Pre- or corequisite: 324 or permission of instructor.

***422. Electronics IV. (3)**
Applications of analog integrated circuits such as operational amplifiers, regulated power supplies, voltage-controlled oscillators, phase-locked loops.
Prerequisite: 324

***424. Introduction to VLSI Design.** [Digital Electronic Systems] **(3)**
Introductory topics include: MOS circuit theory, IC CAD layout tool, circuit and logic simulators, gate arrays, standard cells, full custom design and IC testability.
Prerequisite: 323. {Fall}

***433. Computer Graphics. (3)**
(Also offered as C S 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 knowledgeof linear algebra. {Fall, alternate years}

***434L. Microprocessor Design Laboratory. (2)**
Hardware and software design with an emphasis on interfacing microprocessors with external devices.
Prerequisite: C or better in 344L

****435. Computer Engineering Design Project. (3)**
Management and technical issues related to the design of large software projects. Student teams will complete the design, specification, implementation, testing, and documentation of a large software project.
Prerequisite: 337L. {Fall}

***436. Computer-Aided Design of Systems and Networks. (3)**
Review of design techniques of control systems and electrical network synthesis, compensation, optimal adaptive design of control systems, pole placement and numerical solutions of system design and network synthesis problems. System simulation. Design and simulation packages--CSMP, DSL, SPICE, FREDOM, TIM DOM, DIGICON, CON TRICON, etc.
Prerequisites: 445L and/or 446, knowledge of one or more of the programming languages, FORTRAN 77, APL, PASCAL, and BASIC.

***437L. 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. 2 1/2 hrs. lecture, 1 1/2 hrs. lab.
Prerequisites:231, 337L. {Fall}

***438. Design of Computers. (3)**
Logical design of computer systems, arithmetic units and techniques. Register transfer languages. Control unit design. I/O systems and interfacing. Memory system design. Issues in pipeline and parallel systems.
Prerequisites:323, 344L. {Fall, Spring}

***439. Introduction to Digital Filtering. (3)**
Review of Fourier series, Fourier transform, and Laplace transform. Development of Z transform, Discrete Fourier transform, and FFT. Analysis and design of nonrecursive and recursive digital filters. Computer projects included.
Prerequisite: 314.

***440. Introduction to Computer Networks.** [Digital Communications & Computer Networks] **(3)**
Principles of digital communications. Channel capacity, data compression, error detection, signal detection, traffic control and routing algorithms. Introduction to computer networks, and distributed systems. The ISO reference model. Network architectures and topologies, local area networks, and wide-area networks.
Prerequisites: 231, 314 and 340. {Spring}

Symbols - See page 379

***441. Introduction to Communication Systems. (3)**
Principal types of communication systems, including amplitude, phase, frequency and pulse modulation; single, double and vestigial sideband transmission; synchronous and asynchronous demodulation; phase-lock loops; noise; channel capacity; spread-spectrum communication systems.
Prerequisite: 314; 340

***444. Computer Aided Robotic. (3)**
Introduction and history of robotics, kinematics of robots, homogeneous and DH transformations, forward and inverse kinematics; computer-aided kinematics; dynamics of robots: Lagrange-Euler and Newton-Euler equations, computer-aided dynamics; trajectory & computer-aided planning. Control of robots, single, two and multiple-link cases. Force and hybird control; adaptive control of robots, computer- aided control design. Robot sensors and introduction to low-level vision.
Prerequisites: EECE 445 and ME 206.

****445. Introduction to Control Systems. (3)**
Introduction to the control problem. Block diagrams. Advantages and problems with feedback control. Modeling of plants, sensors, and actuators. Elements of AC and DC machines. Design specification for control systems. Routh-Hurwitz and Nyquist stability criteria. Compensator design via Bode plots and Nichols charts. Z-transform analysis of discrete-time systems. Introduction to digital control.
Prerequisite: 314. {Fall, Spring}

***446. Design of Feedback Control Systems. (3)**
Modeling of continuous and sampled-date 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: 445.

***447L. Computer Design Laboratory. (2)**
Design, construction, and analysis of computer architectures built around microcoded devices, including the microcoding of general purpose architectures as well as special purpose devices which derive advantages from the flexibility obtained by microcoding techniques.
Prerequisite: 323 and 438 {Spring}

***461. Electromagnetic Propagation. (3)**
Application of Maxwell's equations to the solution of wave propagation problems; reflection and refraction of plane waves; radiation from dipoles and loop antennas; propagation in the ground, sea, air, troposphere, ionoshpere, and space.
Prerequisite: 362.

***462. Microwave Engineering. (3)**
Theoretical and practical considerations associated with microwave devices, including topics such as transmission lines, waveguides and cavities, parametric amplifiers, masers and lasers.
Prerequisite: 362.

***463. Advanced Optics I. (3)**
(See Physics *471). Geometrical Optics with emphasis on matrix methods of Gaussian ray tracing and third-order aberration theory. Physical optics concentrating on interference, diffraction and polarization.
Prerequisite: Physics 302

***464. Laser Physics I. (3)**
(See Physics *472). Introduction to semiclassical principles of Lasers. Gain media, optical cavities, laser oscillation, amplification and novel laser systems.
Prerequisite: 362 or Physics 306.

***471. Semiconductor Devices. (3)**
An advanced study of the p-n junction and the more advanced concepts in transistors and optoelectronics.
Prerequisite: 371

***472L. [472] Microelectronics. (4)**
The technology, design and fabrication of monolithic bipolar MOS including diffusion, implantation, oxidation, computer-aided design, large-scale integration, semiconductor memories, plasma processing, epitaxy and material diagnostic methods.
Prerequisites: 323 and 371. 3 lectures, 3 hrs. lab

***474. Introduction to Electro-Optics. (3)**
Applied geometric and physical optics, the interaction of light and matter. Introduction to the theory and application of lasers and other light sources, fiber optics.
Prerequisites: 362 and 371.

***480. Power Systems Analysis.** [Electric Power Systems Analysis] **(3)**
Generation and distribution of electrical power; computer modeling of power distribution systems.
Prerequisites: Permission of instructor.

***481. Electrical Transients in Power Systems. (3)**
Symmetrical components. Unsymmetrical faults. Sequence impedances in lines, machines, and transformers. Simulataneous faults. Computer methods.
Prerequisite: 480 or equivalent.

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. semester)Δ**
Prerequisites: senior standing and permission of instructor.

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: 314. {Fall}

506. Optimization Techniques. (3)
Prerequisite: Math 314 or equivalent. {Fall}

512. Modern Network Theory. (3)
Prerequisite: 314. {Spring}

513. Modern Filter Theory and Design. (3)
Prerequisite: 512 or permission of instructor.

514. Nonlinear and Adaptive Control [Nonlinear Systems Analysis] **(3)**
Prerequisites: 446, 500.

516. Computer Vision. (3)
(Also offered as C S 532.)
Prerequisites: 340, 536 or Math 327.

517. Pattern Recognition. (3)
(Also offered as C S 531.)
Prerequisites: Math 340 or EECE 340, calculus, and two programming classes.

520. VLSI Design. (3)
Prerequisite: 323. {Spring}

523. Analog Electronics. (3)
Prerequisite: 324. {Fall}

530. Fault Detection and Tolerance. (3)
Prerequisite: 238L.

531. Error-Correcting Codes. (3)
Prerequisite: 536.

532. Theory of Automata. (3)
Prerequisite: Math 327; pre- or corequisites: 438, 536.

533. Image Processing by Digital Computer. (3)
Prerequisites: 340, 314.

536. Algebraic Foundations of Computer Engineering. (3)
Prerequisite: Math 327. {Fall}

537. Introduction to Language Theory and Compiler Design. (3)
Prerequisite: 536.

538. Advanced Computer Design. (3)
Prerequisite: 438. {Spring}

539. Digital Signal Processing I. (3)
Prerequisite: 314 {Spring}

541. Random Signal Processing. (3)
Prerequisites: 314, 340. {Fall}

542. Statistical Communication Theory. (3)
Prerequisite: 541 or equivalent.

544. Digital Control Systems. (3)
Prerequisites: 446 and 500. {Spring}

545. Large-Scale Systems. (3)
Prerequisite: 500.

546. Multivariable Control Theory [Automatic Control Theory] **(3)**
Prerequisites: 445 and 500. {Spring}

547. Neural Networks. (3)
Prerequisite: 500.

549. Special Topics in Software Engineering. (3)

551-552. Problems. (1-3, 1-3 hrs. per semester)††

553L. Experimental Plasma Physics and Pulsed Power. (3)
(Also offered as CH-NE 553L.)
Prequisites: Undergraduate E&M and Physics 534 (or permission of instructor).

555. Pulsed Power and Gaseous Discharges. (3)

561. Electromagnetic Fields I. (3)
Prerequisite: 362. {Fall 1990 and alternate years}

562. Electromagnetic Fields II. (3)
Prerequisite: 561. {Spring 1991 and alternate years}

563. Optical Detectors and Radiometry. (3)
Prerequisites: Physics 471 and EECE 572 or Physics 430.

564. Guided Wave Optics. [Infrared Optics and Systems Engineering] **(3)**
Prerequisite: Permission of instructor.

565. Optical Fiber Communication and Information Technology. (3)
Prerequisite: Permission of instructor.

567. Advanced Optics II. (3)
Prerequisite: Permission of instructor {Spring}

568. Nonlinear Optics [Fourier Optics and Holography] **(3)**
(See Physics 555.)
Prerequisite: Permission of instructor.

569. Optical Testing. (3)
Prerequisite: Physcs 554.

570. Quantum Theory of Solids I. (3)
Prerequisite: 371.

572. Semiconductor Properties. (3)
Prerequisite: 371. {Spring}

573. Materials and Fields. (3)
Prerequisites: 362 and 371, or equivalent.

574L. Processing Techniques in Solid State Technology. (3)
Pre- or corequisite: 371.

575. Junction Devices. (3)
Prerequisite: 371 or equivalent.

576. Field Effect Devices. (3)
Prerequisite: 371 or equivalent. {Spring}

577. Semiconductor Lasers and LEDs. [Fiber Optics] **(3)**
Prerequisite: Permission of instructor.

578. Advanced Semiconductor Lasers. (3)
Prerequisite: Permission of instructor.

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)Δ
Prerequisite: permission of instructor.

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)

630. Fault Tolerant Computers. (3)
Prerequisites: 340, 530.

639. Digital Signal Processing II. (3)
Prerequisite: 539.

641. Information Theory and Coding. (3)
Prerequisite: 541.

643. Special Topics in Communication Theory. (3)

647. Introduction to Artificial Intelligence. (3)
Prerequisite: 500 or permission of instructor.

649. Special Topics in Control Systems. (3)
Prerequisite: 546.

651-652. Problems. (1-3, 1-3 hrs. per semester)††

665. Special Topics in Electromagnetic Fields. (3)Δ

666. Special Topics in Optoelectronics. (3) ΔΔ

668. Special Topics in Microelectronics. (3) ΔΔ

670. Special Topics in Signal Processing. (3) ΔΔ

673. Radiation Effects in Solid State Devices. (3)
Prerequisite: 572 or permission of instructor.

674. Special Topics in Computer Engineering. (3) ΔΔ

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675. Special Topics in Solid State. (3)Δ

676. Special Topics in Electronics. (3)ΔΔ

695, 696, 697, 698. Seminar. (3, 3, 3, 3)

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

MECHANICAL ENGINEERING

Chairperson
Mechanical Engineering 202A, 277-2761

PROFESSORS:

William E. Baker, Ph. D., University of Texas
William A. Gross, Ph. D., University of California (Berkeley)*
Frederick D. Ju, Ph. D., University of Illinois
Arsalan Razani, Ph. D., Purdue University
Charles G. Richards, Ph. D., University of Michigan
Howard L. Schreyer, Ph. D., University of Michigan
Mo Shahinpoor, Ph. D., University of Delaware*
Maurice W. Wildin, Ph. D., Purdue University

ASSOCIATE PROFESSOR:

Gregory P. Starr, Ph. D., Stanford University
C. Randall Truman, Ph. D., Arizona State University

ASSISTANT PROFESSORS:

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Marc S. Ingber, Ph. D., University of Michigan
James R. Leith, Ph. D., University of Texas
Robert Tzou, Ph. D., Lehigh University
Martin W. Weiser, Ph. D., University of California
Rick I. Zadoks, Ph. D., Purdue University

PROFESSOR EMERITUS:

Bohumil Albrecht, Ph. D., Yale University
Arthur V. Houghton, Ph. D., Purdue University
Victor J. Skoglund, D. Eng., Yale University

CURRICULUM

See p. 252.

MECHANICAL ENGINEERING (M E)

201L. Introduction to Mechanical Engineering. (2)
Lectures, demonstrations and simple experiments on mechanical systems to introduce the student to concepts of mechanical engineering.
Prerequisite: Math 162. Corequisites: Engr-F 120L, 122L, and C E 202. 1 lecture, 3 hrs. lab. {Fall, Spring}

206L. Dynamics. (3)
Principles of dynamics. Kinematics and kinetics of particles, systems of particles, and rigid bodies.
Prerequisite: C E 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 Ch E 301.) Principles of thermodynamics. First and second laws, properties and equations of state.
Prerequisites: Chem 121L, Physcs 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, C E 302, EECE 203; corequisite: 357. 1 lecture, 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}

350. Engineering Economy. (3)
(Also offered as C E 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. 1 lecture, 6 hrs. lab. {Fall, Spring}

352L. Mechanical Engineering Laboratory III. (2)
The effects of microstructure, processing, composition, and thermal treatment on physical and mechanical properties of engineering materials will be investigated. A variety of materials will be processed, tested, and microscopically studied in the laboratory. Both written experimental reports and literature reviews on related topics are required.
Prerequisites: 370, 351L. 1 lecture, 3hrs. lab {Fall, Spring}

* Registered Professional Engineer.

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: 314L 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: C E 302. 3 lectures. {Fall, Spring}

359L. Mechanical Engineering Design. (4)
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, producability, applicable standards, materials, and safety
Corequisites: 358L, 363L. Prerequisites: 357, 314L. 1 lecture, 6 hrs. lab. {Fall, Spring}

363L. Analysis of Engineering Systems. (3)
Engineering analysis of systems based on the principles of fluid mechanics, heat transfer, thermodynamics, and mechanics.
Prerequisites: 302, 317, 320, 357, C E 302 or permission of instructor. {Fall, Spring}

****365. Heating, Ventilating, and Air Conditioning Systems. (3)**
Methods of analysis and design of systems for conditioning of spaces for people and equipment.
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 C E 370.) The structure of matter and its relation to mechanical properties. Mechanical behavior of structural materials; metals, ceramics, and polymers.
Corequisite: C E 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. {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, hydro, solar, and wind energies; comparison of heat engines, electrochemical, fuel cells and batteries, solar cells, thermoelectric, thermionic, and magneto hydrodynamic conversion systems steam power cycles.
Prerequisite: 320. {Spring}

***401. Advanced Mechanics of Materials. (3)**
(Also offered as C E 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: C E 302 and senior standing. {Spring}

***402. Tensor Analysis and Continuum Mechanics. (3)**
(Also offered as C E 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: C E 302, Math 311. {Fall}

***404. Introduction to Computational Mechanics. (3)**
Terminology and concepts associated with weak formulations and the finite element approach; time integrators; stiffness and mass matrices; internal force approach; applications to one-dimensional static and transient problems such as heat conduction, torsion, wave propagation, and beam deflection.
Prerequisite: senior standing in M E or Math 312. {Fall}

***414. Intermediate Dynamics. (3)**
Review of Newtonian mechanics, dynamic analysis in non-Newtonian reference frame, Lagrangian equation of motion, introduction to dynamic systems such as orbital mechanics, gyrodynamics, 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. (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.
Prerequisite: 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 advisor 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. {Spring}

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***456. Entrepreneurial Engineering. (3)**
Review and application of necessary elements for successfully launching technical businesses; focuses upon technology, manufacturing, management, marketing, legal and financial aspects. Students work in groups developing elements of new businesses and producing business plans.
Prerequisite: Engineering student, graduate, or permission of instructor. {Fall, Spring}

***461-*462. [461-462] Special Topics. (1-4, 1-4 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 or permission of instructor. {Offered upon demand}

***470. Microprocessors in Mechanical Systems. (3)**
Introduction to microprocessor organization, interfacing, machine and assembler-language programming. Several projects involving the use of a microcomputer in various mechanical systems.
Prerequisite: senior standing or permission of instructor. {Fall}

***471. Advanced Materials Science. (3)**
Further developing of the concepts of materials science starting where ME 370 leaves off. Including: crystal structure and symmetry operators, structure and energy of defects such as dislocations and interfaces, thermodynamic basis of phase diagrams, and kinetics of phase transformations. These concepts will be applied to explain the mechanical, electronic, optical, etc. properties of solid materials.
Prerequisite: 370. {Fall}

***475. Numerical Methods in Mechanical Engineering. (3)**
Applications of finite difference methods to specific problems in Mechanical Engineering, including one and two dimensional, time-dependent heat transfer, fluid flow, and solid mechanics problems.
Prerequisites: 317, 320 and Math 316 or permission of instructor. {Spring}

***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)**
Analysis and design of systems using digital computers in the real-time control of dynamic processes. Design methods will include classical techniques based on the Z-transform and modern techniques based on the state-space approach.
Prerequisite: 480. {Spring}

***482. Robot Engineering. (4)**
Robot geometry, resolution and repeatability, kinematic design of robots, Denavit-Hartenberg homogeneous transformations, direct and inverse kinematics and solutions, motion trajectories, differential tracking, force and complaint analysis, robotic control and programming, hands-on robotic projects.
Prerequisites: one semester of controls, senior standing. {Fall}

****483. [*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}

***484. Computer Aided Design and Computer Aided Manufacturing. (3)**
Hardware, software, graphics, data bases, networking and protocols of computer-aided design and computer-aided manufacturing systems (CAD/CAM); solid modeling, Group Technology, computer-numerical controlled (CNC) machines. CAD/CAM lab projects are required.
Prerequisite: senior standing. {Fall, Spring}

***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}

504. [502] Computational Mechanics. [Finite Element Methods in Mechanical Engineering] (3)
Prerequisites: 404 or equivalent, a graduate course in heat conduction, fluid mechanics or solid mechanics. {Spring}

512. Continuum Mechanics. (3)
Prerequisite: graduate standing or permission of instructor. {Fall}

514. Variational Mechanics. (3)
Prerequisite: at least one semester of graduate study or permission of instructor. {Spring}

515. [523] Random Vibrations. (3)
(Also offered as C E 515.)
Prerequisites: 357, C E 520 or permission of instructor. {Offered upon demand}

***516. Applied Dynamics. (3)**
Prerequisites: 206, Math 311 or equivalent.

518L. Principles of Measurement in Mechanical Engineering. (3)
Prerequisites: 301, 317, 318L, 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. Convection. (3)
Prerequisites: 320, 430, or permission of instructor. {Alternate Fall with 524}

524. Radiant Heat Transfer. (3)
Prerequisite: 320. {Alternate Fall semester with 515}

525. Topics in Solar Energy System Design and Analysis. (3)
Prerequisites: 425, 520, and 522. {Fall or upon demand}

530. Theoretical Fluid Mechanics I. (3)
Prerequisite: 317. {Fall}

532. Advanced Gas Dynamics. (3)
Prerequisites: 520, 530. {Offered upon demand}

534. Boundary Layers. (3)
Prerequisite: 530. {Offered upon demand}

540. Elasticity I. (3)
Prerequisite: Math 311 and 316. {Fall}

541. Elasticity II. (3)
Prerequisite: 540; corequisite: Math 313. {Offered upon demand}

542. Theory of Shells. (3)
(Also offered as C E 519.)
Prerequisites: 512 or 516 and Math 312, permission of instructor. {Offered upon demand}

543. Analysis of Thermal Stresses. (3)
Prerequisite: 540. {Spring or upon demand}

544. Mechanics of Inelastic Continuum. (3)
Prerequisite: 512 or permission of instructor. {Offered upon demand}

548L. Experimental Stress Analysis. (3)
Prerequisite: 518L. {Spring}

551-552. Problems. (1-3, 1-3 hrs. per semester)
Prerequisites: 6 hrs. of 500-level ME courses and permission of instructor. {Fall, Spring}

***555. Advanced Quality Control. (3)**
Prerequisites: Graduate standing and permission of instructor.

559. Design Project. (3)ΔΔ
Prerequisite: permission of instructor. {Offered upon demand}

561-562. Special Topics. (1-4, 1-4 hrs. per semester)
{Offered upon demand}

572. Creep Plasticity. (3)
Prerequisite: 471 or permission of instructor.

579. Material Technology and Manufacturing Science. (3)
(Also offered as Ch-NE 579.)
Prerequisite: M E/Ch-NE/C E 370, or equivalent materials background. {Fall}

582. Robot Engineering II. (4)
Prerequisites: graduate standing, one semester of controls, permission of instructor.

583. Automation. (3)
Prerequisite: undergraduate or graduate background in automatic control recommended: some CAD/CAM.

584. CAD/CAM Systems. (3)
Prerequisite: 484 or permission of instructor.

593. Advanced Robot Engineering. (3)
Prerequisite: 482 or permission of instructor. {Spring}

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, 530 or permission of instructor. {Offered upon demand}

630. Physical Gas Dynamics II. (3)
Prerequisite: 620. {Offered upon demand}

632. Hypersonic Flow of Ideal Gases. (3)
Prerequisites: 530, 532 or permission of instructor. {Offered upon demand}

634. Turbulence and Turbulent Boundary Layer Flow. (3)
Prerequisite: 534 or permission of instructor.

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.

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COLLEGE OF FINE ARTS

Ernest D. Rose, Dean
College of Fine Arts
Fine Arts Center 1101
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 advisor in the College of Fine Arts Advisement Center, Fine Arts Center 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/TV	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.

When a prerequisite course number is not preceded by a department designation, reference is to the department under which the prerequisite statement appears.

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 grade point average of at least 2. 5 on all hours attempted, or
   (b) A grade point average of at least 2. 5 on the last 30 hours attempted.
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 51 or better plus a passing essay on the Freshman English CLEP subject examination.
4. Completion of 12 credit hours of coursework in the major area.
5. Students seeking the Bachelor of Music or the Bachelor of Music Education degree must have approval to concentrate in the appropriate instrument or voice.

Refer to the Music section for additional admission requirements to the instrumental and voice programs.

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 grade point average 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 grade point average 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 Undergraduate Curriculum Committee. 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 grade point average of 2.0 or higher. You must also have achieved a grade point average of 2.0 or higher on all hours attempted while enrolled in the College of Fine Arts.

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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.
6. All degrees in the College of Fine Arts require the following general education requirements from the College of Arts and Sciences:
   9 hrs. English 101*, 102 and an English elective (above 102)
   6 hrs. History 101 and 102
   9 hrs. including one course chosen from each of the following three groups:
   1) Communications, Foreign Language or Humanities (Includes American Studies, Communicative Disorders, Journalism, Linguistics, Modern and Classical Languages, Philosophy, Religious Studies and Communications.)
   2) Math or Natural Science (Includes Math 121, 145, 150 or above, Biology, Chemistry, Geology, Physics and Astronomy.)
   3) Social or Behavioral Sciences (Includes Anthropology, Economics, Geography, Political Science, Psychology and Sociology.)

(There are other specific courses required by some of the degree programs in Fine Arts. Check your specific program for these courses.)

*If you received an ACT English score of 25 or better or an SAT verbal score of 570 or better, you are exempt from taking English 101 and may substitute any 3 hour course in Arts and Sciences.

At the beginning of the first semester of your senior year, you must complete an application for degree. This application is made in the Fine Arts Advisement Center. 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 Catalog. 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 advisor in the College Advisement Center and with the Associate 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 point 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 advisor 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 and should visit the College of Fine Arts Advisement Center to request a copy of specific departmental honors guidelines and application form. Students should apply through the College of Fine Arts Advisement Center no later than the end of their junior year.

To be eligible for the departmental honors program in the College of Fine Arts, the applicant must have achieved an overall grade point average of 3.5 on a minimum of 60 hours in residence at the University of New Mexico. The application must be submitted at least two semesters prior to graduation. In addition, applicants should have demonstrated a high level of maturity, pursuit of excellence, and the ability to work and think independently. The minimum requirement for graduation with departmental honors in the College of Fine Arts is the completion of 6 credit hours in senior thesis.

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 105,000 volumes and a listening center with an extensive collection of tapes and records; and a Fine Arts Slide Library containing 300,000 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 point 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 advisor will help you select the program that best suits your needs.

Minimum requirements for the program leading to the BFA 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 BFA program may complete their work in the B. A. program or transfer to another degree program entirely.

The program leading to the BFA is as follows:

1. Courses outside the major:

   a. 30 hours selected from courses offered by departments of the College of Arts and Sciences including general education requirements (see Fine Arts Graduation 6.) 30 hours

   and

   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; 6 hours

   and

   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 201, 202, and 250, to be taken in the freshman and sophomore years); 18 hours

   and

   b. 52 hours in studio courses, including a minimum of 9 hours at the 400 level. Required courses are art studio 106, 121, 122, and 423; also required are 4 courses chosen from 157, 168, 187, 207, 213, and 205 or 274. Many areas of special study require specific sequences of courses and corequisites which you must observe. The department advisor can inform you of these. 52 hours

3. Additional courses in any field, including art. 10 hours

Total 128 hours

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 (BFA) 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 including general education requirements (see Fine Arts Graduation Requirements 6.) Specific requirements include as many semesters of one foreign language as are necessary for completion of the fourth semester course in that language. These will partially satisfy the college requirements for courses outside the major; 39 hours

   and

   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; 6 hours

   and

   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 201, 202 and 250; also required are 3 courses in art history chosen from 151, 215, 220, 231, 232, 240, and 261 or 262; and a course taken from among the following: 343, 401, 402, 403, 411, and 412. A minimum of 15 hours must be taken in courses numbered 300 or above in art history; 33 hours

   and

   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 Sciences including general education requirements (see Fine Arts Graduation Requirements 6.); 39 hours

   and

   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; 6 hours

   and

   c. 15 additional hours selected from courses outside the major offered by any college, including Fine Arts. 15 hours

Total 60 hours

2. Major in art:

   a. 15 hours in art history courses, including 201, 202 and 250; 15 hours

   and

   b. 33 hours in studio courses, including Art Studio 106, 121, and 122; also required are 2 courses with one chosen from 187, 205, 207, or 274, and the other chosen from 157, 168, or 213. 33 hours

3. Additional courses in any field, including art. 20 hours

Total 128 hours

* Courses in the General Honors Program may be used to satisfy Arts and Sciences requirements except for the specific courses stated above.

Symbols - See page 379

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 advisor 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.

Admission from University College. In addition to the admission requirements stated under the College of Fine Arts section of this catalog, music students must also have approval as a concentration in the appropriate instrument or voice for the degrees Bachelor of Music and Bachelor of Music Education. Students interested in the Bachelor of Arts with a major in music, see Arts & Sciences portion of the catalog.

Music Majors and Music Minors are described below. In addition to stated course requirements, one must satisfy general College and University requirements for graduation.

Preprofessional Curriculum

Programs in music performance and composition and theory are available leading to the Bachelor of Music Degree and comprising a total of 128 hours. If you enroll in any one of these programs, read the paragraph under "Scholastic Standards" which permits the faculty to exclude from the program any student whose grade point 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, or
3. Students majoring in music must consult their assigned advisor prior to registering each semester. Not doing so may result in disqualification from further pursuit of the B. M. degree.

A handbook describing specific departmental requirements relating to recitals, special examinations, auditions, and similar matters may be obtained from the Department of Music 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 including general education requirements (see Fine ArtsGraduation Requirements 6.) Specific requirements include Physics 108 (composition majors only); and majors in vocal performance must complete 18 hours in some combination of French, German, and Italian. These will partially satisfy the college requirements for courses outside the major. — 30 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; — 6 hours
   c. 12 additional hours selected from courses outside the major offered by any college, including Fine Arts. — 12 hours

   48 hours

2. Courses within the major, music performance only:
   a. six semesters of 101 Concert Music with a grade of CR;
   b. 24 hours in applied music (22 hours in voice performance);
   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 department handbook); and
   g. additional hours (the distribution of of these hours will vary according to your major, such as keyboard performance, instrumental performance, etc. ; specific requirements are given below). — 80 hours

Total — 128 hours

Keyboard performance:
- 4 hours in applied music
- 2 hours in music theory (counterpoint)
- 6 hours in music electives
- 2 hours in pedagogy

Instrumental performance:
- 8 hours in applied music
- 2 hours in ensemble
- 2 hours in music electives
- 2 hours in pedagogy

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
- 2 hours in pedagogy

3. Courses within the major, composition and theory:
   a. six semesters of 101 Concert Music with a grade of CR;
   b. 16 hours in applied music that includes 2 hours of Music 155;

* If you start with Music 103 (Music Theory I) and Music 104 (Ear-Training I) during the Fall semester, you will take Music 105 and 107 in Spring. To remain in sequence you must take Music 106 and 108 the following Summer

c. 40 hours of theory, including* 105, 106, 107, 108, 205, 206, 207, 208, 304, 305, 306, 309, 310, 404, 405, 406, 409, 410, and 453;
d. 12 hours in music history including 261 and 262;
e. 4 hours in conducting;
f. 8 hours in ensemble (see department handbook).

80 hours

Total 128 hours

Music Minor Requirements

For a minor in music: 20 hours, including a total of 4 hours in theory and 4 hours in ear-training (103 & 104 will apply); 3 hours selected from 139, 140, 172, and 271; 3 hours selected from 371, 373, and 374; 4 hours in applied music (group classes will apply); and 2 hours in 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 eligible to apply for Level 1 Licensure in Music, K-12, in the state of New Mexico. Official acceptance to the degree program is granted only after successful completion of the following:

1. Admission to the College of Fine Arts as a Music Education Major (see College of Fine Arts "Admission").
2. Admission to a Teacher Education Program as a Music Education Major (see "Admission to College of Education Programs").

Applications for Admission to the College of Fine Arts and Admissions to a Teacher Education Program should be submitted simultaneously. Students may be eligible upon completion of two semesters; early application is encouraged.

Students seeking only endorsement for music teacher certification must be admitted to a Teacher Education Program (see "Admission to College of Education Programs").

Students will have a period of one year to remove any deficiencies revealed during the admission process.

Students already enrolled at the University of New Mexico, whether in University College, a degree-granting college or in non-degree status, will not be eligible to transfer to the College of Fine Arts or to take 300 and 400 level professional courses until this admission process is completed. Exception will be made for students with earned baccalaureate degrees upon recommendation of the department and for students transferring from other institutions. Transfer students may be enrolled in the College of Fine Arts on a provisional basis for a maximum of two semesters during which time they must complete the admission process.
The faculty reserves the right to disqualify from further enrollment or participation in the music education program:

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.

Before completing 64 hours, students following the Instrumental Track must attempt the Piano Proficiency Examination and students following the Vocal Track 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.

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 advisor 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

Level 1 Licensure in Music, K-12, in New Mexico allows one to teach any music class at any level of instruction. Where two or more music educators are employed by a single school district, however, a division of responsibilities between instrumental music and vocal/general music commonly exists. The Department of Music, therefore, offers two planned programs in music education (an Instrumental Track and a Vocal Track.)

VOCAL TRACK

General Education
(54 Hours)

English (12)
- English 101 (3) Writing and Readings in Exposition
- English 102 (3) Analytic Writing
- English Literature Elective (3)
- Communication 130 (3) Public Speaking or Communication 270 (3) Communication for Teachers

History (12)
- History 101 (3) Western Civilization
- History 102 (3) Western Civilization
- History 161 (3) History of the United States
- History 162 (3) History of the United States

Psychology (6)
- Psychology 102 (3) General Psychology
- Psychology 220 (3) Child Psychology

Math (6)
- Electives (any course listed in the University catalog except Math 100, 101, and 120.)

Science (12)
- Physics 108 (3) Introduction to Musical Acoustics
- Physics 118L (1) Musical Acoustics Laboratory
- Electives (8) (To be selected from Astronomy, Biology, Chemistry, Physics, Geology, Zoology, Botony)

Fine Arts (6)
- Music 261 (3) History of Music I
- Music 262 (3) History of Music II

* If you start with Music 103 (Music Theory I) and Music 104 (Ear-Training I) during the Fall semester, you will take Music 105 and 107 in Spring. To remain in sequence you must take Music 106 and 108 the following Summer

Symbols - See page 379

Teaching Field: Music
(36 Hours)

Music Theory (22)

Music 105 (2) Music Theory II
Music 106 (2) Music Theory III
Music 205 (2) Music Theory IV
Music 206 (2) Music Theory V
Music 107 (2) Ear-Training II
Music 108 (2) Ear-Training III
Music 207 (2) Ear-Training IV
Music 208 (2) Ear-Training V
Music 309 (2) Form and Analysis
Music 310 (2) Form and Analysis
Music 453 (2) Orchestration

Conducting (2)

Music 363 (2) Conducting

Applied Music (8)
Voice, Piano or Guitar Music 119, 120, 219, 220, 319, 320, 419, 420 (8)

*Applied Music (2)
Piano or Voice (Guitar concentrates must take Piano (2) and Voice (2)
Music 119, 120 (2)

Diction (2)

Music 209 (2) Diction for Singers

Concert Music (0)
Six semesters of Music 101 with a grade of CR

Professional Education: Music Education
(32 Hours)

Ensemble (8)
Music Education 243 or 244
(Chamber Singers or Concert Chorale) (8)

Teaching Instruments (4)
Music Education 155 Orchestral Instruments, (Trumpet, Clarinet, Violin and Guitar)

Methods (10)
Music Education 346 Teaching Music in the Elementary Schools (3)
Music Education 446 Secondary School Music (3)
Music Education 313 Choral Music Methods (4)

Miscellanous (4)
Music Education 194 Introduction to Music Education (1)
Music Education 451 Foundations of Musical Behavior (3)

Student Teaching (6)
Music Education 400 Student Teaching in the Elementary Schools (3)
Music Education 461 Student Teaching in the Secondary Schools (3)

Electives
(12 Hours)

Fine Arts (6)
Courses to be selected from Art History, Art Studio, Theatre Arts, Dance, or Film/Television.

Other (6)
Courses to be selected by the student.

INSTRUMENTAL TRACK

General Education
(54 Hours)

English (12)
English 101 (3) Writing with Reading in Exposition
English 102 (3) Analytic Writing
English Literature Elective (3)
Communication 130 (3) Public Speaking or Communication 270 (3) Communication for Teachers

History (12)
History 101 (3) Western Civilization
History 102 (3) Western Civilization
History 161 (3) History of the United States
History 162 (3) History of the United States

Math (6)
Electives (any course listed in the University catalog except Math 100, 101, and 120.)

Psychology (6)
Psychology 102 (3) General Psychology II
Psychology 220 (3) Child Psychology

Science (12)
Physics 108 (3) Introduction to Musical Acoustics
Physics 118L (1) Musical Acoustics Laboratory
Electives (8) (to be selected from Astronomy, Biology, Chemistry, Physics, Geology, Zoology, Botany.)

Fine Arts (6)
Music 261 (3) History of Music I
Music 262 (3) History of Music II

Teaching Field: Music
(32 Hours)

Music Theory (22)
Music 105 (2) Music Theory II
Music 106 (2) Music Theory III
Music 205 (2) Music Theory IV
Music 206 (2) Music Theory V
Music 107 (2) Ear-Training II
Music 108 (2) Ear-Training III
Music 207 (2) Ear-Training IV
Music 208 (2) Ear-Training V
Music 309 (2) Form and Analysis
Music 310 (2) Form and Analysis
Music 453 (2) Orchestration

Conducting (2)
Music 363 (2) Conducting

Applied Music (8)
Music 119, 120, 219, 220, 319, 320, 419, 420, (8)

Concert Music (0) Six semesters of Mu 101 with a grade of CR

Professional Education: Music Education
(36 Hours)

Ensemble (8)*
Music Education 233 or 241 (Orchestra or Band) (8)

Teaching Instruments (8)
Music Education 155 Orchestral Instruments (8)

Methods (10)
Music Education 346 Teaching Music in the Elementary Schools (3)

Music Education 446 Secondary School Music (3)
Music Education 315 Instrumental Music Methods (4)

Miscellaneous (4)
Music Education 194 Introduction to Music Education (1)
Music Education 451 Foundations of Musical Behavior (3)

Student Teaching (6)
Music Education 400 Student Teaching in the Elementary Schools (3)
Music Education 461 Student Teaching in the Secondary Schools (3)

Electives
(12 Hours)

Fine Arts (6)
Courses to be selected from Art History, Art Studio, Theatre Arts, Dance, or Film/Television.

Other (6)
Courses to be selected by the student.

The Music Education Minor Requirements

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: All Music majors

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, guitar performance) 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

Organ Performance major
Six (6) semesters in a major ensemble
Two (2) semesters of accompanying

Piano Performance 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 a major ensemble (band or orchestra)
Two (2) semesters in chamber music

Guitar Performance 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 approved by your applied teacher.)

Music Education
Major ensemble appropriate to applied concentration each semester of residence for eight (8) semesters. Wind players must audition for Symphonic Wind Ensemble or Orchestra and participate in the ensemble in which they are assigned. String players must be in orchestra. Vocal concentrates must audition for Chamber Singers 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: Bachelor of Music Education majors who have completed the major ensemble requirements are encourged to continue performing in a major ensemble until finishing the degree. Making music should be a lifetime commitment. Students in marching band will be required to fulfill their complete obligation to this ensemble. All wind and percussion concentrates, as well as keyboard and guitar concentrates, enrolled in the Music Education Instrumental Curriculum, will participate in the marching band each fall semester for at least four semesters.

Theory and Composition
~~Eight (8) semesters in an appropriate major ensemble~~
Two (2) semesters must be in a major choral 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 untder 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 falls 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 standars of professional behavior.

* Wind and Percussion concentrates must enroll in Music Education 241 Band each Fall semester for four years. institution(s). No more than four such semesters may be counted.

Symbols - See page 379

Preprofessional Curriculum: Bachelor of Fine Arts (BFA)

The department offers three separate degree emphases leading to the Bachelor of Fine Arts degree (BFA): 1) Actor Training, 2) Technical Theatre/Design, and 3) Dance. The majors offered under this curriculum, which is designated as the preprofessional curriculum, are designed for students who anticipate further study at the graduate level in a university or conservatory or as apprentice to a professional theatre or dance company. Students choosing this degree will receive a more focused concentration on the practice and application of the art of theatre or dance. Students are admitted into the BFA degree program only after satisfactory completion of the sophomore level of the BFA curriculum and after passing the BFA jury. The Jury, which occurs at the end of the sophomore year, consists of the following in the three programs: an audition in Actor Training, an audition in Dance and a Portfolio review in Technical Theatre/Design. Admission to the final two years of the BFA program is based on the students' work throughout their first two years as well as the jury and on the faculty's judgement of the students ability satisfactorily to complete the final two years of the BFA curriculum.

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.

THEATRE (BFA)
ACTOR TRAINING AND TECHNICAL THEATRE

1. Courses outside the major:
   a. 30 hours selected from courses offered by departments of the College of Arts and Sciences, including general education requirements (see Fine Arts Graduation Requirements 6.). Specific requirements include English 352 and 353. These will partially satisfy the college requirements for courses courses outside the major. 30 hours
   b. 3 hours of Art Hi, 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 or equivalent). 6 hours
   c. 12 additional hours selected from courses outside the major offered by any college including Fine Arts. 12 hours

   48 hours

2. Courses in the major: ACTOR TRAINING
   a. TA 120-121, 122-123, 192, 194, 196, 198, 220-221, 224-225, 235, 320-321, 420-421, 435-436, 437, 3 hours of Film or F/TV 111 and 3 hours of Dance. 66 hours
   b. Additional TA hours selected with advisement. 14 hours

   Total - Actor Training 128 hours

3. Courses in the major: TECHNICAL THEATRE/DESIGN
   a. TA 120-121, 122-123, 192, 194, 196, 198 or 366, 235, 292-293, 294, 296, 403, 435-436, 3 hours of Film or F/TV 111. 51 hours
   b. Additional TA hours selected with advisement from among the following: TA 290, 297, 366, 392, 393, 394, 395, 396, 397, 399, 404, 491, 492, 494, (496 and 497 repeatable up to a limit of 9 hours total), 498 and 499. 21 hours
   c. Additional TA hours selected with advisement. 8 hours

   Total - Technical Theatre/Design 128 hours

DANCE (BFA)

1. Courses outside the major:
   a. 33 hours selected from courses offered by departments of the College of Arts and Sciences, including general education requirements (see Fine Arts Graduation Requirements 6.); and also including English 352 and 353; 3 hours in Anthropology chosen from 130, 150 or 250, and Psychology 220; Biology 136 is required. 33 hours
   b. 12 hours selected from other depart-ments of the College of Fine Arts (art, fine arts, and music), by advisement. Must include Music 103, 104 and 371 12 hours
   c. 6 additional hours selected from courses outside the major offered by any college, including Fine Arts. 6 hours

   51 hours

2. Courses in the major:
   a. TA 120, 122, 194, 196, 437; Dance 149, 169, 212, 250, 311, 312, 314, 411, 412, 431, 462, 463, 466, and 3 hours in Film/TV (Film elective or F/TV 111). 56 hours
   b. 24 hours in dance technique (ballet modern, flamenco, or jazz) selected with advisement and taken on a schedule averaging at least seven class sessions per week beginning in the sophomore year. 24 hours

   Total - Dance BFA 131 hours

General Curriculum: Bachelor of Arts in Fine Arts

The department offers two separate degree tracks leading to the Bachelor of Arts in Fine Arts (BAFA): 1) Theatre, 2) Dance. The curriculum in the BAFA is of a broader, liberal arts orientation than the curriculum in the BFA.

In theatre, students wishing to choose this degree will, in addition to a higher concentration on the general, liberal arts background of the theatre discipline, have the opportunity to choose an emphasis in the following areas of study:

1. Film
2. Television
3. General Theatre
4. Playwriting
5. Directing
6. Arts Management
7. Acting
8. Theatre History
9. Technical Theatre

THEATRE (BAFA)

1. Courses outside the major:
   a. 39 hours selected from courses offered by departments of the College of Arts and Sciences including general education requirements (see Fine Arts Graduation Requirements 6.); specific requirements include hours in American Studies and English 352 and 353. These will partially satisfy the college requirements are courses outside the major. 39 hours
   b. 3 hours in Art History, 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; 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: THEATRE
   a. Lower Division: TA 120, 122, 123, 235, 435, 436, 437, 6 hours of technical theatre courses (192, 194, 196 or 198), 3 hours of Film, 3 hours of Dance, and 3 hours of Television.
      36 hours
   b. 12 additional hours from the Department of Theatre Arts of which at least 6 hours must be above 300.
      12 hours

      48 hours

3. Additional courses in any field

Total - Theatre BAFA 128 hours

DANCE BAFA

In Dance, the BAFA program presents a broader, less technical perspective on dance training within a liberal arts context. Students may concentrate their dance studies in one of a number of areas that intersect with other fields: dance education, dance history/criticism, dance management, dance and psychology, choreography, dance for film/video, and dance kinesiology.

1. Courses outside the major:

   a. 42 hours selected from courses offered by departments of the College of Arts and Sciences, including general education requirements (see Fine Arts Graduation Requirements 6.) and also including English 352 and 353; 3 hours in Anthropology chosen from 130, 150 or 250, and Psychology 220. Biology 136 is required.
      42 hours.
   b. 3 hours of Art History and 3 hours selected from other departments of the College of Fine Arts (art, fine arts, music)
      6 hours
   c. 12 additional hours selected from courses outside the major offered by any college, including Fine Arts.
      12 hours

Total 60 hours

2. Courses in the major: DANCE

   a. TA 122, 194, 196, 437; Dance 108, 149, 169, 212 or 311, 222, 250, 314, 431, 462, 463, 466, 467, and 20 hours in dance technique (ballet, modern, Flamenco, or Jazz) selected with advisement;
      64 hours
   b. 4 hours of additional courses from the Department of Theatre Arts, numbered above 300.
      4 hours

Total - Dance BAFA 128 hours

Curriculum in Theatre Education

The new curriculum leading to state licensure to teach in the public schools, grades K-12, with theatre as the teaching content field, is being developed as part of the Fine Arts endorsement area approved by the State Department of Education in 1988. At the time of the printing of this catalogue this curriculum was not yet complete. Students wishing to be licensed to teach drama/theatre in New Mexico public schools should see the Theatre Arts Department advisor for specific requirements.

Minor in Theatre Arts

24 hours of theatre arts courses which must include T A 122, 123 and 3 hours from T A 192, 194, 196, or 198.

Minor in Dance

   a. Required: Dance 212, 222, 250, 311, 314
      13 hours
   b. Electives: 6-12 hours of Dance technique selected with advisement, and 3-6 hours selected with advisement from the following courses: Dance 105, 169, 308, 411, 431, 450, 463, 495, T A 194, 196, or 496.

   Note: Students majoring in Elementary Education pursuing this minor are requiredto take Dance 466-467 in their Junior year.
      11 hours

Total 24 hours

Minor in Film Studies

   a. Required: Film 210, 211, 326, 328, 390, 428
      18 hours
   b. Electives: 6 hours from Film 390, 428 and T A 355
      6 hours

Total 24 hours

Minor in Television Production

   a. Required: F/TV 110, 111, 216, 217
      12 hours
   b. Elect six hours from the following: T A 196, 491, 409, Comm 464
      6 hours
   c. Elect three hours from the following: Comm 362 or 368
      3 hours
   d. Elect three hours from the following: F/TV 210, 326, 328, 390 or T A 355
      3 hours

Total 24 hours

COURSES OF INSTRUCTION

ART

Harry Nadler, Chairperson
Art 204
277-5861

PROFESSORS:

Jane E. Abrams, M. F. A., Indiana University
Thomas F. Barrow, M. S., Institute of Design, Illinois Institute of Technology
Edward Bryant, M. A., University of North Carolina
Betty Hahn, M. F. A., Indiana University
Eugenia Parry Janis, Ph. D., Harvard University
Christiane L. Joost-Gaugier, Ph. D., Harvard University
Wayne R. Lazorik, M. F. A., University of Minnesota
Harry Nadler, M. A., University of California (Los Angeles)

ASSOCIATE PROFESSORS:

Nick Abdalla, M. A., University of New Mexico
Timothy App, M. F. A., Tyler School of Art, Temple University
Flora Clancy, Ph. D., Yale University
Elen Feinberg, M. F. A., Indiana University
Mary Grizzard, Ph. D., University of Michigan
Basia Irland, M. F. A., University of Massachusetts
Howard D. Rodee, Ph. D., Columbia University
O. Joseph Rothrock, Ph. D., Princeton University
John H. Wenger, M. F. A., University of Arizona

Symbols - See page 379

ASSISTANT PROFESSORS:

Michael D. Cook, M. F. A., University of Oklahoma
Martin Facey, M. F. A., University of California (Los Angeles)
Douglas R. George, M. A., University of Minnesota
William T. Gilbert, M. F. A., University of Montana
Len Klekner, M. A., University of Chicago
Lydia R. Madrid, M. F. A., Indiana University
Christopher Mead, Ph. D., University of Pennsylvania
Patrick Nagatani, M. F. A., University of California (Los Angeles)

ADJUNCT PROFESSORS:

Anne Noggle, M. A., University of New Mexico
Richard Rudisill, Ph. D., University of Minnesota
Mary E. Smith, Ph. D., Yale University
Peter S. Walch, Ph. D., Princeton University

LECTURER:

James L. Jacob, M. A., University of New Mexico

PROFESSORS EMERITI:

Clinton Adams, Editor, Tamarind Papers
Garo Antreasian, Printmaker
J. J. Brody, Historian
Van deren Coke, Photographer, Historian
Robert M. Ellis, Painter
Ralph Lewis, Jeweler, Painter
Charles Mattox, Sculptor
Beaumont Newhall, Photographer, Historian
Carl E. Paak, Ceramist
Sam Smith, Painter

MAJOR STUDY REQUIREMENTS

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 BFA
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: Art Hi 201, 202 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 201, 202 and 250.
9 hours in art studio fundamentals: Art St 121, 122, and 106.

MINOR STUDY REQUIREMENTS

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 201, 202, 250 and
15 hours of art history and/or art studio electives.

Consult the Undergraduate Art Advisor 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 Fall and Spring semesters and the first week of Summer Session. In specific instances fee reductions may be granted upon approval of the appropriate representatives and if the deadline is met. See instructor for deadline.

ART HISTORY (ART HI)

The following courses, 101, 151, 201, 202, and 250, are strongly recommended to all students in the study of art history and related studio areas.

101. Introduction to Art [Art Appreciation] **(3)**
A beginning course in the fundamental concepts of the visual arts; the language of form and the media of artistic expression. Readings and slide lectures supplemented by museum exhibition attendance. {Fall, Spring}

151. Artistic Traditions of the Southwest. **(3)** George
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. {Spring}

201. History of Art I. (3)
Prehistoric, Near Eastern, Egyptian, Greek, Roman, Early Christian, Byzantine, Romanesque, and Gothic Art. {Fall}

202. History of Art II. (3)
Western Art from the Early Renaissance to Impressionism. {Spring}

210. Introduction to Film. **(3)** Jaffe
(See Film 210.)

211. Film Comedy. **(3)** Jaffe
(See Film 211.)

215. Ancient Art. **(3)** Clancy, Rothrock
Architecture, painting, and sculpture from 1800 B. C. to sixth century A. D. {Fall}

220. Medieval Art. **(3)** Grizzard, Rodee
Architecture, painting, and sculpture from Early Christian through Gothic. {Spring}

231. Early Renaissance Art in Italy. [Late Medieval and Early Renaissance Art in Italy] **(3)** Joost-Gaugier
Fourteenth century art in Florence and Siena; fifteenth century painting, sculpture and architecture in Italy with emphasis on the Florentine, Venetian, and Umbrian schools. {Fall}

232. Art of the High Renaissance in Italy. **(3)** Joost-Gaugier
Painting, sculpture, and architecture in Florence, Rome, and Venice. Emphasis on the formation of the classical style developed by Leonardo da Vinci, Michelangelo, Raphael, Giorgione, and Titian. {Spring}

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) Klekner
Major stylistic developments of European and American painting and sculpture from Impressionism to approximately World War II. {Fall, Spring}

252. Tribal Art. (3)
(Also offered as Anth 202.) Traditional arts of non-urban, non-industrial, small societies from Africa, Europe, Asia, Oceania, and the Americas. {Spring}

261. Ancient and Medieval Architecture. (3) Mead
(Also offered as Arch 261.) Survey of the history of Western architecture from the Egyptain pyramid to the Gothic cathedral. {Fall}

262. Renaissance Through Modern 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) Bryant, George
Painting and sculpture from the Colonial period to World War II. {Fall}

280. Native American Art. (3)
(Also offered as Anth 203.) Prehistoric and historic art forms of North America.

301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)Δ
(See Am St 301-302.) {Offered upon demand}

303. Asian Art. (3)
{Offered upon demand}

***326. History of the Film I. (3)** Jaffe
(See Film 326.)

***328. History of the Film II. (3)** Jaffe
(See Film 328.)

330. Studies in Film. (3 hrs. to a maximum of 6)Δ
(See Film 330.)

343. Pre-Columbian Architecture. (3) Clancy
(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)ΔΔ** Salvador
(Also offered as Anth 400.) History, philosophy, and purposes of museums. Techniques and problems of museum administration, education, collection, exhibition, conservation, and public relations. {Fall}

***401. African and Oceanic Art. (3)**
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)**
(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)**
(Also offered as Anth 403.) Prehistoric and historic art forms of the Plains, Southwest, and western regions of North America. {Spring}

404. The Minor Arts. (3) Rodee
Investigates the historical development and techniques of numismatics, jewelry, silver-smithing, ceramics, armor and other topics. {Spring}

***411. Pre-Columbian Art: Mesoamerica** [Pre-Columbian Art I] **(3)** Clancy
The art of Mexico and Central America prior to the sixteenth century. {Fall}

***412. Pre-Columbian Art: South America** [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)** Janis
Historical development and aesthetic character of photography in the nineteenth century. {Fall}

***426. 20th-Century Photography. (3)** Janis
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)Δ** Jaffe
(See Film 428.)

429. Topics in Art History. (1-3)Δ
Course work determined by specific students request or by the professor's current research. {Offered upon demand}

433. Italian Mannerism (3). Joost-Gaugier
A study of the end of the Renaissance, the post- classical style leading to Baroque and Modern Art. {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}

***461. Architecture in Europe from 1750 to 1914. (3)** Mead
(Also offered as Arch 461.) 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 464.) Seminar on the theoretical and

ΔΔ May be taken twice for credit.

FINE ARTS

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critical significance of a selected architect or architectural movement.
Prerequisites: 261, 262 or permission of instructor. {Offered upon demand}

***463. 20th Century Archititecture. (3)** Mead
(Also offered as Arch 463.) Modern architecture in Europe and America.
Prerequisite: 261, 262 or permission of instructor. {Offered upon demand}

***464. European Art 1750-1848.** [18th-Century Art in Europe] **(3)** Janis, Rodee
Painting, sculpture, and architecture in France, England, Spain and Germany from the twilight of Absolutism through the Industrial and French Revolutions. {Offered upon demand}

***472. American Art: 1675-1875. (3)** Bryant, 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)** Bryant, George
Painting and sculpture from the Centiennial Exhibition to World War II. {Spring}

***481. European Art 1848-1900.** [19th-Century Art] **(3)** Janis, Rodee
Painting and sculpture in France, England and Germany from Courbet's Realism and the Victorial Pre-Raphaelites through Impressionism and the late works of Cezanne and Monet. {Offered upon demand}

***482. Early 20th-Century Art. (3)** Klekner
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}

***485. [*460] Seminar in Museum Methods.** [Seminar in Museology and Museography] **(3)ΔΔ**
(Also offered as Anth 485.) Theoretical and practical work in specific museum problems.
Prerequisite: *400 or equivalent.

486. Museum Methods. (3)
Practicum in museum methods and management. (Also offered as Anth 486.)
Prerequisite: Anth 485 or Art Hi 485

490. Interdepartmental Proseminar. (3)Δ
(See F A 490.) {Offered upon demand}

***491. Late 20th-Century Art. (3)** Bryant, Klekner
Painting and sculpture, 1940 to the present. {Spring}

***492. Art Critcism. (3)**
Principles of criticism in the visual arts with emphasis on critical approaches to contemporary art.
Prerequisite: 6 hours upper division in art history, literature, and/or philosophy. {Offered upon demand}

496. Undergraduate Tutorial. (3)Δ
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. (3)
{Fall}

501. Interdisciplinary Seminar in U. S. Culture. (3)
(See Am St 501.) {Offered upon demand}

503. Introduction to Graduate Studies. (3)
Corequisite: Art St 502. {Fall}

504. Seminar in Minor Arts. (3) Howard, Rodee
{Spring}

529. Topics in Art History. (1-3)Δ

551-552. Problems. (2-3, hrs. each semester) Maximum 6 hours.
{Fall, Spring}

559. Seminar in Native American Art. (3)Δ
(Also offered as Anth 509.)
Prerequisites: 402 and/or 403. {Offered upon demand}

560. Seminar in Pre-Columbian Art or African Art or Oceanic Art. (3)Δ Clancy
Prerequisites: 401, 411, 412 or their equivalents, depending upon content, and reading knowledge of Spanish. {Fall}

561. Seminar in Ancient and Medieval Art. (3)Δ
Prerequisite: permission of instructor. {Offered upon demand}

571. Seminar in Renaissance and Baroque Art. (3)Δ
Prerequisite: permission of instructor. {Offered upon demand}

572. Seminar in the Art of the United States. (3)Δ George
Prerequisites: 472, 477 or 479, depending upon content. {Spring}

580. Seminar in Spanish Colonial Art. (3)Δ Grizzard
(Also offered as Arch 560.)
Prerequisite: 450. {Fall}

581. Seminar in 19th-Century Art. (3)Δ Janis, Rodee
Prerequisite: 481. {Fall, Spring}

582. Seminar in 20th-Century Art. (3)Δ Bryant, Janis, Klekner
Prerequisite: 482 or 491. {Offered upon demand}

585. Seminar in Museum Methods. (3)ΔΔ Brody, Salvador
(Also offered as Anth 585.)
Prerequisite: Anth 400 or Art Hi 400 or equivalent. {Spring}

586. Practicum: Museum Methods. (3)ΔΔ
(Also offered as Anth 586.)
Prerequisite: Anth 585 or Art Hi 585.

592. Seminar in Art Since 1950. (3)Δ Barrow, Klekner
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}

ΔΔ May be taken twice for credit.

ART STUDIO (ART ST)

MAJOR COURSES

All 100-level studio courses carry no prerequisite and are designed for both students who have a general interest in art as well as students who plan on majoring or minoring in art. The Department has listed "suggested corequisities" that it deems helpful to students enrolled in the course as well as to alert students to prerequisites for 200-level courses.

106. Drawing I. [Drawing Fundamentals] **(3)**
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)
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)
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}

157. Jewelry and Metalwork I [120]. [Jewelry and Metalwork for Non-majors I] **(3)ΔΔ**
Introduction to design, materials, and techniques of jewelry and metalwork.
Suggested corequisite: 106, 122 {Fall, Spring}

168. Ceramics I. [115] [Ceramics for Non-majors] **(3)ΔΔ**
Introduction to clay forms, hand built and wheel-thrown techniques, slips glazes and *stoneware.*
Suggested corequisite: 106, 122 {Fall, Spring}

187. Photography I. [Photography Fundamentals] **(3)**
Introduction to photographic vision and photographic techniques.
Suggested corequisite: 121. {Fall, Spring}

205. Drawing II. [Drawing I] **(3)**
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)
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. Intermedia Sculpture. [Sculpture I] **(3)**
Introduction to sculptural techniques and investigations into contemporary issues such as performace art and assemblage.
Prerequisite: 122; pre- or corequisite: 214. {Fall, Spring}

214. Shop Foundations. (2)
Familiarizes the art student with the safe practice and maintenance of wood and metal shop tools and machinery. {Fall, Spring}

257. Jewelry and Metalwork II. [Jewelry and Metalwork I] **(3)ΔΔ**
Continuation of 157 with emphasis on methods of construction, including lost wax, vacuum assist and centrifugal casting.
Prerequisite: 122, 157; corequisite: 106. {Fall, Spring}

268. Ceramics II. [Ceramics I] **(3)**
Continuation of 168 with emphasis placed on the mastery of ceramic processes and the development of a personal aesthetic.
Prerequisite: 122, 168; {Fall, Spring}

274. Introduction to Printmaking. (3)
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. (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 II. [Photography I] **(3)**
Continuation of 187, with concentration on photographic techniques and the formal aspects of photographic vision.
Prerequisites: 187; {Fall, Spring}

288. Introduction to Color Photography. (3)
The techniques and aesthetics of color photography.
Prerequisites: 121, 187, 287. {Fall, Spring}

293. Beginning Watercolor Painting. (3)ΔΔ
Painting on site with emphasis on landscape using basic techniques of various water soluable media. Includes lecture, demonstration, practice and critique.
Prerequisites: 106, 121, and 207. {Fall, Spring}

305. Drawing III. [Drawing II] **(3)ΔΔ**
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 IV. [Drawing III] **(3)ΔΔ**
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)ΔΔ
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)ΔΔ
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)ΔΔ
Extension and refinement of techniques presented in 293. Continued emphasis on the landscape including its structural and expressive potential.
Prerequisite: 293. {Offered upon demand}

ΔΔ May be taken twice for credit.

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310. Figure Drawing. (3)ΔΔ
Study of the human figure as the primary vehicle for addressing formal and conceptual drawing problems.
Prerequisite: 205.

313. Conceptual Sculpture. [Sculpture II] (3)ΔΔ
The study of conceptual approaches to sculpture.
Prerequisites: 213, 214. {Spring}

314. Sculpture Foundry and Casting. [Sculpture III] (3)ΔΔ
Basic foundry and casting techniques.
Prerequisites: 213, 214. {Fall}

320. The Phenomena of Color. (3)ΔΔ App
An intensive study of color through assigned problems designed to develop greater awareness of and sensitivity to the use and function of color in the arts.
Prerequisite: Intermediate level courses in student's area of concentration.

330. Studies in Film. (3 hrs. to a maximum of 6)Δ
(See Film 330.)

335. Intaglio Printmaking I. (3)ΔΔ Madrid
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)ΔΔ Madrid
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)ΔΔ Kraft
Introduction to techniques, history, aesthetics and creative aspects of screen printing.
Prerequisite: 274 or 287. {Fall, Spring}

357. Jewelry and Metalwork III. [Jewelry and Metalwork II] (3)ΔΔ
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}

368. Ceramic Vessels. [Ceramics II] (3)ΔΔ Gilbert
Builds upon basic foundations in clay to increase skills and knowledge of ceramics with emphasis on the history, design, processes, tools, materials and terminolgy relating to the vessel tradition in ceramics.
Prerequisite: 122, 268. {Fall, Spring}

369. Ceramic Sculpture. [Ceramics III] (3)ΔΔ Gilbert
Use of ceramic materials and methods to explore sculptural issues.
Prerequisite: 122, 268. {Fall, Spring}

374. Lithography I. (3)ΔΔ
Fundamental techniques of drawing and painting on and from lithographic stones and metal plates, primarily in black and white. Includes lectures, demonstrations, critiques and practical experience.
Prerequisite: 274 or permission of instructor. {Fall, Spring}

375. Lithography II. (3)ΔΔ
Continuation of 374 with particular emphasis on color printing and special processes, including photo reproduction. Emphasis on personal aesthetic and technical concepts.
Prerequisitie: 374 or permission of instructor. {Fall, Spring}

377. Graphic Design II. (3)ΔΔ 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}

385. Introduction to Non-Silver Photography. (3) Hahn
The techniques and aesthetics of cyanotype and gum bichromate printing (non-silver photography) and related processes.
Prerequisites: 121, 187, 287. {Fall}

386. Photography III. [Photography II] (3)ΔΔ Barrow, Hahn, Lazorik, Nagatani
Continuation of 287, with concentration on the development of personal vision.
Prerequisite: 287; Pre-or corequisite: Art Hi 425. {Fall, Spring}

387. Photography IV. [Photography III] (3)ΔΔ Barrow, Hahn, Lazorik, Nagatani
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 425; corequisite: Art Hi 426. {Offered upon demand}

389. Topics in Studio Art. (3)Δ °
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)
(See Film 390.)

405. Advanced Drawing. (3)Δ
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)Δ
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. Outdoor Studio. [Advanced Landscape Painting] (1-3)ΔΔ Wenger, Irland
Outdoor studio work in various media with emphasis on landscape.
Prerequisites: 6 credits of 300-level or above in specified media {Fall, Spring}

413. Advanced Intermedia Studies in Sculpture. [Advanced Sculpture] (3)Δ
Investigation into contemporary sculptural issues.
Prerequisites: 213, 214. {Spring}

414. Metal Fabrication. (3)ΔΔ
Additive processes of welding and steel fabrication.
Prerequisites: 213, 214. {Spring}

423. Theory and Aesthetics. (3)
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 201, 202, 250; a minimum of 12 hours in one area of studio art; and an overall 3.0 GPA. {Fall, Spring}

429. Undergraduate Topics in Studio Art. (1-6)Δ °
Course work determined by specific student need or by the professor's current research. {Fall, Spring}

° 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 & Sciences may enroll with permission of the department chairperson.
ΔΔ May be taken twice for credit.

457. Advanced Jewelry and Metalwork. (3)Δ
Emphasizes contemporary metalworking issues. Students are encouraged to initiate their own projects and to develop a personal direction. Individual and group critiques.
Prerequisite: 357. {Fall, Spring}

468. Advanced Ceramics. (3)Δ Gilbert
Emphasizes contemporary ceramic issues. Students are encouraged to initiate their own projects and to develop a personal direction. Individual and group critiques.
Prerequisite: 368, 369. {Fall, Spring}

474. Advanced Printmaking. (3)Δ Madrid
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}

487. Advanced Photography. (3)Δ Barrow, Hahn, Lazorik, Nagatani
Advanced concepts of photography and the development of personal expression.
Prerequisites: 387, Art Hi 425, 426, 427. {Offered upon demand}

493. Seminar in Studio Art. (3)Δ °
{Fall, Spring}

495. Independent Study. (3)ΔΔ
Advanced, individually directed study in areas of special interest not normally covered in advanced level courses.
Prerequisites: Art 423 plus a statement of intent, a faculty recommendation, portfolio review and permission of the department.

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}

502. Interdisciplinary Seminar. (3)
Corequisite: Art Hi 503. {Fall}

505. Graduate Drawing. (3)Δ
Prerequisite: 405. {Fall, Spring}

507. Graduate Painting. (3)Δ
Prerequisite: 407. {Fall, Spring}

***508. Graduate Outdoor Studio. (1-3)ΔΔ**
Prerequisite: 15 hrs. of Studio Art, 6 hrs of Art History. {Fall, Spring}

513. Graduate Intermedia Studies in Sculpture. [Graduate Sculpture] **(3)Δ**
{Spring}

514. Graduate Metal Fabrication. (3)ΔΔ
{Offered upon demand}

529. Graduate Topics in Studio Art. (1-6)Δ
Course work determined by specific student need or by the professor's current research. {Fall, Spring}

557. Graduate Jewelry and Metalwork. (3)Δ
Prerequisite: 457. {Fall, Spring}

568. Graduate Ceramics. (3)Δ
Prerequisite: 468. {Fall, Spring}

574. Graduate Printmaking. (3)Δ
Prerequisite: 474. {Fall, Spring}

587. Graduate Photography. (3)Δ
Prerequisite: 487. {Fall, Spring}

593. Seminar in Studio Art. (3)Δ
{Fall, Spring}

595. Graduate Tutorial. (1-9)Δ
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}

650. Final Project. (3, 6, 9, 12 hrs. per semester)
{Fall, Spring}

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements. {Fall, Spring}

FINE ARTS (FA)

151. Artistic Traditions of the Southwest. (3) George
(See also Art, Music, Theatre Arts.)

220. Topics. (1-3)†
Not acceptable toward a major in Fine Arts. {Offered upon demand.}

***475. The Professional Print Workshop.** [The Lithography Workshop I] **(2)** Devon
Topics related to the operation of a professional printmaking workshop including history, business structures, ethics, and marketing. {Fall}

***476. The Professional Printer. (4)** Sippel
Advanced techniques in lithography with emphasis on development of skills necessary for the master printer. Lecture and practicum topics include theory and chemistry of lithography, collaboration, edition printing, workshop management and paper.
Prerequisite: permission of instructor. {Fall}

490. Interdepartmental Proseminar. (3)Δ
Open to juniors and seniors with a 3. 0 grade point average. {Offered upon demand.}

MUSIC

Harold Van Winkle, Chairperson
Fine Arts Center 1105
277-2126

PROFESSORS:

Francis H. Bowen, B. M., University of Illinois
John M. Clark, M. A., Ball State University
Joanna de Keyser, B. M., University of Southern California
Artemus L. Edwards, Dipl., Curtis Institute
Leonard Felberg, M. M., Yale University
Karl Hinterbichler, D. M. A., North Texas State University
Harold Van Winkle, M. M. E., Eastern New Mexico University
A. Scott Wilkinson, M. M., University of Arizona
William F. Wood, D. M. A., Eastman School of Music

° 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 & Sciences may enroll with permission of the department chairperson.
ΔΔ May be taken twice for credit.

Symbols - See page 379

ASSOCIATE PROFESSORS:

Rita M. Angel, M. M., University of Southern California
Evelyne Brancart, Diplome Superior, Chapelle Musicale Reine Elisabeth
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
Stewart Robertson, Academy of Music, Vienna
William M. Seymour, Ed. D., Washington University
Christopher L. Shultis, M. M., University of Illinois

ASSISTANT PROFESSORS:

Michael Chapdelaine, M. M., Florida State University
Bradley Ellingboe, M. M., Eastman School of Music
P. Kathryne Fowler, D. M. A., University of Colorado
Keith M. Lemmons, M. M., Michigan State University
Ellen C. McCullough-Brabson, D. M. A., University of Arizona
Darrel R. Randall, B. F. A., University of California (Los Angeles)
Kristin P. Thelander, D. M. A., University of Wisconsin
Marilyn Tyler, M. M., Manhattan School of Music

LECTURER:

Gregory Clemons, M. A., California State University (Fresno)

MAJOR STUDY REQUIREMENTS

For curricula leading to the Bachelor of Music, and Bachelor of Music Education, see p. 282. For Bachelor of Arts with a major in music, see p. 283.

MINOR STUDY REQUIREMENTS

1. For a minor in music, see see p. 283.
2. For a minor in music education, see p. 285.

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. ***.

APPLIED MUSIC FEE POLICY

(Does not apply to Group piano, Group Voice of Instruments 155 001 - 010)

UNDERGRADUATE POLICY: Students enrolled in Applied Music must pay an applied music charge of $75 for one semester credit hour or $150 for two or more semester credit hours in addition to tuition. Students enrolled in a major ensemble and performing on the instrument for which they are receiving the applied lessons will have this fee waived. Students who are majoring or minoring in music with organ, piano, or guitar as a concentrate may have the fee waived by substituting accompanying or, in some cases, chamber music. Major ensembles include: Symphony Orchestra 233, Symphonic Wind Ensemble 241, Marching Band 241, and Chamber Singers 243. Students who are assigned to another large ensemble *as a result of a major ensemble audition* will receive the waiver.

GRADUATE POLICY: Graduate students enrolled in Applied Music must pay an applied music charge of $75 for one semester credit hour or $150 for two or more semester credit hours in addition to tuition. The fee will be waived for students playing in the New Mexico Brass Quintet, accompaning or enrolled in any music ensemble listed in the graduate catalog.

MUSIC (MUSIC)

COURSES FOR NON-MAJORS

102. Music Theory for the Non Major. (3)
Students will develop awareness of basic elements of melody, rhythm, harmony, form and expression through involvement as singers, players, creators, movers, listeners, and readers of music. Designed for students with little or no musical training.

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 1990, 1992, 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 1989, 1991, Spring}

151. Artistic Traditions of the Southwest. (3)
(See F A 151.)

172. Jazz History. (3)
A study of the evolution of jazz in the United States from its beginnings to the present. {Summer, Fall, Spring}

271. Music Today. (3)
A survey of how Western art music and popular music developed during the 20th century especially as regards the effect that social and economic forces had upon the art. Attendance at several on-campus concerts is required; discussion and live performances by guest musicians are included. {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}

374. Music of the Southwest. (3) Wright
Survey of the musical tradition of the Southwest, special emphasis on New Mexico. Presents history, performance practice, and effect acculturation has had upon the music. Open to major and non-major. Features field work, live performance, and guest lecturers. {Fall}

CONDUCTING

363. Conducting. (2)§ Dodson
Basic theory and techniques of conducting.
Prerequisites: 206, 208, junior standing in the major field. {Fall}

364. Choral Conducting. (2) §Clark
Conducting, choral methods, and techniques.
Prerequisite: 363. {Spring}

365. Instrumental Conducting. (2) §Robertson
Instrumental conducting techniques, score reading, interpretation.
Prerequisite: 363. {Spring}

564. Advanced Choral Techniques and Methods. (2) Clark
Prerequisites: 363 and 453 or the equivalent. {Fall 1989, 1991}

565. Advanced Instrumental Conducting. (2) Robertson
Prerequisites: 363 and 453 or the equivalent. {Fall 1990, 1992}

ENSEMBLE

143. University Chorus. (1)† # Ellingboe
Large mixed chorus. Open to all University students; no audition required. {Fall, Spring}

230. Opera Studio. (1)† Tyler
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. Preference given to music majors. {Fall, Spring}

232. Early Music Ensemble. (1)† Patrick (Also offered as Mus Ed 233.)
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)†# Robertson
Study and public performance of symphonic literature. Auditions required. {Fall, Spring}

234. Jazz Band. (1)† Clemons
Modern jazz ensemble of twenty or more that performs music representing various styles of big band jazz, rock, and pop. Auditions required. {Fall, Spring}

235. Collegiate Singers. (1)† Clark
Show choir. Performs selections from musical theatre, jazz, and popular repertoire and these are staged and choreographed. Open to all university students. Auditions required each spring for following academic year. {Fall Spring}

236. Jazz Improvisation. (1)† Wood
Courses in techniques of spontaneous performance of jazz in contemporary idioms. {Fall, Spring}

241. University Band. (1)† # Clemons, Van Winkle (Also offered as Mus Ed 241.)
Study and performance of concert band literature. Marching band required of wind and percussion concentrates in music education. Audition required, but open to all students. {Fall, Spring}

243. Chamber Singers. (1)† # Clark (Also offered as Mus Ed 243.)
Select mixed-voice choral ensemble, 28-34 singers. Performs significant works of the Renaissnace, Baroque, Classic, Romantic, and Contemporary periods. Audition required, but open to all students. {Fall, Spring}

#244. Chorale. (1)† (Also offered as Mus Ed 244)
Select mixed-voice choral ensemble of not more than 56 singers. Performs significant works of all periods. Open to all students; audition required. {Fall, Spring}

***395. Accompanying.** (1)† §° Angel
Study and performance of accompaniments for other students. {Fall, Spring}

***430. Advanced Opera Studio.** (1-2)† § Tyler
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}

560. Ensemble Performance. (1)
{Fall, Spring}

HISTORY AND LITERATURE

101. Concert Music. (0)† Van Winkle
Students working toward the B.M., B.A. in Music, 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 or permission of instructor. {Fall}

262. History of Music II. (3) Hinterbichler
Continuation of Music 261, from Baroque to the present. Music majors only.
Prerequisite: 261 or permission of instructor. {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 major or permission of instructor. {Fall 1990,1992}

***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. {Spring 1989, 1991}

***415. Studies in Classic and Romantic Music.** (3) Patrick, Thelander
Music of Western Europe from 1750-1900.
Prerequisites: 261, 262; music major or permission of instructor. {Spring 1990, 1992}

***416. Studies in Twentieth Century Music.** (3) Patrick, 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. {Fall 1989, 1991}

***437. Selected Topics in Music Literature.** (3) Summer
{Offered upon demand, Fall, Spring}

***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}

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§ Open only to graduate students and to undergraduates enrolled in proprofessional 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., on the College of Fine Arts, or the College of Education. 4 hours in other colleges.
° Qualified sophomores may enroll with Piano faculty approval.

Symbols - See page 379

***479. Choral Masterworks.** (2) § Clark, Patrick
A survey of choral masterworks from the pre-Renaissance to the present.
Prerequisites: 261, 262. {On Demand}

528. Music Styles Before 1750. (3) Patrick
{Summer 1990, 1993; Spring 1990, 1992}

530. Man and Music. (3) Seymour
{Summer 1989, 1992; Fall 1990, 1992}

531. Bibliography and Research. (3) Patrick
{Summer 1990, 1992; 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) Randall, Thelander, Wilkinson
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) Randall, Thelander, Wilkinson
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) Randall, Thelander, Wilkinson
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) Randall, Thelander, Wilkinson
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) Randall, Wilkinson
Chromatic alterations and analysis: chorale harmonization, remote modulation.
Prerequisite: 106 with grade of C or better. {Fall}

206. Music Theory V. (2) Randall, 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) Randall, 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) Randall, Wilkinson
Continuation of advanced singing and dictation.
Prerequisite: 207 with grade of C or better. {Spring}

304. Introduction to Electro-acoustic Music. (3) Randall
For composition majors; teach basic skills in operating current electronic music instruments (e. g. synthesizers). Study techniques and history of electronic music through landmark compositions. Students spend considerable outside time in the Electronic studio.
Prerequisites: Physics 108; composition majors or by permission of instructor. {Fall}

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) § Robertson
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) Robertson
Sonata-allegro; rondo-sonata; fugue. Continuation of 309.
Prerequisite: 309. {Spring}

***404. Digital Synthesis in Composition.** (3) §
Theory and operation of the Apple IIe Computer and its use in additive synthesis through the Alpha Syntauri Synthesizer. Compositions used may be either original works or works by other composers.
Prerequisites: 304; *composition major or permission of* instructor. 2 lectures, lab arranged.

***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) § Wood
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}

529. Techniques of Twentieth-Century Composition. (3) Wood
{Summer 1991, 1994; Spring 1989, 1991}

PEDAGOGY

***388. Music Pedagogy.** (2) §
For the music student who plans to teach privately, especially beginners of various age. Specific area is announced in class schedule when course is offered.
Prerequisite: junior standing. {Fall, Spring}

§ Open only to graduate students and to undergraduates enrolled in proprofessional 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.

***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 1991, 1995; Spring 1990, 1992}

PROBLEMS

351-352. Undergraduate Problems. (1-3, 1-3 hrs. each semester)†
Prerequisite: junior standing. {Summer, Fall, Spring}

551-552. Problems. (1-3, 1-3 hrs. each semester)

SPECIALIZED COURSES

209. Diction for Singers. (2) Voice Faculty
The International Phonetic Alphabet and its application. {Fall}

387. Vocal Coaching. (1)† § Voice Faculty
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)§
(See F A 490.) {Summer, Fall, Spring}

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

PRIVATE INSTRUCTION-By Audition.

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 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 nstructor, 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 performance majors. {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, Spring}

114. Mexican Guitar. (1)
Continuation of 113. {Fall, Spring}

118. Basic Applied Skills. (2)
For music majors who do not yet possess skill to be admitted to Music 119 (private lessons). Scales, arpeggios, etudes, technical drills. Credit not applicable to a degree in Music.
Prerequisite: permission of instructor. {Fall, Spring}

119-120. Applied Music. (1 or 2 hrs. each semester)
Freshman major, secondary or elective course. {Summer, Fall, Spring}

201-202. Applied Music. (2 or 4 hrs. 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)†
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}

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§ Open only to graduate students and to undergraduates enrolled in proprofessional 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.

Symbols - See page 379

***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 p. ***.

155. Orchestral Instruments. (1)†
Group instruction in orchestral instruments and guitar. Music education majors and composition majors only. {Fall, Spring}

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}

233. Symphony Orchestra (1)† # Robertson (Also offered as Mus 233.)
Study and public performance of symphonic literature. Auditions required. {Fall, Spring}

241. University Band. (1)† # Clemons, Van Winkle (Also offered as Mus 241.)
Study and performance of concert band literature. Marching band required of wind and percussion concentrates in music education. Audition required, but open to all students. {Fall, Spring}

243. Chamber Singers. (1)† # Clark (Also offered as Mus 243.)
Select mixed-voice choral ensemble, 28-34 singers. Performs significant works of the Renaissance, Baroque, Classic, Romantic, and Contemporary periods. Audition required, but open to all students. {Fall, Spring}

244. Chorale. (1)† # (Also offered as Mus 244.)
Select mixed-voice choral ensemble of not more than 56 singers. Performs significant works of all periods. Open to all students; audition required. {Fall, Spring}

293. Multicultural Awareness Through Music Skills. (3) McCullough-Brabson
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.
Prerequisite: 298 or permission of instructor. {Fall, Spring}

297. Music for Special Education. (3) McCullough-Brabson
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) McCullough-Brabson
Will prepare elementary classroom teachers to teach music education in a self-contained classroom in traditional and open situations. {Summer, Fall, Spring}

313. Choral Music Methods. (4) Clark
Administration, organization, literature, teaching and conducting techniques appropriate for public school choral programs.
Prerequisities: 346 and 446 {Fall}

315. Instrumental Music Methods. (4)
Administration, organization, literature, teaching and conducting techniques appropriate for public school instrumental programs.
Prerequisities: 346 and 466. {Fall}

346. Teaching Music in the Elementary Schools. (3) McCullough-Brabson
Designed for music education majors dealing with teaching music in grades K-6. Encompasses role of consultant, curriculum development, and materials of instruction. Includes supervised laboratory teaching experiences.
Prerequisites: 194 and successful completion of Mus Ed screening. {Fall}

400. Student Teaching in the Elementary School. (3-6-9, to a maximum of 15) McCullough-Brabson
See the Department of Music Handbook for prerequisites. {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)** Dodson, McCullough-Brabson
This course allows permanent or visiting faculty to focus a course structured around their expertise or research activities. {Fall 1989, 1991; Spring, Summer upon demand}

***441. Teaching Marching Band. (2)** Clemons
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 1988, 1990}

***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}

***446. Secondary School Music. (3)** Dodson
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.
Prerequisite: junior standing. {Fall}

461. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15) Dodson
See the Department of Music Handbook for prerequisites. {Fall}

462. Student Teaching in the Secondary Schools. (3-6-9, to a maximum of 15) Dodson, McCullough-Brabson

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§ Open only to graduate students and to undergraduates enrolled in proprofessional 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 in the College of Education, 4 hours in other colleges.

See the Department of Music Handbook for prerequisites. {Fall, Spring}

***493. Reading in the Content Area-Music. (3)** Van Dongen (Also offered as CIMTE 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 1989, 1992, 1995; Spring 1988, 1990}

534. Seminar in Music Education. (3) Dodson
{Summer 1987, 1990; Fall 1986, 1988}

550. Philosophy of Music Education. (3)
{Summer 1991; Spring 1989, 1991}

551-552. Problems. (1-3, 1-3 hrs. each semester)
{Summer, Fall, Spring}

598. Music Education Project. (1-4) Dodson, McCullough-Brabson, Seymour
{Summer, Fall, Spring}

599. Thesis. (1-6 hrs. per semester)
Consult the Department of Music Graduate Student Handbook for total credit requirements. {Summer, Fall, Spring}

THEATRE ARTS

James Linnell, Chairperson
Fine Arts Center 1412
277-4332

PROFESSORS:

Brian Hansen, Ph. D., University of Minnesota
Robert Hartung, M. F. A., Yale University
Ira Jaffe (Film/TV), Ph. D., University of Southern California
Clayton Karkosh, M. F. A., Yale University
Ernest Rose (Film/TV), Ph. D., Stanford University

ASSOCIATE PROFESSORS:

Judith Chazin-Bennahum, (Dance), Ph. D., University of New Mexico
Louis Criss, M. F. A, Columbia University
James Linnell, Ph. D., University of California (Berkeley)
John Malolepsy, M. F. A., University of Wisconsin
Susan Pearson-Davis, M. F. A., Southern Methodist University
Jennifer Predock-Linnell (Dance), B. F. A. University of New Mexico
Denise Schulz, M. F. A., University of Texas

ASSISTANT PROFESSORS:

Maryjo Adams Cochran, (Film/TV), Ph. D., University of Michigan
Susan Cox, M. F. A., Southern Methodist University
Bill Evans (Dance), M. F. A., University of Utah
Gordon Kennedy, M. F. A., University of California (Los Angeles)

LECTURERS:

Eva Encinias (Dance), Extensive professional experience
Joetta Jercinovic (Dance), Extensive professional experience

MAJOR STUDY REQUIREMENTS

See section under *College of Fine Arts.*

MINOR STUDY REQUIREMENTS

See section under *College of Fine Arts.*

FEES

Students are reminded that selected theatre, dance, 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 the refund schedule in the Student Expenses section of this catalog. Classes subject to this charge bear the notation "course fee required."

THEATRE ARTS (T A)

120. Acting 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. Acting 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 Script Analysis. (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 F A 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 stage crafts. Crew assignment on departmental production required. Course fee required.
Prerequisite: 192. {Spring}

194. Introduction to Costuming. (3)
Basic techniques, tools, materials of costume construction. Crew assignment on departmental production required. Course fee required. {Fall, Spring}

195. Costume Crafts. (3)
Special skills, problem solving and techniques of the assistant to the Costume Designer. Crew assignment on departmental production required. Course fee required.
Prerequisite: 194. {Fall, 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}

200. Rehearsal and Performance. (1-3)
Participation in University Theatre Season in either performance or production capacity. May not duplicate other

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course assignments. May be repeated for a maximum of 12 hours. **Offered under CR/NC option only.** {Summer, Fall, Spring}

220. Acting 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. Acting Foundations 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)Δ
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.
Prerequisites: 192 and 194 or 196. {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. Research for Theatrical Design. [History of Styles I: Costume, Architecture & Furniture] **(3)**
An examination of resources for research into period style for the visual designer. A survey of Architecture, costume, furniture and decor in selected periods of history. Crew assignment on department production required. {Fall}

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. [Theatre Sound and Special Effects] **(3)**
Theory and practice of theatre sound design, recording and editing. Crew assignment on department production required.
Prerequisite: TA 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. (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)ΔΔ
Management assignment within the College of Fine Arts.
Prerequisite or corerquisite: 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)
Basics 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)Δ
Intensive study and practice of special techniques and materials in theatre and production.
Permission of instructor. {Offered upon demand}

***403. 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. (3)**
Continuation of 403.
Prerequisites: 366, 403. {Fall}

ΔΔ May be taken three times for credit. Instructor and committee on Studies must appove additional repitionof this course.

414. Music Theatre Workshop. (1-4)Δ
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 schools with emphasis on educational theatre as an integral part of the school curriculum and the student activities program at the secondary level. Application of theories in developing drama curriculum and directing the school play. {Spring,alternate years.}

***418. Creative Drama. (3)**
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.

***419. Children's Theatre. (3)**
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.

***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)Δ**
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)Δ**
{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)Δ**
Emphasis upon analysis of student-written plays.
Prerequisite: 355 or equivalent. {Fall in alternate years}

***456. Playwriting Laboratory. (3)Δ**
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 residency required after internship before degree will be granted. {Offered upon demand}

***467. Scene Study, (Acting Skills Tutorial.) (1-3)ΔΔ**
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)Δ

496. Student Production Project. (1-3)†
{Summer, Fall, Spring}

497. Independent Study. (2-3)†
{Fall, Spring}

498. Design Seminar. (3)
{Summer, Fall, Spring}

499. Senior Thesis. (3-6)
{Fall, Spring}

500. Introduction to Graduate Study. (3)
{Fall}

503. Dramatic Theory and Critical Analysis. (3)
{Spring}

506. Critical Issues in the Performing Arts. (3)
{Fall}

507. Directing Studio. (3, to a maximum of 6)Δ
Prerequisite: 404 or its equivalent. {Spring}

509. Graduate Internship. (3-6)Δ

510. Internship in Educational Theatre. (3-9)

529. Advanced Topics in Theatre. (1-3)Δ

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 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

DANCE (DANCE)

105. Dance Appreciation. (3)Δ
An introductory study of dance as spectacle, technique and ritual for today's audience. {Fall}

ΔΔ May be taken three times for credit. Instructor and committee on Studies must appove additional repetitionof this course.

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108. Introduction to Modern Dance [Introduction to Dance] **(2)††**
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. (3)
An introduction to Renaissance and Baroque dances. Participants will explore the style, music, costume, and movements of these periods. Useful to the actor, singer, dancer, and choreographer whose repertory deals with the Renaissance and Baroque periods. {Fall}

118. Introduction to Tap Dancing. (1)††
Introduction to the techniques and styles of tap dancing. *Course fee required. {Fall, Spring}*

132. [130] **Introduction to Jazz. (2)††**
Fundamental work in the technique, style, and performance of jazz dance, with consideration of its history as it relates to current attitudes in musical theatre, concert, dance, and television. Course fee required. {Summer, Fall, Spring}

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}

169. Introduction to Flamenco (2)††
This course introduces the history and tradition of Flamenco through video, lectures, and audio tapes. The student also learns the fundamentals of Flamenco technique, i. e., footwork, palmas and castanets. Course fee required. {Spring, Summer}

204. Stretching, Strengthening and Conditioning for the Performing Arts. (1)††
This course provides conditioning and training for dancers, actors, singers, and musicians in order to prepare them for the extreme physical demands of their respective art forms. {Fall, Spring}

210. Modern Dance I. (3)Δ °
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. Course fee required. Placement class required.
Prerequisite: 108 or equivalent, pre- or corequisite: 222. {Summer, Fall, Spring}

212. Improvisation. (2)Δ
Introducing kinesthetic awareness, beginning skills in individual spontaneity and group interaction. Elements of movement, use of the body expressively and communicatively, first steps in use of structure and form in dance composition. Discovering the authentic "self" in movement. Course fee required.
Prerequisite: permission of instructor required. {Fall}

218. Intermediate Tap Dancing (1)††
Tap dancing techniques and styles for the intermediate-level dancer with previous tap dance training. Course fee required.
Prerequisite: 118 or permission of instructor. {Spring}

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.

232. Jazz I. (2)††
This course for the intermediate dancer comprises further study in the technique, style and performance of jazz dance. Emphasis will be placed on complex rhythmic structures and extended sequences of movement utilizing multi-directional-special concepts. Course fee required.
Permission of instructor {Fall, Spring}

249. Ballet I. (3)†† °
Further development of ballet technique at the barre and in center work. Course fee required. Placement class required.
Prerequisite: 149 or equivalent, pre- or corequisite: 222. {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. Course fee required.
Prerequisite: Biol. 136. {Fall}

269. Flamenco I. (3)††
This course studies the rhythmic structures of Flamenco music and their relationship to Flamenco dance forms, with an emphasis on the student's skill in footwork, palmas, castanets. Course Fee required.
Permission of instructor. {Fall, Spring}

308. Studies in Ballet Forms. (2)Δ
Various techniques of ballet training such as partnering, variations, pointe work, and men's class. Course fee required.
Prerequisite: permission of instructor required. {Fall, Spring}

310. Modern Dance II. (4)Δ°
Graham, Limon, and Cunningham based techniques of modern dance and current developments of these models are offered in different semesters. Course fee required. Placement class required.
Prerequisites: 210 or equivalent, 222. {Summer, Fall, Spring}

311. Studies in Elements of Solo Choreography. (3)Δ °
Developing the skills of selecting and editing dance material for solo compositions. Exploration of modern dance and/or classical forms. Basing contemporary works on pre-classic forms.
Prerequisite: 212. {Spring}

312. Choreography and Musical Structure. (3)
An investigation of appropriate musical choices for the support and inner structuring of dance composition. Analogies between melody, harmony, contrapuntal form in music and dance. theme and variation, sonata, canons, fugue, etc. Explores the choreographer/composer relationship.
Prerequisites: 222, 311. {Spring}

314. Kinesiology for Dancers. (3)††
Structural analysis of movement. Basic understanding of the skeletal and neuromuscular systems of the human body in movement. Permission of instructor required.
Prerequisite: Biol 136. {Offered upon demand}

315. Theories of Dance Therapy. (3)
History, development and practical application of Movement/Dance Therapy. {Spring}

318. Advanced Tap Dancing (1)††
Tap dancing techniques and styles for the advanced-level dancer with substantial tap dance training. Course fee required.
Prerequisite: 218 or permission of instructor. {Offered upon demand}

° 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.

322. Dance Repertory I. (1-3)†
Professional training in the learning and performing of new or re-staged choreography, for serious dancers only. Admission by audition. May be repeated three times for credit. {Offered upon demand}

332. Jazz II. (2)
Advanced studies in jazz technique that stresses performance skills of the pre-professional dancer. Styles of contemporary jazz choreographers as implemented in musicals, variety shows, videos and concerts will be analyzed and performed. Course fee required.
Permission of instructor. {Fall, Spring}

349. Ballet II. (4)Δ
Further strengthening and development of the basic technique of an intermediate ballet dancer. Emphasis placed upon musicality, coordination of movements, and placement. Course fee required. Placement class required.
Prerequisites: 222, 249 or equivalent. {Summer, Fall, Spring}

369. Flamenco II. (3)††
This course emphasizes Flamenco performing technique integrating song, music, and dance. Informal showing with advanced rhythmic study will be explored in various Flamenco forms, i. e., Bulerias, Soleares, Tientos, etc. Course fee required. Permission of instructor. {Fall, Spring, Summer}

410. Modern Dance III. (4)Δ°
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)Δ**
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.)
Prerequisites: 250, 312, and permission of instructor. {Spring}

412. Senior Performance. (1-3)
Guided independent work in composition with a faculty artist.
Prerequisite: 411. {Fall, Spring}

***422. Dance Repertory II. (1-3)**
Professional training in the learning and performing of new or re-staged choreography, for advanced dancers only. Admission by audition.
Prerequisite: 322 or equivalent. May be repeated 3 times for credit. {Offered upon demand}

***431. Dance Criticism. (3)ΔΔ**
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. Placement class required. Course fee required.
Prerequisite: 349 or equivalent. {Fall, Spring}

***450. Advanced Movement Analysis. (3)**
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.)
Prerequisites: 250 and permission of instructor. {Fall}

***462. [362] Dance History I. [History of Dance I] (3)**
A study of the history of dance from tribal culture to 19th Century. Romantic ballet. Extensive readings culminating in a research paper will be additionally required for graduate credit. {Fall}

***463. [363] Dance History II. [History of Dance II] (3)**
A survey of the origins of modern ballet and modern dance from the late 19th century to the present. Extensive readings culminating in a research paper will be additionally required for graduate credit. {Spring}

***466. Methods and Materials for Teaching Dance/ Movement. [Methods and Materials for Teaching Dance/ Movement K-12] (3)**
(Also offered as PE-P 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.)
Permission of instructor required. {Fall}

***467. Supervised Practicum Experience K-12. (3)Δ**
Practice teaching in classroom settings.
Prerequisite: 466. {Spring}

495. Special Studies in Dance. (1-3)Δ°
Permission of instructor required. {Summer, Fall, Spring}

FILM/TELEVISION (F/TV)

110. Mass Media and Society. (3)
(Also offered as Journ and Comm 110.) The development of the mass media with emphasis on television in the areas of programming, policy, regulations, economics, and technology. Examination of the social, cultural, and political impact of the mass media on contemporary society. {Fall, Spring}

111. Technical Introduction to Television. (3)
(Also offered as Comm and Journ 111.) A technical and theoretical introduction to the operation of remote and studio television equipment. Lab required. Course fee required. {Fall, Spring}

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.

211. Film Comedy. (3)
A history of film comedy from its beginnings to the present. Screening and analysis of major films. Course fee required.

216. Television Field Production. (3)
Recording television projects on location. Creation of video projects with a special emphasis on preproduction conceptualization and post-production editing. Course fee required.
Prerequisite: 111. {Fall, Spring}

217. 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 creating, directing, and videotaping, a TV production. Course fee required.
Prerequisite: 216. {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}

° 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.

ΔΔ May be taken three times for credit. Instructor and committee on Studies must appove additional repetitionof this course.

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***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 hrs. to a maximum of 6)Δ
Lecture class on various topics such as film genres and national cinemas. Current topics include the international political fiction film, horror film, and Japanese cinema. Screening and analysis of major films. May be repeated once, as content varies. Course fee required.

390. Elements of Filmmaking. (3 hrs. to a maximum of 9)Δ
Practicum in basic conceptual aspects of independent filmmaking. Primary emphasis is conceptual approach to filmmaking with minimal attention to technical aspects, although every student does make films in this course. Course Fee Required.
Permission of instructor. {Fall}

409. Advanced Television Production. (3) Cochran
Advanced location production work in both 1/2" VHS and 3/4" formats. Content modules vary from term to term but can include video's relationship with dance, music, experimental art and drama. Students will create a video portfolio. Course fee required.
Prerequisite: 216. {Fall}

***428. Topics in Film History. (3)Δ**
Seminar in main issues and theories in the development of cinematic art. Course fee required.
Permission of instructor.

SCHOOL OF LAW

Theodore Parnall, 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 Aid. 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 nonresidents, membership dues for the Association. The current dues are $15.00 per year, payable to the School of Law at registration. Also payable at the beginning of each Fall semester is a $50.00 annual duplicating fee. An additional duplicating fee will be made in courses for which a substantial amount of Law School printed material is required.

COURSES OF INSTRUCTION LAW

PROFESSORS:

Michael B. Browde, J.D., Georgetown University
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
W. Garrett Flickinger, J.D., University of Michigan
Richard A. Gonzales, J.D., New York University
G. Emlen Hall, J.D., Harvard University
Frederick Hart, LL.M., New York University
Michele S. G. Hermann, LL.M., Harvard University
Ruth L. Kovnat, LL.B., Southern Methodist University
William T. MacPherson, Jr., J.D., University of New Mexico
Anita L. Morse, M.S.L.S., University of Kentucky, LL.M., George Washington University, (Director, Law Library)
J. Michael Norwood, J.D., University of New Mexico (Director, Clinical Law Program)
Mario E. Occhialino, Jr., J.D., Georgetown University
Theodore Parnall, J.D., University of New Mexico(Dean)
Fred L. Ragsdale, Jr., J.D., University of California (Berkeley)
Leo M. Romero, LL.M., Georgetown University
Ann C. Scales, J.D., Harvard University
Robert L. Schwartz, J.D., Harvard 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:

Jose L. Martinez, J.D., University of California (Berkeley)
Alfred D. Mathewson, J.D., Yale University
Sheryl S. Scheible, LL.M., Yale University
Scott A. Taylor, LL.M., New York University

ASSISTANT PROFESSORS:

Barbara E. Bergman, J.D., Stanford University
Sherri L. Burr, J.D., Yale University
Christian G. Fritz, Ph.D., University of California (Berkeley), J.D., University of California, Hastings College of Law
Suedeen G. Kelly, J.D., Cornell University
Maureen A. Sanders, J.D., University of New Mexico
Antoinette Sedillo Lopez, J.D., University of California (Los Angeles)

RESEARCH PROFESSOR:

Paul Nathanson, M.C.L., University of Chicago (Director, Institute of Public Law & Services)

PROFESSORS EMERITI:

Myron Fink, M.S.L.S., Columbia University, LL.M., New York Law School
Hugh B. Muir, J.D., University of Michigan
Henry Weihofen, J.S.D., University of Chicago

LAW (LAW)

FIRST-YEAR COURSES

#500. Historical Introduction to Law. [Historical Introduction to the Legal System] (1, 2)

#502. Contracts I. (2, 3, 4)

503. Legal Analysis. (2, 3, 4)

#504. Criminal Law. (3, 4)

506. Legal Research and Writing. (1, 2, 3)

#508. Property I. (2, 3, 4)

#510. Torts. (3,4)

#511. Law. (3, 4)

#512. Civil Procedure I. (2, 3, 4)

#513. Advocacy. (4)

#519. Legislative and Administrative Processes. (3)

575. Legal Analysis Workshop. (1, 2, 3, 4)

SECOND AND THIRD YEAR COURSES

#501. Introduction to Constitutional Law. (3, 4)

Required

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505. International Law. (2, 3)

515. Conflict of Laws in Context of Indian Law. (1)

517. Trial Practice Workshop. (2, 3)

518. Administrative Law. (1, 2, 3, 4)

520. *Business Associations I.* (3)

521. Business Associations II Topics. (1, 2, 3)

523. Commercial Transactions I. (1, 2, 3)

524. Community Property. (1, 3)

525. Conflict of Laws. (3, 4)

526. Constitutional Rights. (2, 3, 4)

527. Business Planning. (3, 4)

528. Creditors' Rights. (2, 3)

529. *Criminal Procedure.* (1, 2, 3)

530. Federal Estate & Gift Tax. (1, 2, 3)

531. Injunctions. (1, 2)

532. Evidence. (3, 4)

533. Family Law I. (3, 4)

534. Federal Income Taxation. (1, 2, 3)

535. Advanced Problems in Federal Income Taxation. (3)

537. Labor Law. (1, 2, 3)

538. *Natural Resources Journal I.* (1)

539. Natural Resources Journal II. (1)

540. Mortgages. (1)

541. Federal Income Taxation of Estates & Trusts. (1)
Prerequisite: 534.

542. Legal Process. (1, 2, 3)

543. Family Law II. (2, 3)

544. Oil & Gas. (1-3)

545. Estate & Retirement Planning. (2, 3)

546. Antitrust Law I. (2, 3)

547. Water Law. (3)

548. Legislation. (2)

549. Comparative Law. (2, 3)

550. Unfair Competition. (2, 3)

551. Taxation of Corporations and Shareholders. (1, 3)

552. Federal Jurisdiction. (3)

553. Products Liability. (1, 2, 3)

554. Wills. (2, 3)

555. Jurisprudence. (2, 3)

557. Wills and Trusts. (1, 2, 3, 4)

558. Construction Law. (2, 3)

559. Social Science Research Methods and the Law. (3)
(Also offered as Soc 559.)

561. Arbitration. (3)

562. Pleadings Drafting. (2)

563. National Moot Court Competition. (2)

564. Consumer Law. (1, 2)

565. Natural Resources. (1, 2, 3)

566. Taxation of Business Enterprises. (2, 3)

568. *Natural Resources Journal III.* (1)

569. Natural Resources Journal IV. (1)

570. Alternate Methods of Dispute Resolution. (3)
(Also offered as Soc 570.)

572. Legal Profession. (2)

573. Computer Law. (2, 3)

574. Federal Public Lands and Resources Law. (2, 3)

576. Energy Law. (2, 3)

578. Land Transfers and Finance. (3)

579. Juvenile Courts and Juvenile Delinquency. (2)

580. Environmental Law. (1, 2, 3)

581. Insurance. (2, 3)

582. Antitrust Law II. (2, 3)

586. Contracts II. (1)

588. *Legislative and Administrative Law Newsletter I.* (1)

589. Legislative and Administrative Law Newsletter II. (1)

593. [599] Topics in Law. (1-6)Δ

594. Independent Research. (1, 2, 3)

#600. Role of the Lawyer. (3)
(Or Law 750.)

603. Economic Analysis of Law. (2)

605. Water Law Problems. (2)

606. Civil Procedure II. (3, 4)

607. Selected Problems in Civil Procedure. (2, 3, 4)

608. Property II. (3)

609. Land Financing. (2)

611. Real Estate Planning I. (1, 2)

612. Real Estate Planning II. [Real Estate Planning] (1, 2)
Prerequisite: 611

613. Advanced Appellate Procedure. (3)

614. Constitutional Torts. (2)

616. Community Land Grants. (2)

617. Advanced Trial Practice. (4)
Prerequisites: 517 and 532.

619. Mining Law. (3)

620. Taxation of Partners and Partnerships. (1, 2)

621. Taxation of Natural Resources Transactions. (1, 2, 3)

622. Commercial Transactions IIa-Negotiability. (1, 2, 3)

623. Commercial Transactions IIe-Sales. (2, 3)

625. Supreme Court Decision-Making. (2, 3)

626. Constitutional Problems. (2, 3)

628. Legal Regulation of Business. [Legal Regulation of Industry] (2, 3)

629. Bankruptcy. (1, 2, 3)

630. Rights of Children. (3)

631. Remedies. (3)

632. Evidence/Trial Practice. (3, 4, 5, 6)

634. Advanced Evidence. (3)

635. Land Use Regulation. [Land Use Planning] (2, 3)

638. New Mexico Law Review I. (1, 2)

639. New Mexico Law Review II. (1)

641. Mexican Business Law. (1, 2, 3)

642. Sports Law. (1, 2)

643. New Mexico Land and Water Law History. (1, 2, 3)

644. Oil and Gas II. (2, 3)

645. Sex Discrimination Law. (2, 3)

646. Private Pension Law. (1, 2)

650. Eminent Domain. (1)

651. Private International Law. (2, 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, 3)

656. Trial Evidence. (2)

657. Taxation Research & Procedure. (1)
Prerequisite: 534.

658. Government Regulation of Banks and Financial Institutions. (2, 3)

661. Fiduciary Administration. (2, 3)

663. Mental Health and Mental Retardation Law. (3, 4)

664. Poverty Law. (3)

665. First Amendment Rights: Church & State. (2, 3)

668. New Mexico Law Review III. (1)

669. New Mexico Law Review IV. (1, 2)

671. Advanced Tort Litigation. (2, 3)

672. Quantitative Evidence. (3)

674. Federal Procurement Law. (2)

681. Client Counseling Competition. (1)

682. Law and Education. (2, 3)

683. Advanced Legal Research. (1, 2)

687. Corporate Drafting. (2)
Prerequisite: 520.

688. Legal Problems of the Elderly. (2, 3)

691. Intellectual Property Law. (2-3)

698. Advanced Real Estate Transactions. (3)

699. Wills Drafting. (2)

SEMINARS

514. Law and Social Change. (2)

556. State and Local Government. (2)

571. Law and Psychiatry. (2, 3)

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)

627. Trusts and Future Interests. (1, 2, 3)

633. EEOC. (2)

636. Lawyers and Leadership: Theory and Practice. (2)

640. Applications of Psychology. (3)

647. Employment Discrimination. (1, 2, 3)

648. Tribal Governments. (2)

649. International Law & Economic Development. (2, 3)

659. Mining Law: Coal Resources. (2)

660. Juvenile - Law and Practice. (2, 3)

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)

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673. Administrative Law Seminar. (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, 3)

685. Indian Child Welfare Issues. (2)

690. Law and Medical Ethics. (2, 3)

692. Introduction to the American Jury System. (2)

693. Journalism and the Law. (2)

694. Public Utilities. (2)

697. Advanced Problems in Criminal Law. (2)

CLINICAL PROGRAM

700. Criminal Practice Clinic. (3)

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. Legislation. (1, 2, 3)

713. Trial Practice. (2, 3)

714. Law Office Management. (1, 2, 3)

715. Interviewing and Counseling. (1, 2, 3)

716. Appellate Practice. (1, 2)

718. Negotiation. (1, 3)

719. Prisoner Services. (3)

720. Law Office Internship. (3-8)

721. Law Extern Program. (2-3)

722. Legal Aid. (3)

#723. District Attorney Program. (1-6) (or Law 740.)

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. (1-6) (or Law 723.)

741. Legislative Clinic. (2, 3)

744. Judicial Extern. (2, 3)

745. Legal Practice with Elderly Clients. (2, 3)

747. EEOC Internship. (3)

748. Felony Prosecution. (3)

#750. Ethics. (2, 3)
(Or Law 600.)

751. Advanced Spanish for Lawyers. (2)

760. Lawyers in Interpersonal Relations. (2)

SCHOOL OF MEDICINE

Leonard M. Napolitano, Dean
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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

Medical Sciences

Anatomy
Anesthesiology
Biochemistry
Cell Biology
Dermatology
Family, Community, and Emergency Medicine
Medicine
Microbiology
Neurology
Obstetrics/Gynecology
Orthopaedics
Pathology
Pediatrics
Pharmacology
Physiology
Psychiatry
Radiation Oncology
Radiology
Surgery

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

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. Applications will not be accepted after November 1 of the year preceding anticipated enrollment.

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See Arts and Sciences; Page 90

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Bennie C. McWilliams, Jr., M.D., University of Texas (Galveston)
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Basic Medical Science Building
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Stuart B. Pett, Jr. M.D., University of Utah
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C. Luis Cuardos, M.D., Columbia University
Fabrizio Follis, M.D., University of Turin (Italy)
Shaista A. Husain, M.D., University of Peshawar (Pakistan)
Russell Kleinmann, M.D., Case Western Reserve University
James M. Kunkel, M.D. Wayne State University
James M. Nachbar, M.D., Washington University
Turner Osler, M.D., Medical College of Virginia
Anthony Y. Smith, M.D., University of Texas (Dallas)

INSTRUCTOR:

Frederick W. Clevenger, M.D., University of Florida

PROFESSOR EMERITUS:

W. Sterling Edwards, M.D., University of Pennsylvania

MEDICAL SCIENCE

The Master's and Ph.D. Degree Programs in Medical Sciences.

The graduate departments at the UNM School of Medicine offers a plan of study leading to the M.S. and Ph.D. degrees

in Medical Science. This degree can be obtained through the departments of anatomy, biochemistry, cell biology, microbiology, pathology, pharmacology, or physiology. In addition, opportunities exist for a student to specialize in areas that involve more than one department. Some of these areas of specialization include immunology, molecular biology, and neurobiology.

Graduate Record Examination scores are required for applicants to the Ph.D. program in Medical Sciences. Prerequisites for admission vary among departments. The minimal requirements for a Ph.D. degree will be the same as those outlined elsewhere in the Graduate Studies Bulletin and will include a minimum of 48 hours of approved graduate work with a 3.0 average. Additional information concerning the Ph.D. and M.S. programs should be requested from the Chairperson of the Medical Sciences Graduate Committee, Basic Medical Sciences Building, School of Medicine. Interested individuals may also contact the graduate advisor of the respective department.

Graduate Programs For M.D. degree details on specific course requirements, prerequisites, scheduling, etc., see School of Medicine Bulletin.

MEDICAL SCIENCE (MED SC)

201 SEMINAR
to
699 DISSERTATION

The School of Medicine participates in the Minority Biomedical Research Support (MBRS) program which provides educational opportunities in biomedical research for students from under represented minority groups.

COURSES OF INSTRUCTION

GRADUATE PROGRAMS

MEDICAL SCIENCE (MED SC)

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 Med Sc 201.
Prerequisite: 201.

203. Medicolegal Examination (P). (2)
Offered through the Division of Forensic and Environmental Pathology, will aquaint 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 mediocolegal. 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.

***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}

***401. Introduction to Radiation Protection. (3)**
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.

***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, Biochm, 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}

***434. Clinical Laboratory Microbiology. (2)** Staff
Prerequisite: permission of department. May be repeated under different areas of concentration. {Offered each semester}

***436. Medical Virology. (3)** McLaren
Lectures on biology of animal cell cultures; nature of viruses and chlamydia; etiology, epidemiology, pathogenesis, and laboratory diagnosis of viral and chlamydial infections.
Prerequisite: pathogenic bacteriology. {Spring 1989 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 1989 and alternate years}

***445. Intensive Introductory Biochemistry I. (4)** Loftfield
(Also offered as Biochm, Chem 445.) An introduction into the physical and chemical properties of proteins and enzymes, enzymic catalysis, intermediary metabolism and hormonal control of anabolic and catabolic pathways.
Prerequisite: Chem 302 or 308; corequisite: Chem 311 or 315. {Fall}

***446. Intensive Introductory Biochemistry II. (4)** Scallen
(Also offered as Biochm, Chem 446.) An introduction into the structure, synthesis and processing of nucleic acids and proteins, structure and control of genetic material.
Prerequisite: 445. {Spring}

***448L. Biochemical Methods. (2)** Loftfield
(Also offered as Biochm 448L.) Biochemical techniques including chromatographic and electrophoretic purification of enzymes, determination of enzyme parameters (Vm, Km, Ea), fractionation of subcellular organelles, isolation of chromatin, biosynthesis of protein, analysis of DNA.
Prerequisite: concurrent registration in 446. {Spring}

Symbols - See page 379

451. [361L.] Human Physiology for Physical Therapists. (3) Galey
(Also offered as Phy Th 451.) Physiology of the human body with emphasis on cardiovascular, respiratory, and neuromuscular systems.
Prerequisite: Phy Th 321L, corequisite: 462L. 3 lectures. {Fall}

***461. Nutritional Biochemistry. (3)** Omdahl
(Also offered as Biochm 461.) An integrated study of the metabolic roles of the major nutrients (fats, carbohydrates, proteins) together with vitamins and minerals in health and disease.
Prerequisite: 446 or 423. {Fall}

***462. Environmental Biochemistry. (3)** Vander Jagt
(Also offered as Chem, Biochm 462.) Study of the interactions organisms experience when encountering a wide range of environmental agents including toxins, mutagenic and carcinogenic chemicals, and other foreign agents. Emphasis is placed on metabolism, host defenses and repair of damage.
Prerequisite: 423 or Biol 429L. {Spring}

462L. Human Physiology Lab. (1)
(Also offered as Phy Th 462L.)
Corequisite: 451. 3 hrs. lab. {Fall}

***463. Topics in Biochemistry. (1-3)††**
(Also offered as Chem 587 and Biochm 463-464.)
Prerequisite: permission of instructor. {Fall upon demand}

***464. Topics in Biochemistry. (1-3)††**
(Also offered as Chem 587 and Biochm 463-464.)
Prerequisite: permission of instructor. {Spring upon demand}

***490. [540.] Introduction of Neuroscience. (4)**
Prerequisite: permission of instructor. {Spring}

501. Frontiers of Medical Biology. (1) Partridge
{Fall, Spring}

503. Human Physiology. (3) Physiology Staff
Prerequisite: permission of instructor. Offered at Los Alamos Residence Center 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.

521. Neurochemistry. (4) Wild
(Also offered as Biochm 521.)
Prerequisite: permission of instructor.

522. Enzymology. (3)Δ Loftfield
(Also offered as Biochm 522.)
Prerequisites: 446 or instructor permission. {Fall}

523-524. Topics in Biochemistry. (1-3, 1-3)††
(Also offered as Biochm 523-524, Chem 587.)
Prerequisite: permission of instructor.

544. Application of Biotechnology to Medicine. (1) Griffith
{Fall 1989 and alternating years}

571. Advanced Cell and Molecular Biology. (4) Oliver, Bear
(Also offered as Biol 581-582.)
Prerequisites: Organic chemistry and one semester of undergraduate level cell biology or biochemistry.. {Fall}

572. Advanced Cell and Molecular Biology. (4) Oliver, Bear
(Also offered as Biol 581-582.)
Prerequisites: Med Sc 571 or permission of instructor. {Spring}

576. Immunopathology. (2-4) Mold
Prerequisite: 635. {Spring}

577. Advanced Topics in Cell Biology and Biophysics. (2-4) Oliver, Bear
Prerequisite: Biol 429L. {Spring}

579. Advanced Light and Electron Microscopy. (2-4) Oliver, Trotter, and Faculty of the Center for Biostructural Imaging Technologies. {Spring 1989 and alternate years}

580. Advanced Topics in Pathology. (1-3)

583. Clinical Chemistry. (1-2) Standefer
Prerequisites: organic chemistry and biochemistry.

584L. Clinical Chemistry Laboratory. (8) Standefer
Prerequisite: permission of instructor.

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)
(590 also offered as Biochm 590.)
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.

***598. Introduction to Molecular and Cellular Biophysics. (3)** Stump, Keller, Bear, Griffey.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

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.

614. Research Techniques in Morphology. (2-4) Anatomy Staff
Prerequisites: 590-591 or equivalent.

615. Current Topics in Morphology. (1-3) Anatomy Staff
Prerequisites: 590-591 or equivalent. {Fall, Spring}

616. Selected Topics in Developmental Biology. (3) Kelley,
Waterman
Prerequisite: Biol 412L or 429L or permission of instructor. {Offered upon demand}

617. Advanced Medical Histology. (3-6) Trotter
Prerequisite: permission of instructor. {Fall 1990 and alternate years}

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 1989 and alternate years}

620. Nervous System Development and Plasticity. (2) Wallace, Rogers
Prerequisites: undergraduates must have permission from instructor to register.

623. Biochemistry of Steroids. (3) Scallen
(Also offered as Chem 623.)
Prerequisites: Chem 301-302, Chem 423 or 481 or Med Sc 590-591.

631L. Introduction to Research Techniques in Microbiology. (2-5)Δ Radloff
Prerequisite: permission of instructor. Limited to students in the Department of Microbiology. {Offered upon demand}

632. Advanced Topics in Microbiology. (1-3) Microbiology Staff
Prerequisites: biochemistry, general microbiology or equivalent. {Offered upon demand}

633. Prokaryotic Cells. (4) McDowell
Prerequisites: basic microbiology and biochemistry. {Spring 1989 and alternate years}

634. Structure and Function of Eukaryotic Genomes. [Biochemical Genetics.] (3) Baker, Rose
Prerequisites: Med Sc 590 or biochemistry, genetics, microbiology. {Fall 1990 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. {Spring 1989 and alternate years}

637. Immunogenetics. (3)†† Goldberg
Prerequisites: 635 and permission of instructor. {Spring 1989 and alternate years}

638. Microbiology Seminar. (1)

639. Inflammation and Host Defense. (2) Mold
Prerequisites Med. Sci. 635 and permission of instructor {Spring 1989 and alternate years.}

641. Cell Biology Seminar. (1) Rose
Credit/No Credit grading only
Prerequisite: permission of instructor. {Fall, Spring}

642. Advanced Topics in Cell Biology. (1-3)
Prerequisite: permission of instructor. {Fall, Spring}

643. Molecular Immunology. (3) Anderson
Prerequisites: 635 and 446. {Spring 1986 and alternate years}

644. Mechanism of Gene Expression. (3) Bear
(Also offered as Biol 644.)
Prerequisites: 571 or 572 or equivalent. {Spring 1990 and alternate years}

645. Molecular Mechanisms of Development. (3) Griffith
Prerequisites: 634, Biol 425 or equivalent. {Fall 1990 and alternate years}

646. Advanced Topics in Molecular Biology. (1)Δ Word
Prerequisite: permission of instructor. {Fall, Spring}

649. Circulatory-Respiratory Physiology. (3) Walker
Prerequisite: general physiology course and/or permission of instructor.

650. Biological Membrane-Structure and Function. (3) Galey
Prerequisites: 590-591 or Biol 429L, 430L 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) Feeney, Weiss
(Also offered as Psych 650.)
Prerequisites: general physiology course and/or permission of instructor. {Spring}

656. Cellular 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

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)Δ Staff
Prerequisite: permission of instructor. {Fall, Spring}

672. Special Problems in Pharmacology. (1-3)Δ Staff
Prerequisite: permission of instructor. {Fall, Spring}

673L. Laboratory Techniques in Pharmacology. (1-3)Δ Pharmacology Staff
Prerequisite: permission of instructor. {Fall, Spring}

674. Pharmacology Seminars. (1)Δ Staff
Prerequisite: permission of instructor. {Fall, Spring}

682. Pathology Research Seminar. (1) Tung
Prerequisite: permission of instructor. **Credit/No Credit grading only**

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.

695. Research in Basic Medical Sciences. (1-6 hrs. per semester, to a maximum of 12) Staff

***698. Advanced Topics in Biophysics.** (1) Stump, Bear.

699. Dissertation. (3-12 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements.

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ALLIED HEALTH SCIENCES

The University of New Mexico School of Medicine offers a number of paramedical training and educational programs in the Allied Health Sciences, ranging from the one-year certificate to the four-year baccalaureate degree. Allied Health professionals play an important role in the the health care delivery system and have opportunities for challenging careers in hospitals, physicians' offices, nursing homes, extended care facilities, rehabilitation centers, clinics, industry, and other health-related agencies.

Medical Laboratory Sciences

The Profession

Medical technology is the rapidly expanding health profession of clinical laboratory medicine encompassing the fields of clinical chemistry, hematology, microbiology, immunology, urinalysis, and blood banking. 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.

A technologist requires a broad educational background and clinical laboratory training to be proficient in performance of the required laboratory procedures. Medical technologists may manage or supervise a clinical laboratory or may perform the laboratory tests on blood, other body fluids, and tissues, 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 for diagnosis and treatment of 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 program is accredited by AMA's Committee on Allied Health Education and Accreditation (CAHEA), in cooperation with the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

The 18 month MT Program may be taken as part of a four-year curriculum leading to the Bachelor of Science degree in Medical Technology from UNM's School of Medicine, OR as part of a degree from another four-year academic institution, OR as a certificate program following a baccalaureate degree. In the degree programs, the student follows a prescribed curriculum which requires 2 1/2 years of pre-professional academic study and 1 1/2 years in the MT Program.

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 Institute of Mining & Technology, New Mexico State University, and Western New Mexico University. 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 the MT Program.

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 below for entering UNM's MT Program.

The Medical Technology Program begins each Spring Semester and Summer Session with students taking Med Lab Sciences (MD LAB) courses on the Medical Campus. These courses continue for one year on campus. Students are then assigned to an affiliate laboratory for practicum training courses in the Spring or Fall Semester. Hospital laboratories currently used as clinical affiliates are: Clovis High Plains Hospital, Clovis; Santa Fe Medical Laboratory, Santa Fe and Los Alamos; Roswell Interhospital Health Care Laboratory, Roswell; Guadalupe Medical Center, Carlsbad; and the following Albuquerque hospitals: Lovelace Medical Center, Presbyterian Hospital Center, St. Joseph Hospital, University of New Mexico Hospital, and Veterans Administration Medical Center.

Students register through UNM for all MD LAB courses. Students who successfully complete the program are eligible to sit for national certification examinations given by the Board of Registry (ASCP) and by the National Certification Agency for Medical Laboratory Personnel (NCA).

Education Requirements

Minimum education requirements are 75 semester hours of acceptable college credits from a college or university approved by a recognized accrediting agency including the required courses listed below. All credit hours must be acceptable towards a baccalaureate degree. A minimum grade point average of 2.0 in all subjects including a grade of C or better in each prerequisite biology, chemistry, and math course is required.

Students coming from other universities or colleges who will earn their baccalaureate degree from their parent institutions or students who already have a baccalaureate degree must have the following prerequisites for admission to the Medical Technology program at UNM.

Total of 75 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 algebra or a higher math course*, preferably algebra.

Other recommended courses are: anatomy and physiology, parasitology, pathogenic bacteriology, biochemistry, physics, psychology, sociology, computer science, communications, management, and education.

Students earning 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 advisor as early in their student career as possible.

Pre-Medical Technology Curriculum

FIRST YEAR
First Semester

Chem 121L Gen Chem or 131L	4
Biol 121L Prin of Biol	4
Math 121 College Algebra	3
Engl 101 Wrtg/Rdgs in Expos	3
MD LAB 121 Intro to MT (optional)	1
	14-15

Second Semester

Chem 122L Gen Chem or 132L	4
Biol 122L Prin of Biol	4
Engl 102 Analytical Wrtg	3
Math Elective†	3
Elective	3
	17

SECOND YEAR
First Semester

Chem 212 Organic/bio chem or 301-303L Organic Chem	4
Biol 136 or 237 Human Anat/Phys	3
Physcs 102-112L or 151-153L	4
Liberal Arts Elective	3
Elective 1	
	15

Second Semester

Biol 239L or 350L Microbiol	4-5
Chem 302-304L Organic Chem(if 301-303L was taken)	4
Physics 152-154L (if 151-153L was taken)	4
Biol 238 (if 237 was taken) or Elective	3 0-11
	15-16

THIRD YEAR
First Semester

Chem 253L Quant Analysis Δ	4
Biol 456 Immunology	3
Comm 221 or 321 or Couns 431 orEd Fdn 420	3
Mgt 113 or 361	3
Elective	3
	16

MEDICAL TECHNOLOGY CURRICULUM
Spring

400 Orientation	1
401 Clin Chemistry	5
411L Clin Chemistry Lab	2
431L Advanced Clin Chemistry	4
405L Clin Urinalysis	2
407L Clin Parasitology	3
410 Clin Management & Education	1
	18

SUMMER SESSION
(10 Weeks)

403 Clin Bacteriology	6
413L Clin Bacteriology Lab	2
406 Clin Immunology & Serology	3
416L Clin Immunology & Serology Lab	1
	12

FALL

402 Clin Hematology/ Hemostasis	4
412L Clin Hematology/ Hemostasis Lab	2
432L Advanced Clin Hematology/Hemostasis	4
404L Clin Immunohematology	2
434L Advanced Clin Immunohematoloy	3
408L Clin Mycology	2
	17

Spring **OR** Fall
(23 Weeks)

451 Practical Training in Clin Chemistry	4
452 Practical Training in Clin Hematology/ Hemostasis	4
453 Practical Training in Clin Microbiology	4
454 Practical Training in Clin Immunohematology	3
455 Practical Training in Clin Urinalysis	1
456 Practical Training in Clin Immunology & Serology	1
499 Pre Employment Practicum (1 week)	1
	18

NOTE: Only 4 hours of PE courses are acceptable towards a degree. Description of MD LAB courses may be found in the courses of instruction for the School of Medicine.

MEDICINE

Application and Admission

Categories under which applicants may be admitted to the Medical Technology Program are:

1. Students who have completed 75 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 previously stated. Those whose academic work was seven or more years prior to making application must update their academic preparation in a manner acceptable to the admission committee.

An application must be submitted to the Director of Medical Laboratory Sciences by the **September 15** deadline for January admission or **February 15** deadline for Summer 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 each 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 Admission 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, qualified handicap, or military involvement. Residents of New Mexico receive preference in admission.

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.

* Remedial and survey courses are not acceptable.
† Prefer Math 102 or a Math course higher than Math 150.
Δ Not required if Chem 132L is taken.

Symbols - See page 379

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 Biology, Chemistry, Math and MD LAB courses.
3. Fulfill the University minimum degree requirements.
4. Are recommended for the degree by the faculty.

Information Requests

Communications regarding information and applications should be addressed to the Director, Medical Laboratory Sciences, Allied Health Science, School of Medicine, 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 advisors.

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.

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).

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 82 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.

Application and Admission 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 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 of all qualified applicants. 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.

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: 82 semester hours (or equivalent if not on semester system), as described below.

Basic Sciences: 58 semester hours

Sciences	Sem. Hours	Recommended UNM Course Numbers
Gen Biol	8 with lab	Biol 121L, 122L
Gen Chem	8 with lab	Chem 121L, and 122L
Gen Physics	8 with lab	Physcs 151, 153L; 152, 154L
Human Anatomy & Physiology	8 with lab	Biol 237 and 247L; 238 and 248L
Math	3	any course above intermediate algebra#

CLEP credit will be accepted for 3 credits Math, but **not** for statistics.

Microbiol	4	Biol 239L
Org/Biochem	4	Chem 212
Nutrition	3	FS 125
Psychology	9	General, developmental, abnormal, or psychology of personality, or others
Statistics	3	Math 102

Credit/No Credit option, CLEP, or ACT credits are **NOT** acceptable for above courses.

Liberal Arts: 24 semester hours

6 hours in English Writing; Eng. 101, 102.

In 3 of the 4 areas listed below, you must present 6 semester hours (CLEP credits are acceptable). No single course may be applied to more than one group.†

1. Humanities: Literature, including foreign and comparative; history or philosophy.
2. Social Sciences: Economics, geography, political science, sociology, or anthropology.
3. 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. (CS 150 and 155)
4. 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'
   T A 122, 123, 151
   Dance 105, 262, 263
   or other courses as approved by advisor. Unacceptable for this group are all other courses in studio, design, dance, applied music, music theory, or ear training.

Professional Curriculum

The professional program is six semesters in length and begins with the summer session each year in June. During the first and second 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 research project and complete a 18-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:

Chairperson, Admissions Committee
Division of Physical Therapy
UNM School of Medicine
Albuquerque, NM 87131
(505) 277-5755

Professional Curriculum

SUMMER SESSION
(10 weeks)
FIRST YEAR

	CR
Phy Th 321 Human Anatomy	6
Phy Th 310 Intro to Physical Therapy	2
	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 451 Human Physiology	3
Phy Th 461L Human Physiology Lab	1
Phy Th 370 Kinesiology/Funct Anat	3
Phy Th 371 Clin Educ I & Sem	1
Elective	0-3
	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
	15-18*

FALL SEMESTER
SECOND 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 461 Eval Proc II	2
Phy Th 471 Clin Educ III	3
Phy Th 480 Administration & Supervision	2
Phy Th 499 Independent Study	1-3
	16-19*

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 495 Topics in Physical Therapy	1-3
Phy Th 499 Independent Study (Senior Paper)	1-3
	12-16*

SUMMER SESSION
(18 weeks)

Phy Th 475 Clin Educ V	6

† Persons with bachelors degrees do not have to complete the specific Liberal Arts.
* Student may take an elective approved by advisor to raise total semester credit hours to 18, without an increase in tuition.

Symbols - See page 379

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 (CAHEA) program prepares the Allied Health professional to perform complex radiographic procedures which assists the radiologist in disease investigation and er 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 technique 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.

Eight to ten students are admitted each year. The program begins in the Fall semester, usually the third week in August, and ends in July after six consecutive semesters (twenty-four months) of full time clinical and didactic experience. The first two semesters will be spent pursuing general education component courses consisting of:

Biology 136 - Human Anatomy and Physiology (3)
Biology 139 - Human Anatomy and Physiology Lab (1)
English 101 - Writing with Readings in Exposition (3)
English 102 - Analytic Writing (3)
Math 121 - College Algebra (3)
Computer Sci. 101- Computer Concepts (3)
Humanities Electives (6)

Additionally, Radiology 150 (Intro to Rad. Sci.) and Radiology 170 (Rad. Procedures) are introduced so that by the end of the spring semester, each student will have a firm foundation in radiologic theory and be prepared to enter the Clinical Component in the summer. Admission into the Clinical Component is selective and limited; students will be evaluated at the end of the second semester and continuation in the program will be contingent upon a passing grade of C in each course attempted, an overall GPA of 2.5 and a satisfactory interview.

After successful completion of the program, students are eligible to take the national certifying examination administered by the American Registry of Radiologic Technologists.

Entrance Requirements

1. Meet the University of New Mexico requirements.
2. A minimum grade-point average of 2.5 on all previous course work attempted. (High School or College)
3. Personal interview with the program selection committee.
4. Application, Transcripts and ACT scores must be file in the Radiologic Sciences office before May 1st., prior to Fall Semester Entry.

Transfer From Other Accedition Programs

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. Transfer students will only be considered if there is a vacancy in the program.

The program faculty reserves the right to evaluate prospective transfer students through objective testing in any subject area.

Fees

Tuition for the radiologic sciences program is listed in the catalot under "Student Expenses". In addition to tuition, required books and uniforms will cost approximately $400.00 for the two-year period.

Information Requests

Communications regarding information and applications should be addressed to the Director of Radiologic Sciences, The University of New Mexico Allied Health Sciences Center, School of Medicine Albuquerque, New Mexico. 87131

Radiologic Technology Program

FIRST YEAR
Fall Semester

*RS 150 Intro. to Rad. Sci.	5
Biology 136 Anat. & Physio.	3
Biology 139 Anat. & Physio. Lab	1
English 101 Writings w/Readings in Expos.	3
Math 121 College Algebra	3
Humanities Elective	3
	18

Spring Semester

*RS 170 Radiographic Proc. I	5
English 102 Analytic Writing	3
CP 101 Intro. Comp. Concepts	3
Humanities Elective	3
	13

*Summer Semester

RS 175 Clin. Rad. Sc.	4
RS 190 Rad. Proc. II	4
	8

SECOND YEAR
*Fall Semester

DMS 380 Intro. to Cross-Sect. Anat.	3
RS 252 Radiologic Physics	3
RS 255 Clin. Rad. Sci. II	6
	12

* These courses may be taken only by those enrolled in Radiologic Science Programs or by permission of the instructor.

*Spring Semester

RS 265 Clin. Rad. Sci.III	6
RS 270 Rad. Sci. Lab	3
RS 292 Radiographic Path/Biol.	4
	13

*Summer Session

RS 290 Clin. Rad. Sci. IV	6
RS 299 Comp. Rad. Review	2
	8

Nuclear Medicine Technology Certificate Program

The approved program (CAHEA) 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 radiopharmaceuticals using state-of-the-art nuclear instrumentation.

Enrollment is limited to six students each year. The course of study begins in late August and ends after twelve consecutive months of clinical and didactic experience at UNM Hospital and the Veteran's Administration Medical Center.

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 and the Nuclear Medicine Technology Certification Board.

Admission Requirements

1. The applicant must have a baccalaureate degree or equivalent experience or hold certification as a radiologic technologist, medical technologist, or registered nurse.
2. Meet UNM entrance requirements.
3. A minimum grade point average of 3.0 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 April 31, prior to August entrance.

Nuclear Medicine Technology Curriculum*

Fall Semester

NMDT 380 Intro Nuc Med Tech	4
NMDT 354 Clin Radiopharm	2
NMDT 375 Nuc Phys and Instru	3
NMDT 320 Clin Nuc Tech I	7
	16

Spring Semester

NMDT 390 In Vitro Nuc Medicine	2
NMDT 396 Clinical Nuclear Medicine I	4
NMDT 385 Nuclear Instrumentation II	1
NMDT 365 Clin Nuc Tec II	9
	16

Summer Session

NMDT 412 Nuc Rad Biology	1
NMDT 415 Clin Nucl Med II	2
NMDT 400 Clin Nuc Tech III	5
	8

Special Fees

Tuition for the nuclear medicine program is listed in the catalog under "Student Expenses." In addition to tuition, required books and uniforms will cost approximately $350.00.

Additional Information

Communications regarding information and applications should be addressed to Program Director, Nuclear Medicine Technology, The University of New Mexico Allied Health Sciences Center, School of Medicine, Albuquerque, New Mexico, 87131.

Diagnostic Medical Sonography Certificate Program*

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, obstetrics and gynecology, and pediatric neurosonology.

Enrollment is limited to 6 students each year. The course of study begins Fall Semester and ends after 12 consecutive months of clinical and didactic experience at UNM Hospital and the Cancer Research and Treatment Center, Lovelace Medical Center, Presbyterian Hospital Center, Surgical Associates, St. Joseph's West Mesa Hospital and Veteran's Administration Medical 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, for exams in Physics, Obstetrics-Gynecology, Abdomen and Neurosonography.

Admission Requirements

1. Applicant must meet UNM entrance requirements.
2. Applicant must have a baccalaureate degree or equivalent with post-secondary course work in general Physics, college Algebra, Biology and Human Anatomy; or hold certification as radiologic technologist, registered nurse, medical technologist or nuclear medicine technologist.
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 March 31, prior to August admission.

Diagnostic Medical Sonography Curriculum*

Fall Semester

DMS 320 Clin Sono I	4
DMS 354 Sono Equip Imag Eval	2
DMS 380 Intro Cross Sec Anat	3
DMS 375 Intro Sono Physics I	3
DMS 360 Sono Image Proc I	4
	16

* These courses may be taken only by those enrolled in Radiologic Science Programs.

MEDICINE

Symbols - See page 379

Spring Semester

DMS 365 Clin Sono II	4
DMS 340 Sono Path	3
DMS 385 Sono Physics II	3
DMS 396 Current Problems I	1
DMS 390 Sono Image Proc II	4
	15

Summer Session

DMS 400 Clin Sono III	6
DMS 412 Sono Admin	1
DMS 415 Sono Imag Proc III	1
DMS 420 Current Problems II	1
	9

Special 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 $500.00.

Additional Information

Communications regarding information and application should be addressed to Director of Diagnostic Medical Sonography Program, University of New Mexico School of Medicine, Box 528, Albuquerque, NM 87131.

Radiation Therapy Technology

The Profession

Radiation Therapy Technology is an allied health profession concerned with the treatment of patients with malignant diseases using high energy radiation and radioactive materials. Radiation therapists perform under the direction of a radiation oncologist.

Upon completion of the program, the therapist should be able to: deliver a planned course of radiation therapy; verify the mathematical accuracy of the prescription, maintain daily records and document technical details of treatment administered; observe the clinical process of patients undergoing radiation therapy; provide patient care essential to radiation therapy procedures; detect equipment malfunctions; apply the rules and regulations for radiation safety; understand the function of the equipment and its accessories; assist with brachytherapy procedures; assist with equipment calibration; perform quality assurance checks; participate in patient follow-up programs.

There is a nationwide demand for professional registered radiation therapists. In addition, with experience, the career of a radiation therapist may go in various directions such as administration, research, education, dosimetry and commercial sales.

The Program

The Radiation Therapy Technology Program is co-sponsored by The University of New Mexico School of Medicine, Allied Health Sciences and St. Joseph Hospital Cancer Center.

The course of study begins in August of each year and ends after twelve consecutive months of didactic and clinical education. Courses include introduction to radiation oncology, radiation protection, technical radiation oncology, pathology, patient management, dosimetry/treatment planning, physics, radiobiology, oncology, special topics in radiation oncology, anatomy/physiology and quality assurance.

The program utilizes instructional personnel and resources from the University of New Mexico Cancer Center and St. Joseph Hospital Cancer Center. Students will rotate through both institutions for their clinical education.

The program is accredited by the American Medical Association Committee on Allied Health Education and Accreditation (CAHEA) and the Joint Review Committee on Education in Radiologic Technology (JRCERT). Graduates of the program will receive a certificate in radiation therapy technology and be eligible to take the national certifying examination. Upon successful completion of this exam, the national registry will award the credentials of RT(T).

Admission and Application Procedures

In order to be considered for admission into the Radiation Therapy Technology Program, each applicant must meet the following requirements:

1. UNM entrance requirements.
2. Must hold certification or be board-eligible as a radiologic technologist.
3. Have a minimum GPA of 2.8 on all post-secondary course work attempted.
4. Completion of the following pre-requisite courses (or its equivalent):

RAD T 252	Radiation Physics
BIO 136 and 139L	Human Anatomy and Physiology for Non-Majors
Math 121	College Algebra

5. Completion of a meeting with a program faculty member and a visit to a clinical education center.
6. Application, transcripts and career goal statement must be received by March 1st of the year in which you wish to enter. Application is made directly to the Radiation Therapy Technology Program.
7. Personal interview by the Admissions Committee is required of all qualified applicants.

Tuition and Expenses

Tuition and refund policies for the Radiation Therapy Technology Program are the same as those established for undergraduate students at UNM.

In addition to tuition, the cost of uniforms, books, health insurance and living expenses during the training program must be assumed by the student.

Various types of financial aid are available to UNM students. Contact Student Financial Aid and Career Services, 1030 Mesa Vista Hall for qualifications and availability of funds.

Professional Curriculum

FALL SEMESTER

RTT 310 Introduction to Radiation Oncology	2
RTT 311 Radiation Protection	1
RTT 315 Technical Radiation Oncology	3
RTT 316 Pathology	1
RTT 320 Clinical Education I	4
RTT 350 Radiation Physics I	2
RTT 357 Anatomy for Radiation Oncology	3
	16

* These courses can only be taken by students in the Radiologic Sciences programs.

SPRING SEMESTER

RTT 332 Patient Management	3
RTT 355 Clinical Education II	4
RTT 360 Radiation Physics II	3
RTT 368 Oncology	4
RTT 402 Dosimetry/Treatment Planning	3
	17

SUMMER SESSION

RTT 340 Radiobiology	2
RTT 380 Special Topics in Radiation Oncology	3
RTT 370 Quality Assurance	1
RTT 400 Clinical Education III	2
	8
TOTAL	41

Additional Information

Communications regarding information and applications should be addressed to the Program Director, Radiation Therapy Technology Program, Allied Health Sciences, School of Medicine, The University of New Mexico, Health Sciences and Service Bldg., Albuquerque, New Mexico 87131.

Respiratory Therapy Program

Respiratory therapy is an allied health profession which deals with providing diagnostic testing, therapeutic treatment, and critical care life support for patients suffering from acute, life-threatening or chronically disabling cardiopulmonary disorders.

A respiratory therapy technician is a graduate of a twelve month certificate program, capable of performing specific respiratory care diagnostic tests and treatment modalities covering a variety of well-defined therapeutic techniques.

A respiratory therapist is a graduate of a two year Associate of Science degree or four year Bachelor of Science degree program, capable of performing at the advanced practitioner level of respiratory care. Under medical direction, the respiratory therapist must apply medical and scientific knowledge to the practical assessment and treatment of clinical problems in respiratory care. Respiratory therapists monitor and evaluate cardiorespiratory function, research treatment effectiveness in cardiopulmonary disease, and act as consultants to physicians, nurses and other health care specialists concerning application of medical technologies to cardiopulmonary pathology and treatment. Registered respiratory therapists manage respiratory care departments in hospitals and supervise other practioners in the delivery of pulmonary care. The registered therapist also serves as educator to patients, the public, and in formal training programs for respiratory care practitioners.

Employment opportunities for respiratory care practitioners are available in urban and rural health care facilities nationwide, including veteran and military base hospitals. The newest employment opportunities have been with medical equipment suppliers and agencies providing home health care to pulmonary patients.

Program Description

The University of New Mexico School of Medicine and Allied Health Sciences Center offers the Associate of Applied Science degree in Respiratory Therapy. This twelve month therapist level curriculum offers theory, laboratory and clinical instruction in cardiorespiratory anatomy, pulmonary physiology and pathophysiology, critical care medicine, cardiopulmonary function evaluation, respiratory home care, pulmonary rehabilitation, and leadership training to enhance the development of decision-making skills.

The program utilizes instructional personnel and resources at the University of New Mexico Medical Center and School of Medicine. Primary clinical activities are conducted at the University of New Mexico Hospital/Bernalillo County Medical Center, with additional clinical experiences at other local health care facilities. The Associate of Applied Science degree will be awarded by the University of New Mexico to those students completing the Respiratory Therapy curriculum, which includes transfer credits from approved technician programs and other academic requirements stated for the program.

The University of New Mexico Respiratory Therapy Program is fully accredited by the American Medical Association Council on Allied Health Education and Accreditation (CAHEA) and the Joint Review Committee for Respiratory Therapy Education (JRCRTE). Graduates of the Associate Degree Program are eligible to take the National Board for Respiratory Care (NBRC) Registry examination. Upon successful completion of this exam, the NBRC awards the credentials RRT (Registered Respiratory Therapist), and this also qualifies individuals to be recognized as licensed Respiratory Care Practitioners (RCP) by the State of New Mexico Regulation and Licensing Department.

Application and Admission Procedures

Students are admitted to the University of New Mexico Respiratory Therapy Program during the fall semester each year. Applications for the program are accepted beginning in January each year. Enrollment in respiratory therapy courses is limited. Candidates who meet all application and admission requirements will be reviewed by a selection committee. Selection criteria will include previous academic performance on coursework completed in respiratory therapy technician training, and GPA on all college coursework applied toward the associate degree. Criteria for selection will also include information from letters of recommendation and personal interviews conducted by the program faculty members.

University of New Mexico and Respiratory Therapy Program application forms, letters of recommendation, and required transcripts must be received by the UNM Office of Admissions and the Respiratory Therapy Program office prior to published deadlines for these materials.

Advanced standing may be awarded to qualified applicants who request to transfer coursework from AMA accredited technician or therapist programs. Applicants must submit appropriate documentation of coursework completed in order to receive advanced standing recognition. Each candidate for advanced standing will be reviewed by the Respiratory Therapy Program faculty and the UNM Office of Admissions on an individual basis.

Admission Requirements

In order to be considered for admission into the Respiratory Therapy Program, each candidate must meet the following requirements:

1. Be a graduate of an AMA accredited respiratory therapy technician program, with documented evidence of completed respiratory therapy coursework and prerequisite courses in mathematics and basic science courses. Respiratory therapy technicians who are certified by the NBRC, but are not graduates of a technician training program, may enter the therapist curriculum if they can provide documentation of post-secondary coursework in the prerequisite mathematics and basic science courses. These individuals may also be required to complete advanced standing (challenge) examinations to verify technician level respiratory therapy knowledge and skills.

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2. Hold NBRC certification as a respiratory therapy technician. Non-certified graduates of AMA accredited technician programs may enter the therapist curriculum under written agreement to complete the NBRC examination during the first semester of coursework. Successful completion of this examination is a condition for continued enrollment in the therapist curriculum.
3. Have a minimum GPA of 2.0 on all transferable post-secondary coursework applied to the Associate Degree in Respiratory Therapy.
4. Meet the University of New Mexico general admission requirements, complete all necessary application forms, and provide all necessary transcripts to the Office of Admission.
5. Complete a Respiratory Therapy Program application form, and provide two (2) letters of recommendation which advocate the candidate's ability to successfully complete the training program.
6. Complete a personal interview with members of the Respiratory Therapy Program faculty.

Degree Requirements

In order to graduate from the UNM Respiratory Therapy Program and be awarded the Associate of Science degree, each candidate must meet the following requirements:

1. Successful completion of an AMA accredited respiratory therapy technician program. Coursework completed in the technician program will be applied toward the associate degree, with some variations allowed depending upon technician program curricula.

   Up to 30 credit hours will be awarded for completing technical courses (theory, lab and clinical) in the respiratory therapy technician program.

   At least 12 additional credit hours must be awarded for completing math and basic science courses in the technician program. These courses will be considered prerequisites for admission into the associate degree program at UNM.

   Applicants to the associate degree program who are certified by the NBRC, but have not completed a technician program, must provide documentation of at least 12 credit hours of post-secondary coursework in math and basic sciences. These applicants must also complete 30 hours of advanced standing credits covering the technical courses of a respiratory therapy technician program. At least 42 hours of transfer and advanced standing credits must be achieved prior to entering the associate degree program at UNM.
2. Successful completion of an additional 40 credit hours of coursework covering advanced respiratory therapy, basic science requirements, and approved elective courses in communication skills, arts, humanities and social sciences as follows:

   20 credits in advanced respiratory therapy (theory, lab and clinical)
   08 credits in basic science course requirements
   06 credits in communication skills
   06 credits in arts, humanities and social sciences
3. Achieve a GPA of 2.0 or better on all coursework applied to the Associate Degree in Respiratory Therapy. At least 15 credit hours of resident coursework is required.

Curriculum

The following is a recommended curriculum format for graduates of AMA accredited respiratory therapy technician programs who wish to complete the Associate of Applied Science degree at UNM. Individual variations may be necessary for students with previous college coursework applied to the associate degree, technician program curricula, and for respiratory care practitioners who are certified by the NBRC but have not completed technician programs.

FALL SEMESTER

RST 201L Advanced Respiratory Therapy I	4
RST 202 Advanced Clinical Experiences I	4
Basic science requirements*	4
Elective course requirements**	3
	15

SPRING SEMESTER

RST 203L Advanced Respiratory Therapy II	4
RST 204 Advanced Clinical Experiences II	4
Basic science requirements*	4
Elective course requirements**	3
	15

SUMMER SEMESTER

RST 205 Respiratory Therapy Seminar	3
RST 206 Advanced Clinical Experiences III	1
Elective course requirements**	6
	10

NOTE:
(*) 8 credits of basic science coursework must be completed during the associate degree curriculum, in addition to the minimum 12 credits of prerequisite courses transferred from technician program curriculum. Recommended courses at UNM which would meet all math and basic science course requirements for the associate degree are listed below.

Biol 123L Biology for Health Related Sciences	4
Biol 136 Human Anatomy and Physiology	3
Biol 139L Demonstration & Dissection Lab	1
Biol 239L Microbiology for Health Sciences	4
Math 120 Intermediate Algebra	3
or Math 121 College Algebra	3
Physics 102 Introduction to Physics	3
or Physics 151 General Physics	3
Chem 111L Elements of General Chemistry	4

(**) 12 credits of elective coursework must be completed as part of the associate degree requirements. This coursework must include two courses (6 credits) in communication skills, i.e., English, speech, technical writing, linguistics, computer literacy or other approved offerings, and two courses (6 credits) in arts, humanities, social sciences, i.e., sociology, psychology, history, philosophy, ethics, economics, political science, or other approved offerings.

Fees

Additional costs may be incurred on an individual basis for purchase of required textbooks and personal equipment needed to complete the clinical experiences in the program curriculum.

Financial aid is available to students enrolled at UNM. Contact the Financial Aids Office at UNM to determine availability of funds and qualifications required.

Additional Program Information

Additional questions concerning the Associate Degree Respiratory Therapy Program at UNM should be directed to the program office: Respiratory Therapy Program, University of New Mexico School of Medicine, Allied Health Sciences Center, Albuquerque, New Mexico 87131, (505) 277-1966

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 entry level professionals to function in community agencies in a variety of positions such as community mental health workers, client interviewers, substance abuse workers, and case managers.

The curriculum includes a variety of academic subjects which will enhance the student's ability to understand and relate to 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, 2400 Tucker NE, Albuquerque, NM 87131, or call 277-5428.

Minor

Psychology majors and majors in the College of Education may elect to minor in Human Services. Consult your major advisor or the Human Services Worker Program for details.

Psychology majors minoring in Human Services must take H S 101, 102, 105, 109, 150, 201, and 250.

Education majors minoring in Human Services must take HS 101, 102, 105, 109, 150, 202, and 250.

Admissions

Applicants must meet regular UNM entrance requirements. They must apply to the Human Services Worker program for admission. Students wishing to be considered for admission must:

1. Be over 18 years of age.
2. Complete HSW application forms, including a 3-5 page autobiography.
3. Be interviewed by a faculty member of the HSW Program.

Psychology and College of Education majors wishing to minor in Human Services must also complete an HSW application form and be interviewed by a faculty member of the HSW Program.

Degree Requirements

1. Enrollment in UNM School of Medicine Human Services Worker Program
2. A UNM grade point average of 2.0
3. A minimum of 64 hours of earned credit including:
   a. H S 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. Engl 101 and 102# (communication) — 6 hours
   e. Psych 102 (behavioral science) — 3 hours
   f. Soc 101 (social science) — 3 hours
   g. Anth 105 or 130 (behavioral science) — 3 hours
   h. One course from Hist 110, 161, 162, 360; Phil 110 (humanities), Arch 101, 181, 281; Art Hi 101, 130, T A 122, Hist 101; Music 139, 140, Film 210; Dance 115, (fine arts) — 3 hours
   i. Electives: a *minimum of 9 credit hours* may be chosen from H S courses (H S 149, 204, 210 & 211) or from the general catalog, not to include more than 3 hours of PE and/or applied fine arts.

Curriculum

FIRST YEAR

First Semester

H S 101 Intro to Hum Serv	3
Engl 101 Wrtg/Rdgs in Expos	3
H S 102 Prin of Interviewing	3
Psych 102 General Psychology II	3
Soc 101 Intro to Soc	3
	15

Second Semester

H S 105 Group Dynamics	4
H S 109 Tech of Assessment & Interv	3
#Engl 102 Analytical Wrtg	3
Anth 105 Natural History of Man or Anth 130 Cultures of the World	3
H S 150 Clin Exper in HS	4
	17

SECOND YEAR

First Semester

H S 201 Family Process	3
Ed Fdn 303 Hum Growth & Dev	3
Biol 136 Hum Anat & Physiology	3
H S 250 Adv Clinical Exper in HS	4
Elective	3
	16

Second Semester

H S 202 Contemp.Iss.in Menthal Health	3
Humanities or Fine Arts requirement	3
Electives	6
H S 251 Adv Clinical Exper in HS	4
	16

Emergency Medical Technology

The Emergency Medical Services Academy is a special program in the UNM School of Medicine. It is part of the Family, Community and Emergency Medicine Department. The Academy trains all levels of emergency service prehospital technicians. Instructor permission is required for some courses. A certificate is awarded upon successful completion of the courses listed.

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.

MEDICINE

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COURSES OF INSTRUCTON

UNDERGRADUATE PROGRAMS

MEDICAL LABORATORY SCIENCES

Barbara A. Fricke, Director
Health Sciences and Service Bldg.
277-5434

LECTURERS:

Cathy Ayers, B.S., MT(ASCP)SBB., University of Texas Health Sciences Center (Dallas)
Cecilia C. Dail, B.S., MT(ASCP), Carson Newman College
Barbara A. Fricke, M.S., MT(ASCP), Ohio State University
Beth Runnels, B.S., MT(ASCP), Colorado College
S. J. Sperry, B.S., MT(ASCP), University of New Mexico
Bonnie L. Varela, B.S., MT(ASCP), University of Albuquerque

MEDICAL LABORATORY SCIENCES (MD LAB)

121. Introduction to Medical Laboratory Sciences. (1)
Introduction to scope and practice of the Medical Technology profession. Basic terminology and a tour of UNMH laboratory are included. Test procedures performed in a medical lab will be covered in three lab sessions. 1 lecture. {Fall}

400. Orientation to Medical Technology Professional Training. (1) §
Introduction to the profession, and a review/study of basic lab math, blood collection techniques, safety procedures, pipeting, electronics, use of basic lab instruments and equipment.
Prerequisite: acceptance into Medical Technology Program. {Spring}

401. Clinical Chemistry II. (5) §
A study of metabolic reactions which involve the most common chemical analytes of blood and other body fluids and the principles and methods used in measuring those analytes. Includes theory of basic instrumentation.
Prerequisite: acceptance into Medical Technology Program; corequisite: 411L. {Spring}

402. Clinical Hematology and Hemostasis II. (4) §
A thorough study of the development, identification and abnormalities associated with blood cells, and the fundamentals of hemostasis. The principles of routine laboratory procedures and basic instrumentation will be included.
Prerequisite: acceptance into Medical Technology Program; corequisite: 412L. {Fall}

403. Clinical Bacteriology II. [Clinical Bacteriology] **(6) §**
A thorough study of medically important bacteria and the aspects of infectious diseases with emphasis on techniques, methods and differential media used to isolate and identify pathogens. Case studies will be used for critical thinking and problem solving.
Prerequisite: acceptance into Medical Technology Program; corequisite: 413L. {Summer}

404L. [404] **Clinical Immunohematology II. (2) §**
Study of the basic theory of blood group systems, antibody detection and identification, and compatibility testing. Laboratory practice of basic procedures performed in a clinical immunohematology lab will be included.
Prerequisite: acceptance into Medical Technology Program. {Fall}

405L. [405] **Clinical Urinalysis II. (2) §**
A study of kidney functions and the physiochemical and microscopic urine tests. Case studies, demonstrations and laboratory practice will enhance the development of critical thinking and problem solving skills needed in clinical urinalysis laboratory.
Prerequisite: acceptance into Medical Technology Program. {Spring}

***406. Clinical Immunology and Serology II.* (3) §**
A study of principles of immunology and serological methods used in evaluation and diagnosis of disease, augmented by the use of case studies. Development of critical thinking and problem solving techniques is emphasized.
Prerequisite: acceptance into Medical Technology Program; corequisite: 416L. {Summer}

407L. [407] **Clinical Parasitology II.** [Clinical Parasitology] **(3) §**
A study of disease characteristics, life cycles and diagnostic morphology of medically important parasites, including laboratory practice with wet preps and staining procedures. Development of critical thinking and problem solving skills will be emphasized.
Prerequisite: acceptance into Medical Technology Program. {Spring}

408L. [408] **Clinical Mycology II.** [Clinical Mycology] **(2) §**
A study of the medically important fungi including diseases, methods of isolation and identification by the use of common laboratory procedures. Emphasis will include the development of critical thinking/problem solving techniques.
Prerequisite: acceptance into Medical Technology Program. {Fall}

410. Clinical Management and Education. (1) §
The theory and principles for supervising a clinical laboratory with emphasis on problem solving techniques and current lab managerial methods. Education methods for instruction in the lab or for presentations will also be covered.
Prerequisite: acceptance into Medical Technology Program. {Spring}

411L. Clinical Chemistry II Laboratory. (2)
Laboratory experiences for performing and/or evaluating the basic testing procedures used in a clinical chemistry laboratory.
Corequisite: 401. {Spring}

412L. Clinical Hematology/Hemostasis II Laboratory. (2)
Laboratory experiences in the performance and/or study of routine procedures of the clinical hematology and coagulation laboratory.
Corequisite: 402. {Fall}

413L. Clinical Bacteriology II Laboratory. (2)
Laboratory experiences in the performance of and/or study of procedures used in a clinical bacteriology laboratory.
Corequisite: 403. {Summer}

416L. Clinical Immunology and Serology II Laboratory. (1)
Laboratory experiences for practicing the procedures to be performed in a clinical immunology and serology laboratory.
Corequisite: 406. {Summer}

431L. Advanced Clinical Chemistry II. (4)
Lecture and laboratory experiences on specialized and complex chemical analytes in blood and body fluids; disease patterns, interpretation and correlation of laboratory test results.

§ Credit limited to students in Medical Laboratory Sciences program.

Includes case studies, problem solving and evaluation techniques.
Prerequisites: C or better in 401, 411L. {Spring}

432L. Advanced Clinical Hematology/Hemostasis II. (4)
A study of the principles and practice of non-routine Hematology/Hemostasis procedures, with the development of problem solving and interpretive skills through the use of case studies and laboratory tests.
Prerequisites: C or better in 402, 412L. {Fall}

434L. Advanced Clinical Immunohematology II. (3)
Advanced study and development of problem solving abilities applied to blood group antigens and antibodies, compatibility testing, blood collection, and component therapy. Includes use of case studies, discussion groups, and practice of advanced laboratory procedures.
Prerequisite: C or better in 404L. {Fall}

451. Practical Training in Clinical Chemistry II. (4) §
Supervised instruction in the performance of analytical procedures for the various chemical analytes of blood and other body fluids in an affiliated laboratory. 40 hrs. per week.
Prerequisite: C or better in 431L. {Fall, Spring}

452. Practical Training in Hematology and Hemostasis II. (4) §
Supervised instruction in the performance of hematological procedures and coagulation studies in an affiliated laboratory. "40 hours per week."
Prerequisite: C or better in 432L. {Fall, Spring}

453. Practical Training in Microbiology II. [Practical Training in Microbiology] **(4) §**
Supervised instruction in the performance of microbiological procedures in an affiliated laboratory. 40 hrs. per week.
Prerequisites: C or better in 403, 407, 408, 413L. {Fall, Spring}

454. Practical Training in Immunohematology II. (3) §
Supervised instruction in the performance of blood banking procedures in an affiliated laboratory. 40 hrs. per week.
Prerequisite: C or better in 434L. {Fall, Spring}

455. Practical Training in Urinalysis II. (1) §
Supervised instruction in the performance of urinalysis and special urine test procedures in an affiliated laboratory. 40 hrs. per week.
Prerequisite: C or better in 405L. {Fall, Spring}

456. Practical Training in Clinical Immunology and Serology II. [Practical Training in Immunology and Serology] **(1) §**
Supervised instruction in the performance of immunological and serological test procedures in an affiliated laboratory. 40 hrs. per week.
Prerequisites: C or better in 406, 416L. {Fall, Spring}

499. Pre-Employment Practicum (PEP). (1) §
Supervised experience in a variety of laboratory settings with increased responsibility, or an independent study with tutorials as outlined by the program director. Prerequisite: Successful completion of all Medical Technology courses. {Fall, Spring} **Graded on CR/NC basis.**

PHYSICAL THERAPY (PHY TH)

William J. O'Brien, Acting Director
Health Sciences & Service Building
277-5755

Lecturers:

Paul Beattie, M.S.
Linda Kopriva, B.S.
Beth Provost, M.S.

301L. Therapeutic Exercise I. (3) Dexter
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)
Continuation of 301. Use of apparatus and assistive devices. Evaluation and program planning for specific orthopaedic problems. Chest physical therapy.
Prerequisite: 301L. 2 lectures, 3 hrs. lab. {Spring}

306L. Therapeutic Procedures. (3)
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. 1 lecture, 5 hrs. lab. {Spring}

310. Introduction to Physical Therapy. (2)
Professional ethics, quality of care assessment, communication and the professional organization.
Prerequisite: 321L. {Summer}

321L. Human Anatomy for Physical Therapists. (6) Beattie
Gross anatomy of the musculoskeletal, nervous, circulatory, respiratory, digestive, and reproductive systems.
Prerequisite: admission to program. 5 hrs. lecture, 15 hrs. lab. {Summer}

322L. Neuroanatomy for Physical Therapists. (3) Murray
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. (2) Beattie
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) Beattie
Basic pathological processes of disease and injury and mechanisms of defense and repair.
Prerequisite: 321L. {Fall}

342. Survey of Medical Sciences II and Seminar. [Survey of Medical Sciences for Physical Therapists II] **(3)** Orthopaedic Faculty, Beattie
Acquired and congenital orthopaedic problems, traumatic injuries, peripheral nerve lesions, burns, and amputations.
Prerequisites: 321L, 341. {Spring}

352L. Evaluative Procedures I. (3) Beattie
Evaluation of joint range of motion, strength, and body alignment. Interpretation and utilization of results.
Prerequisite: admission to program. 1 lecture, 7 hrs. lab. {Spring}

370L. Kinesiology and Functional Anatomy. (3) Beattie
Biomechanics; functional characteristics of muscle; analysis of therapeutic exercises; normal gait.
Prerequisite: 321L. 3 lectures, 2 hrs. lab. {Fall}

§ Credit limited to students in Medical Laboratory Science program.

MEDICINE

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371L. Clinical Education I and Seminar. (1) Clinical Associates, Kopriva
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. {Fall}

372L. Clinical Education II. (1) Clinical Associates, Kopriva
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) Provost
Neurophysiological approaches to treatment of neuromuscular dysfunction; facilitation and inhibition techniques; pediatric evaluation.
Prerequisites: 302L, 361L. 1 lecture, 8 hrs. lab. {Fall}

402L. Therapeutic Exercise IV. (3) Kopriva
Rehabilitation of burn and spinal cord injury; sports medicine, stress management. Team concept in comprehensive patient care.
Prerequisites: 401L, 441. 1 lecture, 6 hrs. lab. {Spring}

422. Psychology of Disability. (2) Provost
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)
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, Provost
Etiology, symptomatology, clinical course and management of 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) Kopriva
Medical and/or surgical management of problems related to metabolism, circulatory and cardio-respiratory systems; autoimmune disorders and collagen disease in adults and children.
Prerequisites: 341, 441. {Spring}

451. [361L] Human Physiology for Physical Therapists. (3) Kopriva
(Also offered as Med Sc 451.) Physiology of the human body with emphasis on cardiovascular, respiratory, and neuromuscular systems.
Prerequisite: 321L, corequisite: 462L. 3 lectures. {Fall}

453L. Human Physiology Lab. (1)
(Also offered as Med Sc 453L.)
Corequisite: 451. 3 hrs. lab. {Fall}

461L. [451L] Evaluative Procedures II. (2) Kopriva
Electrodiagnostic testing, sensorimotor integration, mobilization, cardiac rehabilitation, and evaluation.
Prerequisites: 306L, 370. 2 lectures, 2 hrs. lab. {Fall}

471L. Clinical Education III. (3) Clinical Associates
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
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
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. 18 weeks. **CR/NC grading.** {Summer}

480. Administration and Supervision. (2) Bowman
Planning and administration of physical therapy services; supervisory and consultation techniques.
Prerequisites: 310, 471L. {Fall}

***495. Topics in Physical Therapy. (2-3)**
Content varies, may be repeated with change of content. Admission by approval of the Physical Therapy program director. {Offered Upon Demand}

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. Course may be taken for a grade or as CR/NC with approval of the instructor. {Fall, Spring}

RADIOLOGIC AND NUCLEAR MEDICINE TECHNOLOGIES

RADIOLOGIC TECHNOLOGY (RAD T)

James Seubert, Director
Health Sciences and Service Building

150. Introduction to Radiologic Sciences. (5) Seubert
Principles of radiographic techniques and exposure factors; medical and professional ethics; medical terminology; patient care concepts and techniques; radiographic positioning concepts. {Fall}

170. Radiographic Procedures I. (5) Seubert
Review of skeletal/radiographic anatomy; radiographic positioning of the structures of the human body. {Fall}

175. [160T] Clinical Radiologic Science I. [Introduction to Clinical Radiologic Science] **(4)** Seubert
Patient care related activities; practice in the principles of radiographic technique; radiographic positioning under the direct supervision of program staff and faculty. {Summer}

190. [195T] Radiographic Procedures II. (3) Seubert
Continuation of RS 170; principles and theory of specialized procedures and instrumentation; image processing and quality assurance concepts. {Summer}

252T. Radiologic Physics. (3) Kelsey
Basic principles of radiation physics; instrumentation of imaging systems; production and characteristics of radiation. {Fall}

255. [275T] Clinical Radiologic Science II. [Clinical Radiologic Science V] **(6)** Seubert, Cyphert
Continuation of 175. {Fall}

265. [295T] Clinical Radiologic Science III. [Clinical Radiologic Science VI] **(6)** Seubert, Cyphert
Continuation of 255.. {Spring}

270. Radiologic Science Laboratory. (3) Seubert
Continuation of RS 150 with laboratory/review exercises.
Pre-requisites: RS 150, 170, 190. {Spring}

290. [262T] Clinical Radiologic Science IV. (6) Seubert/Cyphert
Continuation of RS 265; Final clinical competency testing {Summer}

292. Radiographic Pathology/Biology. [Survey of Medical and Surgical Diseases] **(4)** Seubert
Study of the nature and the cause of diseases and the changes that occur with disease and injury; radiation biology concepts. {Spring}

299. Comprehensive Radiologic Reviews. (2) Seubert
Intensive preparation for national board certifying examination; comprehensive review sessions on all aspects of radiologic technology.
Prerequisite: successful completion of radiologic technology course work. {Summer}

NUCLEAR MEDICINE TECHNOLOGY (N MD T)

Deborah Owens, Director
Health Sciences and Services Building

320. [215] Clinical Nuclear Technology I. (7) Owens
The student is assigned to a rotational schedule in the division of nuclear medicine at UNM Hospital/and the Veterans Administration U.S. Hospital. The student will gain experience performing diagnostic examinations with a variety of nuclear instrumentation. {Fall}

354. [230T] Clinical Radiopharmacy. (2) Owens
Review of basic chemistry; Principles of radiopharmacy/radiochemistry including radiopharmaceutical preparation dose calculation, quality control, and federal/state regulations. {Fall}

365. [250T] Clinical Nuclear Technology II. (9) Owens
A continuation of student rotation through the division of nuclear medicine at UNM Hospital/and the Veterans Administration U.S. Hospital.
Prerequisite: NMDT 320. {Spring}

375. [241T] Nuclear Physics and Instrumentation. (3) Owens
Principles of nuclear physics, ionization chambers, G-M tubes, scintillation and solid state detectors, associated electronics, and quality control procedures. {Fall}

380. [211T] Introduction to Nuclear Medicine Technology. (4) Owens
Patient positioning; venipuncture techniques; medical and professional ethics; medical terminology, radiation safety; shielding and exposure concepts, methods of patient care; basic anatomy and physiology. {Fall}

385. [276LT] Nuclear Instrumentation II. (1) Owens
A continuation of 375T; 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: NMDT 375. {Spring}

390. [224T] In Vitro Nuclear Medicine. (2) Owens
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.

396. [232T] Clinical Nuclear Medicine I. (4) Owens
Basic anatomy and pathophysiology, methods of localization, radiopharmaceuticals, nuclear instrumentation, and imaging techniques. {Spring}

400. [280T] Clinical Nuclear Technology III. (5) Owens
A continuation of student rotation through the division of nuclear medicine at UNM Hospital/and the Veterans Administration U. S. Hospital.
Prerequisite: NMDT 365 {Summer}

412. [265T] Nuclear Radiation Biology. (1) Owens
Interaction of alpha, beta, electromagnetic, and high LET particle radiations from nuclear interactions and disintegrations with biologic material.
Prerequisite: NMDT 380. {Summer}

415. [270T] Clinical Nuclear Medicine II. (2) Owens
Continuation of 396T.
Prerequisite: NMDT 396. {Summer}

420. [290T] Special Problems. (1-3)
Supervised investigation of radiopharmaceutical effects and tissue localization. {Spring, Summer}

DIAGNOSTIC MEDICAL SONOGRAPHY (DMS)

Rebecca Hall, Director
Health Sciences and Service Building

320. [201T] Clinical Sonography I. (4) Hall
Students are assigned a rotational schedule at our affiliate hospitals and at Diagnostic Imaging at UNMH, where they will gain practical experience in the performance of US exams with a variety of sonographic instrumentation. Under direct supervision of registered sonographers and staff radiologists. Competency exams and oral exams are given as part of the student's final grade evaluation by staff sonographers and instructor.

340. [209T] Sonographic Pathophysiology. (3) Hall
A study of pathological changes occuring per organ system and the relationship of normal versus abnormal US exams as a result of pathology (includes pertinent clinical data, lab data, etiology and US findings of each pathologic entity).

354. [204T] Sonographic Equipment and Image Evaluation. (2) Hall
A practical study in the development of evaluation and critique of the hard copy films of US exams. Students learn the essentials of US terms of description, the essentials of equipment calibration, operational standards and laboratory quality control.

360. [235T] Sonographic Imaging Procedures. (4) Hall
Anatomy, physiology, pathological processes and anomalies; scanning protocol and differential diagnosis of abdomen and pelvis (male and, female) and thyroid. Designed to supplement the practial applications of students' clinical experience.

365. [202T] Clinical Sonography II. (4) Hall
A continuation of student rotations for clinical practicum.

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375. [222T] Introductory Sonographic Physics I. (3) Howe
A study of the physical properties of ultrasound and the instrumentation utilized in diagnostic sonographic imaging.

380. [208T] Introductory Cross Sectional Anatomy. (3) Hall
Introductory course relating anatomic structures of the abdomen, pelvis, heart and head in all planes.

385. [223T] Physics and Instrumentation II. (3) Howe
A continuing study of the interaction of ultrasound and biologic tissue (BIOEFFECTS) and the instrumentation utilized to record that data.

390. [236T] Sonographic Imaging Procedures II. (4) Hall
A continuation of the protocol utilized in ultrasound exams of the obstetric patient, the pediatric patient, the Doppler patient and special studies.

396. [225T] Current Problems I. (1) Hall
Includes methods of research and statistical analysis, review of medical literature and specific applications in diagnostic ultrasound. Students are required to spend research time to present one case study, literature information and applicable films per week for the entire semester. Also required to attend the weekly US case conference with the radiology residents.

400. [203T] Clinical Ultrasound III. [Clinical Sonographic Applications] **(6)** Hall
Students continue assigned rotational schedule at our affiliate facilities.

412. [245T] Sonographic Administration. (1) Hall
Discussion and evaluation of skills necessary to organize and manage an ultrasound laboratory, including ordering, data retrieval, patient flow and budgeting; skills necessary in formulating a resume and actively participating in a job interview.

415. [245T] Sonographic Imaging Procedures III. (1) Hall
Anatomy, physiology, pathological processes and anomalies, scanning protocol and differential diagnosis of neurosonography.

420. [226T] Current Problems II. (1) Hall
Continuation of 225T. Students present for analysis, case presentations per week with report of literature review on topic presented.

RADIATION THERAPY TECHNOLOGY (RTT)

Lynda Reynolds, Director
Health Sciences and Service Building

310. Introduction to Radiation Oncology. (2) Reynolds
Orientation to the profession, program and clinical education centers; introduction to oncology; ethics; medico-legal issues; communication; psychological aspects of the terminally ill; computer applications. {Fall}

311. Radiation Protection. (1) Kelsey
Introduction to the sources of radiation; detection and measurement; shielding and room design; brachytherapy handling; surveys, personnel monitoring; maximum permissible doses; local, state and federal regulations. {Fall}

315. Technical Radiation Oncology (3) Reynolds
Introduction and clinical application of superficial, orthovoltage, teletherapy and megavoltage equipment; treatment considerations; radiation therapy simulators and tumor localization; brachytherapy; ancillary equipment; emergency procedures and patient contouring. {Fall}

316. Pathology. (1)
Basic pathological processes of disease; mechanisms of defense, repair and replacement; oncology/neoplasia; staging and grading systems.
Pre-requisite: 310. {Fall}

320. Clinical Education I. (4) Reynolds
Observation and supervised treatment of patients in affiliated clinical education centers. Students begin to correlate didactic and clinical education.
Co-requisites: 310, 315. {Fall}

332. Patient Management. (3) Reynolds
A multi-disciplinary approach to patient management; techniques of patient handling; evaluation of patient status through examinations; management of medical emergencies; medical-surgical asepsis; infection control; medications used in oncology; nutritional support; patient education and support services.
Prerequisite: 310. {Spring}

340. Radiobiology. (2) Stutzman
Fundamentals of the biological effects of ionizing radiation on man; basic biological mechanisms which bring about somatic and genetic effects; tumor and tissue sensitivity; time-dose fractionation principles; effects of chemotherapeutic agents on cell systems.
Prerequisites: 316, 330. {Summer}

350. Radiation Physics I. (2)
Study includes the mathematical principles of radiologic and therapeutic physics; statistics; principles of radiation physics; characteristics and production of radiation.
Prerequisites: Rad T 252, Math 121 or its equivalent. {Fall}

355T. Clinical Education II. (4) Reynolds
A continuation of Clinical Radiation Therapy Technology I. This phase of clinical education emphasizes participation at an intermediate level.
Prerequisite: 320. {Fall}

357. Anatomy for Radiation Oncology. (3) Reynolds
An integrated study of medical terminology, human structure and function by organ system and through cross-sectional anatomy as it pertains to the study of oncology.
Prerequisites: Bio 136 and 139L or its equivalent. {Fall}

360. Radiation Physics II. (3)
A continuation of 350. Includes the study of the properties of x- and gamma rays, units of measure, photon interactions, beam characteristics, radioactivity: sources and applications; and radiotherapy with heavy particles.
Prerequisites: 315, 350. {Spring}

362T. Dosimetry/Treatment Planning I. (3)
A review of algebra, equations, proportions, logarithms, graphs, geometric principles, basic trigonometry, statistics and calculators. Basic concepts of treatment planning will be explored including isodose charts, simulation, and single beam therapy. Special projects will be required of the students. {Fall} {Delete as of Spring 1990}.

368. Oncology. (4) Khan
A comprehensive study of malignant diseases by site. Includes: review of anatomy, etiologic and epidemiologic factors, methods of detection, histopathology, staging and grading, treatment principles, prognosis and survival.
Prerequisites: 310, 316, 357. {Spring}

370. Quality Assurance. (1) Reynolds
Introduction to quality assurance principles, responsibilities, tests, equipment and records; calibration of superficial and megavoltage treatment equipment.
Prerequisites: 315, 360, 402. {Summer}

380. Special Topics in Radiation Oncology. (3) Reynolds
A computerized review of the entire curriculum for national

boards; principles and application of hyperthermia and high-dose brachytherapy; management principles; career mobility; presentation of research paper.
Prerequisites: 315, 340, 368. {Summer}

400. Clinical Educational III. (2) Reynolds
A continuation of 355. This phase of clinical education stresses proficiency in patient management and treatment modalities at an advanced level.
Prerequisite: 355. {Summer}

402. Dosimetry/Treatment Planning . (3)
Basic concepts of treatment planning; isodose charts; single, and multiple beam therapy; wedges; combined electron/photon therapy; moving beam therapy; irregular field techniques; calculations; brachtherapy principles and applications. Special projects will be required of the students.
Prerequisite: 350. {Spring}

RESPIRATORY THERAPY (RST)

Richard Gentile, Director
Health Sciences and Service Building

Lecturers:

Jane Boulanger
Richard Gentile

201LT. Advanced Respiratory Therapy I. (4)
Integrated study and laboratory course emphasizing topics for the advanced practitioner. Correlation of cardiopulmonary anatomy, physiology and pathology with cardiac and pulmonary function evaluation will precede presentation of respiratory technological and clinical applications in adult critical care medicine.
Prerequisite: program admission. 3 hrs. lecture, 3 hrs. lab. {Fall}

202T. Advanced Clinical Experiences I. (4)
Supervised clinical applications of adult intensive respiratory care and cardiopulmonary function evaluation with emphasis on clinical decision-making skills. Related activities will correlate the cardiopulmonary system in health and disease.
Corequisite: 201LT. {Fall}

203LT. Advanced Respiratory Therapy II. (4)
Integrated study and laboratory course for the advanced practitioner. Topics include: critical care of adult, newborn and pediatric patients,respiratory intensive care, pulmonary diseases of children, and concepts of rehabilitation practice and home health care for patients with chronic pulmonary diseases.
Prerequisite: 201LT. 3 hrs. lecture, 3 hrs. lab. {Spring}

204T. Advanced Clinical Experiences II. (4)
Supervised clinical applications of newborn and pediatric critical care, with emphasis on clinical decision-making skills, patient evaluation, and respiratory therapeutics. Experiences with the delivery of home health care and pulmonary rehabilitation will be offered in community agencies. Additional experiences will be provided in the areas of cardiopulmunary testing and research physiology.
Corequisite: 203LT. {Spring}

205T. Respiratory Therapy Seminar. (3)
Preparation for roles and responsibilities in leadership positions in Respiratory Care field. Opportunities offered for individualized coursework and special projects related to practical applications in areas of education, supervision, management and clinical research.
Prerequisites: 201LT, 202T, 203LT, and 204T. {Summer}

206T. Advanced Clinical Experiences III. (1)
Supervised clinical investigation of special topics chosen by the student, and approved by Program Faculty. These experiences will focus on areas of clinical practice which each student identifies as a special topic of interest in Respiratory Care.
Prerequisite: 205T. {Summer}

CLINICAL SCIENCE (CLIN S)

511. First Year Curriculum. (18)

521. Second Year Curriculum. (18)

530. First Year Curriculum. (PCC) (18)

532. Second Year Curriculum. (PCC) (18)

540. Medicine Clerkship. (12)

541. Obstetrics-Gynecology Clerkship. (6)

542. Pediatric Clerkship. (6)

543. Psychiatry Clerkship. (6)

544. General Surgery. (6)

550. Surgical Specialities. (3)

555. Seminar on Professional Responsibility. (0)

570. Fourth Year Curriculum. (16)

FAMILY, COMMUNITY AND EMERGENCY MEDICINE (F C&EM)

Graduates of the Emergency Medical Technology courses are provided with the necessary preparation to serve in the overall operation of an emergency medical services system. Each course strives to help the student understand the theory of emergency care, as well as develop and demonstrate the skills needed to give emergency care, particularly focusing on the pre-hospital environment. Courses are open only to students admitted to the Emergency Medicine Program.

101T. EMT-Basic. [EMT-A Course] **(5)**
This is U.S.D.O.T. EMT-A course (105 hours) 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 EMT-I and paramedic training. Restricted: approval by instructor.

111T. EMT Refresher. (1)
A required course for Emergency Medical Technicians to maintain State Licensure that reviews current trends and treatment techniques of emergency care.

201T. EMT-I Modules I, II, III. (3)
This is a 56-hour course which consists of the first three, and portions of the 4th, 5th, 6th, 7th, and 8th modules of the Paramedic course: I- The role, responsibilities, and medical-legal status of the EMT-P; II- Human systems and patient

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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 105-hour EMT-A course and support, in writing, from the sponsoring community. Restricted: approval by instructor.

202T. 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 201T (EMT Modules I, II, III). Restricted; approval of instructor.

203T. EMT - I Modules VI, XV. (3)
This 80 hour course consists of two paramedic modules: VI - cardiovascular system, and module XV - telemetry and communication. Following the didactic sessions (60 hours), each student must have twenty hours of clinical experience in hospital in Emergency Department, Coronary Care, Intensive Care.
Prerequisites: successful completion of 201T (Mod. I, II, III) and 202T (Mod. IV, V, X). Passing screening process. Restricted: approval by instructor.

301T. EMT-Paramedic Course. (23)
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: 101T (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 (H S)

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 field 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)
Drawing on both theoretical and observer-participation models 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)ΔΔ
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. May be repeated for credit to a maximum of 9 hours.

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. (3)
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)ΔΔ
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.

COLLEGE OF NURSING

Estelle H. Rosenblum, Dean
College of Nursing
Nursing/Pharmacy Bldg. 164, 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 anional 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. Baccalaureate graduates of the College of Nursing are prepared as beginning practitioners to give patient and family centered care in a variety of health care settings. They are also qualified to apply for graduate study in a clinical specialty, in nursing education or administration in nursing. Masters graduates are prepared to assume leadership roles in clinical practice, teaching or nursing or administration of nursing. Graduates will have a base for doctoral study in nursing.

Degrees Offered. The College of Nursing offers two degrees, the Bachelor of Science in Nursing and the Master of Science in Nursing. A dual Master's degree with Latin American Studies is offered.

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 baccalaureate 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 National Council Licensure Examination 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 Advisement 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 and official transcripts from previously attended schools of higher education are March 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:

1. Submitted application and required academic records by deadline dates;
2. Completed at least 6 of the 9 freshman prerequisite courses; three of these must be Chem 111L, 212, and Biol 121L or 123L.

Engl 101	3
Engl 102	3
Soc or Anth	3
Psych 102	3
Biol 121L or 123L	4
Nutr 125	3
Chem 111L	4
Chem 212	4
Math 145 or Soc 280 (Statistics)	3

3. Maintained grade point averages as follows:
   a. Students transferring from University College: a grade point average of 2. 5 or better during the previous semesters. For those students who have completed fewer than 30 hours during the previous two semesters, the grade point average will be calculated for those hours accumulated.
   b. Students transferring from other degree-granting colleges of the University: grade point average of 2. 5 while enrolled in the other degree-granting college.
   c. Transfer students from other accredited institutions shall meet all University requirements and have a grade point average of 2. 5 or better.
   d. New Mexico residents will be considered to have priority over non-New Mexico residents.

The College of Nursing reserves the right to request the student to supply any additional information as necessary.

Examinations to Establish credit. All students may request to establish or validate credit by examination for courses according to the policies stated under the General Academic Regulations section of this catalog.

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. Also needed are: a valid New Mexico R.N. license; at least 26 hours of college coursework applicable to the BSN degree; and a grade point average of at least 2. 50.

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. Such credit may be applied toward meeting the graduation requirements for a Bachelor of Science in Nursing. See section entitled "Transfer of Credit."

The degree completion plan for registered nurse students allows for some flexible work in the lower division as well as in the upper division nursing major.

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Lower division credit may be earned through the College Level Examination Program (CLEP). Twenty-Seven 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 which are not available for establishing credit by examination: Engl 102; Math 145; Nurs 239, and 240. With respect to Pharm 276, RN students may elect to take the course or be exempted from the requirement by successfully passing an exemption exam. Students may establish credit by examination in Nurs 224.

RN students are allowed to accelerate through the upper division major according to individual capacity based upon a credit by examination process and enrollment in required nursing courses. Each RN student must demonstrate achievement of the terminal performance behaviors as expected of all College of Nursing students.

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 Coordinator for the RN-BSN Program or the College of Nursing Student Advisement Office prior to registration.

The College of Nursing supports career mobility for nurses.

BSN/MSN Articulation Program for Registered Nurse Students

This program allows academically qualified RN students to take substitution courses in the Master's program while completing the BSN. The program is intended for the RN student whose career goals extend beyond the BSN and whose professional experiences and capabilities indicate a potential for success in advanced study. The completion of the articulation program shortens the BSN/MSN sequence by about one semester, compared to proceeding through both programs serially.

Two strategies form the basis for the articulation. First, a qualified student will substitute 501 for 446, 514 for 447, and 505 for 431. These are conceptually similar courses, but the 500 level courses are more advanced content. (See catalog descriptions of courses.) Secondly, students who complete the substitution courses for undergraduate credit with grades of B or better will have these course requirements waived as part of their course of studies for the Master's degree. Graduation from the BSN program occurs upon completion of all requirements with the substitution courses listed above. Because there are no laboratory hours associated with one of the substitution courses, the BSN program for these RN students will be 1 to 2 credits less than the generic BSN program. Graduation for the MSN program occurs upon completion of all requirements for the chosen specialty area (teaching, administration, or advanced practice). Students apply to the Associate Dean for the Graduate Program for permission to enroll in substitution courses. A grade point average of at least 3. 0 and senior standing is required for permission to take the substitution courses.

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 College of Nursing section. 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 advisors 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, three 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 grade point average 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 Advisement Office and the University Student Financial Aid 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, Lovelace Medical Center, Presbyterian Hospital Center, Kaseman Presbyterian Hospital, Vista Sandia Hospital, St. Joseph Hospital, Veterans Administration Medical Center, Bernalillo County Mental Health Center, Maternal-Infant Care Clinics, Indian Health Service stations and centers, and other facilities in outlaying 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 time of registration.

Students must present the following documentation 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.
3. Rubella Titer or Rubella Immunization.
4. Annual certification of competency in administering cardio pulmonary resuscitation (CPR).

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 Advisement 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 in the College of Nursing Student Handbook.

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. Fees may be charged for standardized nursing achievement tests. Information about other fees and expenses may be obtained in the Student Advisement Office.

Each student is required to obtain nursing student liability insurance before beginning clinical experiences.

Professional Conduct. The nursing profession requires high standards of legal, ethical, and moral accountability from its practitioners. Nursing students are expected to behave in compliance with the professional standards of nursing. Conduct not in keeping with professional standards may lead to disenrollment following appropriate due process.

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 for one semester or more must reapply for admission to the College of Nursing. 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 in the summer or fall semester and by November 1 for the spring semester. Because a returning student is subject to the regulations of the Catalog in effect at the time of readmission, a re-evaluation of the student's academic standing is done. The student must receive academic advisement prior to registration.

Students must have a cumulative grade point average of 2. 0 or better to be eligible to enroll in upper division nursing courses.

To be eligible for enrollment in Junior Semester I nursing courses, students must be admitted to the College of Nursing, be in good academic standing (2. 0 cumulative grade point average) and have completed all freshman, sophomore prerequisites and lower division electives. Should the number of students eligible to enroll exceed the class size quota, a priority system based on grade point average, date of admission to the College of Nursing and student status will be used.

Because clinical spaces are limited, all students are expected to preregister for clinical courses prior to the end of the current semester. Priority for clinical space is given to full-time students who are progressing satisfactorily, then to part-time progressing students, and last to students who are repeating or returning after an absence from the program.

Students must earn a grade of C (2. 0) or better on all required nursing, biology and chemistry courses; and Engl 101, 102, Psych 332, and pharmacology. Any nursing course may be taken once and repeated only once. Students failing to earn a grade of C (2. 0) or better on the second attempt are not allowed to progress. Students receiving a grade of D or F in any two required upper division nursing courses are also not allowed to progress in the College of Nursing. Prior to repeating a nursing course the student's record is reviewed by the academic advisor; progress will be monitored by the advisor.

Probation and Suspension. An undergraduate student will be placed on academic probation when the overall grade point average drops below 2. 0. The student is eligible for suspension if the cumulative grade point average does not rise during the first probationary period or if the cumulative grade point average 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 67 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 grade point average of 2.0 minimum.
5. Unanimous recommendation for the degree by the faculty of the College of Nursing.

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Curriculum

First Year

Engl 101 Wrtg w/ Rdgs in Expos	3
Engl 102 Analytic Writing	3
Soc or Anthro	3
Psych 102 General Psych II	3
Chem 111L Elem of Gen Chem	4
Chem 212 Integ Org Ch & Biochem	4
Nutr 125 Intro to Nutrition	3
Biol 121L Prin of Biol	
OR 123 Biol for Hlth Rel Sci	4
Math 145 or Soc 280 (Statistics)	3
Electives	6
	36

Second Year

Phil 156 Intro to Logic	3
Biol 237 Human Anat & Phys I	3
Biol 247L Anat & Phys Lab I	1
Biol 239L Hlth Sci Micro	4
Nurs 225 Fdn In Health Care	2
Nurs 239 N/P Pathophysiology I	2
Biol 238 Hum Anat & Phys II	3
Biol 248L Anat & Phys Lab II	1
Psych 332 Abnormal Behavior	3
Nurs 224L App G & D to Hlth Care	3
Pharm 276 Prin of Pharmacol	3
Nurs 240 N/P Pathophysiology II	2
Elective	3
	33

Third Year

Nurs 341 Nurs Process	2
Nurs 342 Care of Aging Client	2
Nurs 343L Nurs Skills	4
Nurs 344L Med Surg I	4
Nurs 345 Human Responses	2
Nurs 346L Nurs Expanding Family	6
Nurs 347L Psych-Mntl Hlth Nurs	6
Electives (Upper division)	6
Nurs 404L Phys Psychosocial Assessment	2
	34

Fourth Year

Nurs 431L Issues & Trends	2
Nurs 432 Intro Nurs Research	2
Nurs 433L Med Surg Nursing II	6
Nurs 434L Nurs Child & Fam	6
Nurs 445L Comm Hlth Nurs	8
Nurs 446L Integ Nrsg Concepts	5
Nurs 447 Intro Org Behav	2
Electives (Upper division)	2
	33

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:

Barbara L. Rees, Ph. D., University of Arizona
Estelle H. Rosenblum (Dean), Ph. D., University of New Mexico

ASSOCIATE PROFESSORS:

Phoebe J. Becktell, Ph. D., University of New Mexico
Gloria A. Birkholz, J. D., University of New Mexico
Zella A. Bray, Ph. D., University of New Mexico
Dorothy H. Clough, Ph. D., University of New Mexico
Jeannette M. Cochran, Ph. D., University of New Mexico
Idolia M. Collier, D. N. Sc., University of California (San Francisco)
Chiyoko Furukawa, Ph. D., University of New Mexico
Patricia Higgins, Ph. D., University of New Mexico
Sharon Lewis, Ph. D., University of New Mexico
Laura Martinez, Ph. D., University of New Mexico
Robin Meize-Grochowski, Ph. D., University of Texas (Austin)
Elsie S. Morosin, Ph. D., University of New Mexico
Jacqueline N. Rhoads, Ph. D., University of Texas (Austin)
Sandra L. Schwanberg, Ph. D., University of New Mexico
Donea L. Shane, Ph. D., University of New Mexico
Dianna M. Shomaker, 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, M. S. N., University of Colorado
Sara J. Anderson, M. S. N., Wayne State University
Gregory Bechtel, Ph. D., Texas Women's University
Patsy L. Duphorne, M. S. N., University of Washington
Ruth H. Franklin, Ph. D., University of Toledo
Catherine N. Harris, M. S. N., University of California (San Francisco)
Carol A. Johnson, M. S. N., Catholic University
Barbara D. Rickert, M. S. N., University of Alabama
Paula Sigman, Ph. D., Texas Women's University
Edythe M. Tuchfarber, M. S. N., Marquette University

VISITING ASSISTANT PROFESSOR:

Kathleen Kadner, Ph. D., University of Texas (Austin)

LECTURER II:

Rose E. Barry, M. S. N., Ohio State University
Karen L. Carlson, M. S. N., University of New Mexico
Margaret E. Grady, M. S. N., Boston University
Margaret Greenberg, M. S. N., University of New Mexico
Kathleen Guthrie, M. S. N., University of California (San Francisco)
Cheryl Learn, M. S. N., University of New Mexico
Katheryn McCash, M. S. N., Catholic University
Lucinda Olbright, M. S. N., University of Arizona
Julienne Rock, M. S. N., University of Wisconsin (Eau Claire)
Ruth Romero, M. S. N., University of Colorado Health Science Center

PROFESSORS EMERITI:

Virginia Crenshaw, Ed. D., Peabody College
B. Louise Murray, Ed. D., Teacher's College, Columbia University
Josephine Baca, M. P. H., University of Minnesota

NURSING (NURS)

125. Introduction to Nursing. (2)
Orientation to the nursing profession. Description of professional nursing roles and functions, opportunity to observe working nurses, and an introduction to the nursing process. 2 hrs. lecture and discussion {Offered upon demand}

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.

224L. Application of Concepts of Human Growth and Development to Health Care Delivery. (3)
Presentation of theories of psychosocial and biological growth and development across the life span. Stresses application of concepts to health care delivery.
Prerequisites: Engl 101, Soc or Anth, Psych 102. 3 lectures. {Fall, Spring}

225. Foundations in Health Care. (2)
Introduction to concepts relating to the health care delivery system, historical development of nursing, changing roles and functions of health care team members, and the philosophy and conceptual framework of the College of Nursing.
Prerequisites: Engl 102, Soc or Anth, Chem 212, Biol 121L. 2 lectures. {Fall, Spring}

239. Nursing Pathophysiology I. (2)
(Also offered as Pharm 239). A beginning course in human pathophysiology for pharmacy and nursing students. Space restrictions limit admission to enrolled nursing students or by permission of instructor. Special fee of $3. 00.
Pre- or corequisite: Biol 237 or 239L. 2 lectures. {Fall, Spring}

240. Nursing Pathophysiology II. (2)
(Also offered as Pharm 240.) Continuation of 239.
Prerequisite: 239. Pre- or corequisites: Biol 238 and 248L. 2 lectures. {Fall, Spring}

277. Spanish for Professionals. (3)
(See Span 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.
Prerequisite: Biol 237. 2 lectures, 2 hrs. lab. {Offered upon demand}

305, 306. Problems in Nursing: Selected Topics. (3, 3)
Focus on study of the theoretical bases of selected problems in nursing. {Fall, Spring}

307. Problems in Nursing: Selected Topics. (2, 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.

341. Nursing Process. (2)
Theoretical study of the nursing process as a problem-solving method in professional nursing. The concepts of communication, teaching-learning, energy, culture, and resources are explored and the nursing process applied.
Prerequisites: 224, 225, Nutr 125, Pharm 276. 2 hrs. seminar. {Fall, Spring}

342. Care of Aging Client. (2)
Theoretical study of basic roles of nursing. Emphasis placed upon aspects of the health care delivery system applied to aging clients who are coping with dysfunction related to normal aging changes or chronic disease.
Prerequisites: 224, 225, 239, 240, Nutr 125, Pharm 276. 2 hrs. seminar. {Fall, Spring}

343L. Nursing Skills. (4)
Theoretical study, laboratory, and clinical application of basic roles of professional nursing. Emphasis placed on nursing assessment and intervention skills necessary for making nursing judgements. Clients include adults coping with acute illness.
Prerequisites: 224, 225, 239, 240, Nutr 125, Pharm 276. 1 hr. seminar, 6 hrs. lab. {Fall, Spring}

344L. Medical-Surgical Nursing I. (4)
Theoretical study and clinical application of basic roles of professional nursing in restorative care. Emphasis placed on use of the nursing process with the adult client who is acutely ill.
Prerequisites: 224, 225, 239, 240, Nutr 125, Pharm 276.
Prerequisites for part-time students: 341, 342, 343L. 2 hrs. seminar, 4 hrs. lab. {Fall, Spring}

345. Human Responses to Changed Health Status. (2)
Theoretical study of human responses to changes in health status. Emphasis on understanding behavioral responses to health status, treatment modalities and the nurse's role.
Prerequisites: 341, 342, 343L, 344L. 2 hrs. seminar. {Fall, Spring}

346L. Nursing the Expanding Family. (6)
Theoretical and clinical application of nursing functions with clients in the childbearing cycle. Emphasis on the application of the nursing process to childbearing families in acute care and outpatient clinic settings.
Prerequisites: 341, 342, 343L, 344L; pre- or corequisite for part-time students: 345. 2 hrs. seminar, 8 hrs. lab. {Fall, Spring}

347L. Psychiatric Mental Health Nursing. (6)
Theoretical and clinical applications of nursing functions for clients with severe emotional problems. Emphasis placed on communication skills and developing therapeutic relationships with clients in acute and chronic care facilities.
Prerequisites: 341, 342, 343L, 344L; pre- or corequisite for part-time students: 345. 2 hrs. seminar, 8 hrs. lab. {Fall, Spring}

356. Cooperative Nursing Intern Program (2)
Seminar in clinical nursing for nursing students employed as nurse interns by cooperating hospitals. Can study with analysis of nursing process. 2 hours seminar. {Offered upon demand}

397. Independent Study. (1-3)
Upper-division standing.
Prerequisite: permission of instructor. {Fall, Spring}

404L. Physical/Psychosocial Assessment. (2-4)
Theoretical and laboratory application of concepts, tools and skills necessary to perform nursing assessments of clients of all ages.
Prerequisites: upper division RN, or generic student 343 and 344. Variable credit; RNs 3 hours seminar, 1 hour lab. Generic students 1 hour seminar, 1 hour lab. {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}

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414L. Professional Clinical Applications. (2)
A clinical course designed for RN students to explore own learning needs and apply concepts of professional nursing related to nursing process, aging, human responses, physical/psychosocial assessment and research to selected client assignments.
Pre- or corequisites: RN students, 342, 345, 404L, 409, 432. 2 hrs. lab. {Spring, Fall}

***429. Workshop. (1-6)**
{Offered upon demand}

431. Issues and Trends in Nursing. (2)
Theoretical presentation of current issues and trends that impact the nursing profession. Emphasis placed upon analysis of current literature surrounding selected topics.
Prerequisites: 345, 346L, 347L. 2 hrs. seminar. {Fall, Spring}

432. Introduction to Nursing Research. (2)
Introduction to concepts and issues in nursing research as a problem solving approach. Emphasis placed upon reading nursing research.
Prerequisites: 345, 346L, 347L. 1 hr. seminar. {Fall, Spring}

433L. Medical Surgical Nursing II. (6)
Theoretical laboratory and clinical applications of nursing functions with clients experiencing complex problems. Emphasis is placed upon application of nursing process with adult clients in multiple phases of illness.
Prerequisites: 345, 346L, 347L; pre- or corequisites for part-time students: 431, 432. 2 hrs. seminar, 8 hrs. lab. per week. {Fall, Spring}

434L. Nursing of Children and Families. (6)
Theoretical and clinical application of nursing functions with children and families experiencing complex problems. Emphasis placed upon application of the nursing process to children and the families in multiple phases of illness.
Prerequisites: 345, 346L, 347L; pre- or corequisites for part-time students: 431, 432. 2 hrs. seminar, 8 hrs. lab. per week. {Fall, Spring}

444L. Advanced Nursing/Episodic. (5)
Theoretical and clinical application of previous knowledge. Principles of management and evaluation of health services are emphasized. Experiences include advanced nursing in patient settings with individuals of all ages.
Prerequisites: 431, 432, 433L, 434L; pre- or corequisite for parttime students: 447. {Fall, Spring}

445L. Community Health Nursing. (8)
Theoretical and clinical application of community nursing. Emphasis is placed on assessment of community and family health status and health maintenance. Experience includes community work with individuals and groups.
Prerequisites: 431, 432, 433L, 434L; pre- or corequisite for part-time students: 447. {Fall, Spring}

446L. Integration of Nursing Concepts. (5)
Theoretical and clinical study of nursing responsibilities with client groups needing preventive or restorative care. Emphasis on integration of knowledge and skills and acculturation to professional practice. Student selects experience with faculty advisor.
Prerequisites: 444L and 445L. 1 cr. seminar and 4 cr. lab.

447. Introduction to Organizational Behavior in Health Care Settings. (2)
Theoretical introduction to concepts of organization, management, leadership, and change as related to health care settings. Emphasis placed upon change in the health care environment which can be initiated and implemented by professional nurse managers.
Prerequisites: 431, 432, 433L, 434L. Corequisites: 444L, 445L and 446L. 2 hrs. seminar.

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 3.4 or better grade point average. {Fall}

499. Honors Study. (3)
Second part of departmental honors.
Prerequisite: 498. {Spring}

500. Advanced Family Theory. (2)

501. Advanced Nursing Theory I. (2)
{Fall}

502. Advanced Nursing Theory II. (2)
Prerequisite: 501. {Spring}

503. Research in Nursing I. (3)
Prerequisite: upper division course in inferential and descriptive statistics. {Fall}

504. Research in Nursing II. (3)
Prerequisite: 503. {Spring}

505. Professional Seminar. (2)

506. Advanced Psychiatric Mental Health Nursing with the Family as Client. (3)

507. Advanced Individual & Group Psychiatric Mental Health Nursing. (3)

509. Principles of Curriculum Development in Nursing. (3)

510. Teaching in Nursing Programs. (3)

511. Measurement and Evaluation in Nursing Education. (3)
Prerequisite: upper division course in inferential and descriptive statistics. {Offered upon demand}

513. Administration to Facilitate Quality Clinical Care. (3)

514. Nursing Administration in Health Institutions/ Agencies. (3)

516. Advanced Community Health Nursing: Family Systems & Health Care Nurses. (3)

517. Advanced Community Health Nursing: Community & Environmental Systems. (3)
Prerequisite: 516.

519. Advanced Parent-Child Nursing: Normal and High Risk Childbearing Family. [Problems in Clinical Nursing: The Child-bearing Client at Risk] **(3)**

520. Advanced Parent-Child Nursing: Nursing care of Children and Their Families. [Problems in Clinical Nursing: The Client with a Developmental Deviance] **(3)**

522. Applications of Epidemiology to Community Health Problems. (3)
Prerequisites: upper division statistics course and a community health or epidemiology course, or permission of instructor.

523. Advanced Parent/Child Nursing: Parent/Child Relations. (3)

526. Advanced Medical-Surgical Nursing I. (3)

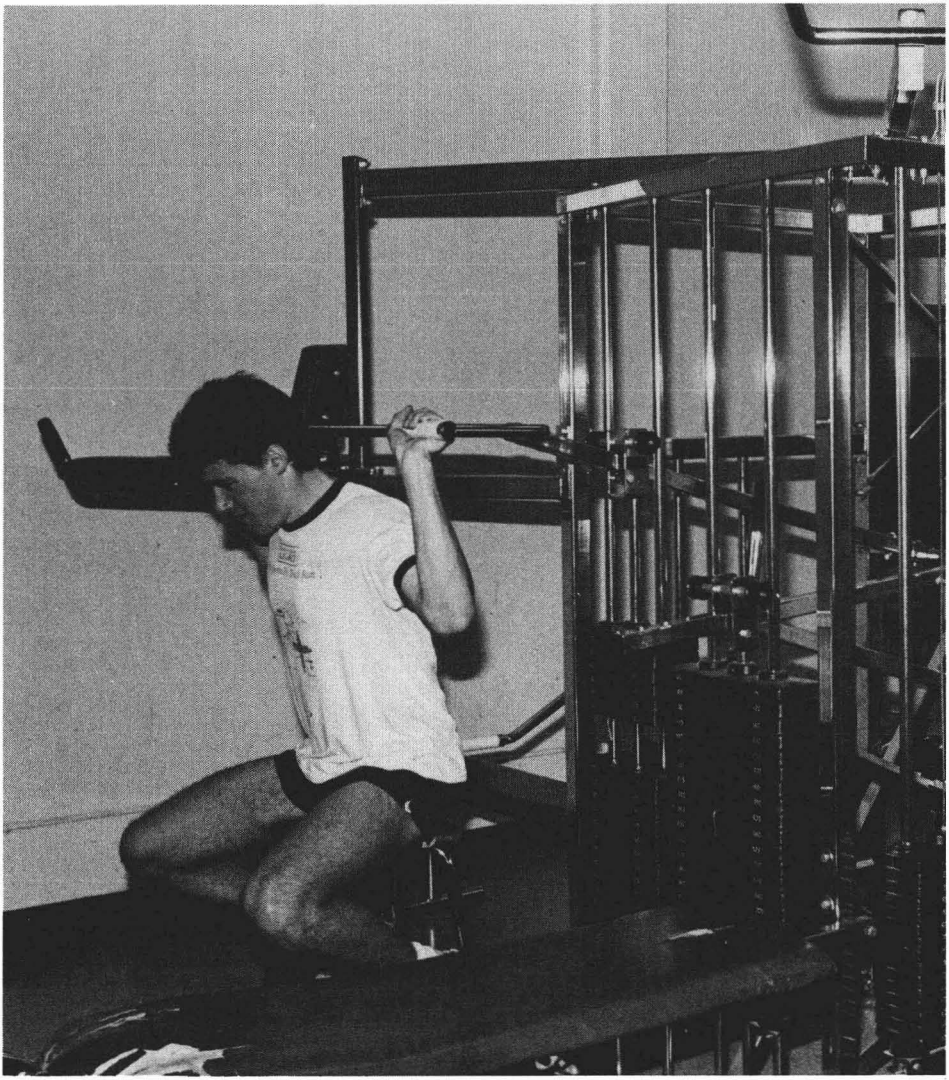
527. Advanced Medical-Surgical Nursing II. (3)

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}

595. [508, 512, 515, 518, 521, 528] Advanced Nursing Field Work.
[Advanced Psychiatric Mental Health Nursing Clinical Practicum;Advanced Teaching in Nursing Practicum; Advanced Administration in Nursing Practicum; Advanced Community Health Nursing Clinical Practicum; Advanced Clinical Practicum: Maternal and Child Nursing;Advanced Medical-Surgical Clinical Practicum] **(2-5)**
Prerequisites: 506 and 507. Total of 5 credits required.

599. Nursing Thesis I. (1-6)
See the Graduate Programs Bulletin for total credit requirements.



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COLLEGE OF PHARMACY

William M. Hadley, 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.

A Master of Science degree in Pharmaceutical Sciences with concentrations in Hospital Pharmacy, Radiopharmacy, Toxicology and Pharmacy Administration is offered. A Doctor of Philosophy in Pharmaceutical Sciences with a concentrations in Toxicology and Pharmacy Administration is offered. Inquiries should be addressed to the chairperson of the Pharmacy Graduate Committee.

The mission of the College of Pharmacy is to improve the health and welfare of the citizens of New Mexico, the nation and - commensurate with resources - other nations through provision of excellence in pharmaceutical education pharmacy-related research and pharmacy service.

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 pharmacy and other health sciences professions in the state of New Mexico. The New Mexico Poison and Drug Information Center of the College of Pharmacy provides poison information for the public and health care institutions, as well as drug information support for health professionals. All services are provided 24 hours a day. Cooperative education, research, and service programs exist between the College and the University of New Mexico Hospital and the Veterans Administration Medical Center. The College of Pharmacy also operates a centralized radiopharmacy 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 practice in interesting and satisfying positions. Opportunities in community pharmacy practice 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 nuclear pharmacists, manufacturing pharmacists, medical service 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. Limited numbers of pharmacists are engaged as administrators in pharmaceutical organizations and editing or writing for pharmaceutical publications. Positions as research scientists in the pharmaceutical industry 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.

Financial Aid

In addition to financial aid that is available to University students generally, certain scholarships, awards and loans are available specifically to students in the College of Pharmacy. Information and applications for scholarships may be obtained from the Chairperson, Scholarship Committee, College of Pharmacy.

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 excellent scholastic achievement and demonstrated financial need.

Robert T. Shmaeff Scholarship. The income from the Robert T. Schmaeff fund is available for scholarships to pharmacy students. Awards are made on the basis of these criteria: excellent scholastic achievements and demonstrated financial need.

A. Conner Daily Scholarship. The income from the A. Conner Daily 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. Scholarships are made available by pharmacist(s) who elect to donate their grant to UNM College of Pharmacy. Each scholarship is to be presented to an outstanding student based on a criterion of excellance determined by the Dean and the Scholarship Committee. Our criteria is need and scholarship.

The Arthur B. Hall and Annie Mae Hall Pharmacy Scholarship. The income from a 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 scholastic achievement and need. The scholarship is made possible by an annual cash award from the El Paso Division of McKesson Drug Company.

National Association of Chain Drug Stores (NACDS) Scholarship. NACDS supports undergraduate pharmacy education and encourages talented students to pursue careers in community pharmacy practice through scholarship grants. One recipient per year -- a pharmacy student in the second or third professional year of study who has demonstrated interest in the community practice of pharmacy.

Numerous annual awards are also available through the College of Pharmacy. These include the K-Mart Corporation Scholarship Award, Osco Drug Pharmacy Scholarship Award, Regent Drugs Scholarship Award and Thrifty Drug Scholarship Award. The criteria for each of these awards are available through the Scholarship Committee in the 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.

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Laws Relating to Licensure as a Pharmacist

In order to become eligible for licensure as a registered pharmacist a person must graduate from an accredited College of Pharmacy, register as a pharmacist intern, and serve a designated period of internship. If the internship requirement is completed, 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 under the New Mexico Pharmacy Act are as follows: "an applicant shall: be not less than 18 years of age, have completed not less than 30 semester hours or the equivalent thereof in an accredited college of pharmacy, and meet other requirements established by regulation of the Board of Pharmacy."

The qualifications for registration as a pharmacist by examination under the New Mexico Pharmacy Act are as follows: "an applicant shall: be not less than 18 years of age and not addicted to drugs or alcohol, hold a degree from an accredited college of pharmacy, have not less than one year of internship experience, and pass an examination prepared and administered by the Board of Pharmacy."

Additional information on registration as a pharmacy intern and licensure as a pharmacist may be obtained from the New Mexico Board of Pharmacy, 4125 Carlisle, 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 after 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 and biology; physics; mathematics, to include at least two years of algebra and one year of geometry and trigonometry; four years of English; one year of social sciences and/or humanities; and two years of a foreign language. 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 College of Pharmacy offers a residency program in Radiopharmacy (Nuclear Pharmacy) accredited by The American Society of Hospital Pharmacists. Individuals participating in the residency must be concurrently enrolled in the academic program which leads to the M.S. degree with a concentration in Radiopharmacy. This combined training program normally is completed over a two year period. Applicants are primarily selected from individuals who are practicing registered pharmacists eligible for licensure or reciprocity in the state of New Mexico who have been admitted by the Office of Graduate Studies to pursue the M.S. concentration in Radiopharmacy. 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 Requirements

The College of Pharmacy admits students for the 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 section of this catalog.

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

2. (a) A grade point average of at least 2.2 on all hours attempted in all colleges and universities

   or

   (b) If the cumulative grade point average in (a) is less than 2.2, a grade point average 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 grade point average 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.

Application Procedures

From University College

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 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 tran script(s),
(3) Personal, Biographical and Educational Information form.

The deadline for receipt of application and credentials is no later June 15.

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.

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 course.
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 the Assistant Dean in the College.
4. A student in the College of Pharmacy will be placed on *College of Pharmacy Probation* if the student's cumulative grade point average in *pharmacy courses* falls below a 2.0.
5. A student on *College of Pharmacy Probation* is subject to dismissal from the College of Pharmacy if the student's cumulative grade point average in pharmacy courses does not significantly improve during the first probationary period (Fall/Spring only-Summer excluded).
6. A student dismissed from the College of Pharmacy is not permitted to register for any courses offered by the College of Pharmacy. However, a student dismissed from the College of Pharmacy may transfer to another college in the University subject to that college's regulations. A student dismissed from the College of Pharmacy may not apply for readmission to the College of Pharmacy for a minimum period of one calendar year from the date of dismissal. No student will be readmitted to the College of Pharmacy after a second suspension/dismissal.

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, 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 advisor for all pre-pharmacy students.

The Assistant Dean is the academic advisor 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.

* Note that two (2) copies of the the official transcript(s) are required---one for the University of New Mexico Office of Admissions and one for the College of Pharmacy.

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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 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, 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 Introductory Studies 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.

DUAL CREDIT

College of Pharmacy fifth-year students (Fall or Spring) are permitted to count up to nine (9) credits for both undergraduate and graduate credit, provided they are in excess of the 128 credits normally needed when a B.S. degree is awarded, apply to the Office of Graduate Studies in advance of the coursework, and have at least a 3.0 GPA.

CURRICULUM LEADING TO THE BACHELOR OF SCIENCE IN PHARMACY

FIRST YEAR
(Preprofessional Year)
First Semester

Engl 101 Wrtg w/Rdgs in Expos	3
Chem 121L Gen Chem	4
*Math 180 Calc for Life Sci I	3
**Nonprofessional electives	6
	16

Second Semester

Engl 102 Analytical Wrtg	3
Chem 122L Gen Chem	4
*Math 181 Calc for Life Sci II	3
***Biol 123L Biol for Hlth Rel Sci	4
**Nonprofessional elective	3
	17

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
Nurs 239 Path I	2
Physcs 151 Gen Physics	3
Pharm 343 Pharm Calculations	2
	16

Second Semester

Chem 302 Organic Chem	3
Chem 304L Organic Lab	1
Biol 238 Hum Anat and Physiol II	3
Biol 248L Hum Anat and Physiol Lab II	1
Nurs 240 Path II	2
Physcs 152 Gen Physics	3
Nonprofessional elective	3
	16

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
	18

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
	16

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
	14

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
	18

* Math 162 is accepted in lieu of Math 180 and 181.
** Nonprofessional electives: For acceptable course see "Graduation Requirements."
*** Biology 121L and 122L is accepted in lieu of Biology 123L.

FIFTH YEAR
(Fourth Professional Year)

The fifth-year pharmacy curriculum consists of a program of supervised practical experience in clinical clerkships, a hospital pharmacy externship, and a community pharmacy externship. In addition, each student is required to complete Pharmacy Law, Introduction to Nuclear Pharmacy, and 13 hours of professional elective courses.

The following represents the curriculum for fifth-year students:

First and Second Semester Combined

*Pharm 433L Clin Phar Rota I	4 sem hours (180 clock hours)
Pharm 457L Hosp Phar Extern I	4 sem hours (180 clock hours)
Pharm 435L Comm Phar Extern I	4 sem hours (180 clock hours)
**Pharm 410 Intro Nuclear Pharm	1 sem hours
Pharm 422 Pharm Law	3 sem hours
***Professional electives1	3 sem hours
Total	29 credit hours

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 provided that the student satisfactorily completes a total of 10 hours of Radiopharmacy elective courses. 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:

Jerry L. Born, Ph.D., University of Iowa
Scott W. Burchiel, Ph.D., Univeristy of California (San Francisco)
William M. Hadley, Ph.D., Purdue University
Hugh F. Kabat, Ph.D., University of Colorado
William G. Troutman, Pharm.D., University of California (San Francisco)

ASSOCIATE PROFESSORS:

George B.Corcoran III, Ph.D., George Washington University
William B. Hladik III, M.S., University of Kansas (Kansas City)
Joachim J. Hermann, Ph.D., University of Michigan
H. William Kelly, Pharm. D., University of Minnesota
Paul L. Mann, Ph.D., University of Toronto
Reynaldo V. Saenz, Ph.D., University of Texas (Austin)
Mark A. Stratton, Pharm.D., University of Missouri (Kansas City)
Roland L. Watkins, Ph.D., University of Iowa

ASSISTANT PROFESSORS:

Robin L. Davis, Pharm.D., University of Washington
Mark T. Holworth, Pharm.D., State University of New York (Buffalo)
Dennis W. Raisch, Ph.D., University of Arizona
Judy L. Raucy, Ph.D., Utah State University
Glynn G. Raymond, Ph.D., Northeast Louisiana University
Michael T. Reed, Pharm.D., University of Missouri (Kansas City)
Mary Ann Smith, Ph.D., University of Texas(Austin)

PROFESSORS EMERITI:

George Baker, Ph.D., Purdue University
Carman A. Bliss, Ph.D., Purdue University(Dean Emeritus)
G. Philip Lehrman, Ph.D., University of Connecticut
Kenneth H. Stahl, Ph.D., University of Maryland

PHARMACY (PHARM)

239. Pharmacy Pathophysiology I. (2) Colleges of Nursing/Pharmacy Staff
(Also offered as Nurs 239.) A beginning course in human pathophysiology for pharmacy and nursing students. Space restrictions limit admission to enrolled pharmacy students or by permission of instructor. *Special fee of $3.00.*
Pre- or corequisite: Biol 237 or 239. {Fall}

240. Pharmacy Pathophysiology II. (2) Colleges of Nursing/Pharmacy Staff
(Also offered as Nurs 240.) Continuation of Pharm 239. Special fee of $3.00.
Pre- or corequisite: Biol 237 or 238. {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, posology, toxicology, and pharmacy.
Pre- or corequisites: Biol 237-238 or 136-139L. (Open only to students in the College of Nursing and in the Dental Hygiene Program.) {Fall, Spring}

291. Pharmacy Orientation. (1) Watkins
An introduction to the College of Pharmacy program. Opportunities in professional pharmacy practice, internship/externship requirements and an interduction 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) Davis, Kelly, Reed, Stratton, Troutman
Lectures on various O.T.C. Drugs and Products. Emphasis on the pharmicist's role in O.T.C. counseling. Additionally, the student is exposed to aspects of effective communication skills.
Prerequisites: Pharm 291 or permission of the instructor. {Spring}

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* All students are required to take at least one Clinical Pharmacy Rotation in the Poison and Drug Information Center.

** Students are not required to complete Pharm 410 if they alternatively satisfactorily complete Pharm 416 and Pharm 417L.

*** 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, College of Pharmacy. No more than three hours of Problems in Pharmacy will be counted toward graduation.

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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, anti-toxins, and immunotherapeutic agents.
Prerequisite: Biol 239 or permission of instructor. {Spring}

343. Pharmaceutical Calculations. (2) Hermann
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: Physcs 151 and 152, Math 182 and 183, and Pharm 343 (or concurrent enrollment in Pharm 343). 3 lectures, 1 hr. recitation. {Fall}

346. Pharmaceutics II. (3) Raymond
Study of the classification, fundamental principles, processes, and biopharmaceutics of pharmaceutical dosage forms.
Prerequisites: 343, 345. Corequisite: Concurrent enrollment in Pharm 346L. {Spring}

346L. Pharmaceutical Formulations (1). Raymond
A course designed to introduce the student to the principles of extemporananeously preparing non-sterile and sterile phramaceutical formulation.
Prerequisites: 343, 345. Corequisite: Concurrent enrollment in Pharm 346. {Spring}

373. Pharmacology I. (3) Raucy
Study of the general principles of pharmacology followed by study of antimicrobials and antineoplastics.
Pre- or corequisites: 239-240, Biol 237-238, Chem 423. {Spring}

***402. 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, anti-toxins, and immunotherapeutic agents.
Prerequisite: Biol 239 or permission of instructor. {Spring}

410. Introductory Nuclear Pharmacy. (1) Hladik
Provides basics of nuclear pharmacy, primarily dealing with clinical applications of radiopharmaceuticals for the diagnosis and treatment of human diseases.
Prerequisites: 431, 432, 442. {Fall}

411. Nuclear Pharmacy Instrumentations.(3)
Interactions of radiation with matter and the detection and measurement of radiation in a nuclear pharmacy or a nuclear medicine laboratory.
Prerequisite: permission of instructor. {Fall}

***413. Radiopharmacy Health Physics and Radiation Biology. (3)**
Fundamentals of the biological effects of ionizing radiation on living systems, especially man; basic biological mechanisms which bring about somatic and genetic effects. Concepts of radiation protection, radiation dosimetry, radiation monitoring and x-ray health physics.
Prerequisites: Physcs 152 and permission of instructor. {Spring}

416. Radiopharmacology.(3) Hladik, Sibbitt
Radiophramaceuticals are discussed in detail. Topics include a review of pertinent anatomic and physiologic aspects of organ systems evaluated by nuclear medicine prodedures; mechanisms and kinetics of radiotracer localization; physiochemical properties o radioactive drugs; preparation, quality control, and clinical use of radiopharmaceuticals.
Corequisite: 417L or permission of instructor {Fall}

417L. Practical Nuclear Pharmacy. [Radiopharmacy Rotation I.] **(3)** Hladik
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.
Prerequisites: 343, 442. {Fall, Spring}

418L. Clinical Nuclear Pharmacy. (3) Hladik
Involvement in clinical aspects of radiopharmacy practice including interprofessional communications; clinical consultations and problem solving; scan analysis. Role of radiopharmaceuticals and nuclear medicine in patient is stressed. Patient case studies are presented.
Prerequisite: 416, 417L. {Spring}

***419. Radiopharmacy Management.** [Radiopharmacy Operations] **(1)** Levit
Focuses on unique principles and procedures used in the operation of commercial radiopharmacies.
Pre- or corequisite: 417L or permission of instructor. {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) Watkins
Laws and regulations relating to the practice of pharmacy. Includes federal and state drug laws, and review of current health-related legislation.
Prerequisite: 445L. {Spring}

424. Pharmacy Retailing Management. (3) Watkins
General management activities involved in the operation of a community pharmacy. Includes planning and control, administration, human relations, community relations, location analysis, purchasing, inventory management and insurance. {Spring}

425. Seminar in Pharmacy Administration. (2-3) Kabat, Raisch, Watkins
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: 292 or permission of instructor. {Fall, Spring}

426. Pharmaceutical Marketing. (3) Kabat
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: 291. {Spring}

***427. International Pharmacy. (3)** Kabat
Strategic, administrative and organizational problems associated with managing the drug supply in both industrial and thirdworld nations.

***431. Clinical Therapeutics I. (4)** Davis, Kelly, Reed, 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; corequisites: 461, 475. 3 lectures, 2 hrs. conference. {Fall}

***432. Clinical Therapeutics II. (4)** Davis, Kelly, Reed, Stratton, Troutman
Continuation of 431.
Prerequisites: 475, 431; corequisites: 462, 476. 3 lectures, 2 hrs. conference. {Spring}

***433L. Clinical Pharmacy Rotations I. (1-4)Δ** Davis, Kelly, Reed, Stratton, Troutman
A directed experience with the student functioning at a professional level as a member of a health care team.
Prerequisites: 432, 442, 462, 476. Faculty reserves the right to "even out" enrollment within several sections of433L. {Summer, Fall, Spring}

***434L. Clinical Pharmacy Rotations II. (1-3)Δ** Davis, Kelly, Reed, Stratton, Troutman
Optional rotations in clinical pharmacy.
Prerequisites: 432, 433L, 442, 462, 476. Faculty reserves the right to "even out" enrollment within several sectionsof 434L. {Summer, Fall, Spring}

435L. Community Pharmacy Externship I. (4)Δ Raisch
Professional practice experience in community pharmacy under the guidance of Pharmacy practitioners.
Prerequisite: 445L. {Summer, Fall, Spring}

436L. Community Pharmacy Externship II. (1-3) Raisch
A continuation of Pharmacy 435L.
Prerequisite: 435L. {Summer, Fall, Spring}

437. Therapeutic Drug Monitoring and Drug-Induced Diseases. (3) Davis, Kelly, Reed, Stratton, Troutman
A study of clinical pharmacokinetics and pharmacodynamics of drugs that are commonly monitored with plasma concentration determinations. The most clinically significant drug-induced diseases will be evaluated using an organ systems approach.
Prerequisites: 432, 442, 476. {Fall}

441. Pharmaceutics III. (3) Raymond
A continuation of 346L (Pharmaceutics II).
Prerequisite: 346L. Corequisites: 431, 475. {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. Designed to emphasize the manner in which pharmacokinetic equations are used to develop safe and effective drug dosage regimens.
Prerequisites: 343, 345L, 346L, 441. {Spring}

445L. Dispensing. [Pharmaceutics V] **(1)** Raymond
Designed to introduce and prepare the student for the functions of dispensing medications in pharmacy practice.
Prerequisite: 346L. 3 hrs. lab. {Fall}

448. Pharmaceutics for Hospital Pharmacy Practice. (3) Hermann
Extemporaneously compounded preparations relevant to hospital pharmacy practice are discussed using principles and methodologies of pharmaceutics. Special emphasis is placed on understanding the rationale of stability- and solubility-related incompatibilities in intravenous therapy.
Prerequisite: 442. {Spring}

***451. Institutional Pharmacy Practice. (3)** Kabat
Objectives, principles, and methods for the organization of comprehensive pharmaceutical services in meeting modern patient care goals in organized health care settings.
Prerequisite: 291. {Fall, Spring}

453. Medication Errors. (2) Raymond
A study of the existence of medication errors, reasons for these errors, and suggested methods to prevent them from occurring.
Prerequisites: 346, 346l, 432, 476. {Fall}

454L. Projects in Hospital Pharmacy Practice. (2-3) Kabat
Administrative field project in any area of hospital pharmacy practices.
Prerequisite: permission of instructor. 9 hrs. lab. {Fall, Spring}

457L. Hospital Pharmacy Externship I. (3-4)Δ Raisch
Professional practice experience in hospital pharmacy under the guidance of pharmacy practitioners.
Prerequisite: 445L. {Summer, Fall, Spring}

458L. Hospital Pharmacy Externship II. (1-3) Raisch
An optional continuation of Pharm 457L.
Prerequisite: 457L. {Summer, Fall, Spring}

***459. Sterile Products. (3)** Raymond
Theory and application of principles involved in the formulation, preparation, packaging, and sterilization of sterile pyrogen-free products. Sterile techniques and control procedures are stressed.
Prerequisites: 431, 441, 475. 3 lectures. {Spring}

***459L. Sterile Products Lab. (1)** Raymond
Application of the principles involved in the formulation, preparation, packaging, and sterilization of sterile pyrogen-free products. Sterile techniques and control procedures are stressed.
Prerequisites: 431, 444, 475; corequisite: 459. 4 hrs. lab.

461. Organic Pharmaceutical Chemistry I. (3) Born
A study, from the chemical viewpoint, of organic substances used in pharmacy and medicine.
Prerequisite: Chem 301, 302, 423. Corequisite: 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
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
Stresses the application of the principles of medicinal chemistry to biochemical systems of toxologic significance. Content will be drawn from current literature to emphasize contributions of medicinal chemistry to biochemical toxicology.
Prerequisite: 463. {Spring}

***475. Pharmacology II. (4)** Burchiel
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)** Corcoran
A continuation of 475.
Prerequisite: 475 or permission of instructor. {Spring}

477. Immunotoxicology. (2) Burchiel
Prerequisites: fifth year standing, 302, 476, or permission of instructor. {Fall}

***480. General Toxicology. (4)** Smith
An indepth introduction to the basic principles and concepts of toxicology. Categories of chemicals causing toxic effects, the manner of exposure to toxic substances, the environmental and biological effects and laws and regulations will be considered.
Prerequisite: fifth year or graduate standing. {Fall}

481. General Toxicology II. (2) Smith
A continuation of Pharm 480/580.
Prerequisite: General Toxicol I (Pharm 480/580.) {Spring}

482. Clinical Toxicology.(3) Troutman
Study of the acute toxicity in humans of drugs as well as household, environmental, and industrial chemicals with

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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: 432, 442, 476. {Fall}

485. Biochemical Toxicology.(3) Raucy
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.
Prerequisite: Chem 423 or equivalent. {Fall}

***487. Pollution Toxicology. (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: 476 or permission of instructor. {Fall}

***488. Toxicology of Natural Products. (2)** Smith
The sources of biologically active natural chemicals, such as alkaloids, mycotoxins, and marine toxins, and their effects on humans and animals, will be discussed. The consequences of exposure and the mechanism of toxicity will be highlighted.
Prerequisite: Chem 423 or equivalent. {Fall, Spring}

497. Problems in Pharmacy. (1-5)ΔΔ
Research and library problems in some phase of pharmacy.
Prerequisite: permission of instructor. {Fall}

498. Problems in Pharmacy. (1-5)ΔΔ
Research and library problems in some phase of pharmacy.
Prerequisite: permission of instructor. {Spring}

511. Nuclear Pharmacy Instrumentation. (3)
Prerequisite: permission of instructor. {Fall}

512. Radiopharmaceutical Chemistry. (2)
Prerequisites: Chem 302 or equivalent, and permission of instructor. {Fall}

516. Radiopharmacology. (3) Hladik
Prerequisite: Permission on instructor {Fall}

518. In-Vitro Radiotracer Procedures. (2)
Prerequisites: 411 or 511 and permission of instructor. {Spring}

519L. Instrumentation and In Vitro Lab. [Radiotracer Laboratory] **(2)**
Prerequisite: 411 or 511 and permission of instructor. Corequisite: Phram 518. {Spring}

521. Radiopharmaceutics. (2) Hladik
Prerequisite: 516 or permission of instructor. {Spring}

522. Legislative Controls. (3)

523. Clinical Nuclear Medicine. (1) Sibbitt
Prerequisites: 411 or 511, Biol 238 or equivalent, or permission of instructor. {Fall}

535. Administrative Clerkship. (3-5)

544. Special Problems. (3-5)

545-546. Pharmacy and Its Environment. (3, 3) Kabat, Raisch

549. Advanced Pharmacokinetics. (3) Hermann
Prerequisite: 442. {Fall}

552. Pharmacy Resource Management. [Institutional Pharmacy Practice II] **(3)** Kabat
Prerequisites: graduate status, 451 or permission of instructor. {Fall, Spring}

553. Administrative Hospital Pharmacy. (3) Kabat
Prerequisites: graduate status, 451 and 552. {Fall, Spring}

554. Project in Pharmaceutical Sciences Field. (2-5)
Prerequisites: graduate student status and permission of instructor. Field study off-campus. {Summer, Fall, Spring}

555. Drug Information. (2) Troutman
Prerequisites: 433. graduate status or permission of instructor. {Spring}

564. Chemistry of Xenobiotics. [Advanced Pharmaceutical Chemistry II] **(3)** Born
Prerequisite: 463. {Spring}

577. Immunotoxicology. (2) Burchiel
Prerequisites: fifth year standing, 302, 476, or permission of instructor. {Fall}

***580. General Toxicology I. (3)** Smith
Prerequisite: Graduate standing. {Fall}

***581 General Toxicology II.** [Pesticide Toxicology] **(2)** Smith
Prerequisite: General Toxicol I (Pharm 480/580) {Spring}

585. [585L] Biochemical Toxicology.(3) Raucy
Prerequisite: Chem 423 or equivalent. One 3 hour lab/week. {Fall}

586. Toxicology Research Conference. (1) {Fall, Spring}

587. Pollution Toxicology. (2) Hadley
Prerequisite: 476 or permission of instructor. {Fall}

588. Toxicology of Natural Products. (2) Smith
Prerequisite: Chem 423 or equivalent. {Fall, Spring}

591. Seminar in Administrative Pharmacy.(1) Kabat
Prerequisites: graduate status. {Fall, Spring}

592. Seminar in Radiopharmacy. (1)

593. Seminars in Toxicology. (1)
May be counted once toward graduation credit.

597. Research Problems in Pharmaceutical Sciences. (1-5)
Prerequisites: graduate status and permission of instructor.{Summer, Fall, Spring}

598. Topics in Pharmaceutical Sciences. (1-3)
{Summer, Fall, Spring}

599. Thesis. (1-6)
See the Graduate Programs Bulletin for total credit requirements.

699. Dissertation. (1-9)
See the Graduate Programs Bulletin for total credit requirements.

DIVISION OF PUBLIC ADMINISTRATION

F. Lee Brown, Division Director
Division of Public Administration
Social Science Bldg, Room 3020 277-3312

THE DIVISION OFFERS an interdisciplinary Master of Arts in Public Administration for the professional preparation of persons presently employed or interested in public service careers at all levels of government. The degree is also offered through the Santa Fe Graduate Center.

The Division offers concentration areas for persons interested in natural resources administration, health services administration, budget-financial management, tribal administration, criminal justice administration, and personnel administration. It is not necessary to choose a concentration and many students select a general program. Joint degree programs with the School of Law, and Community and Regional Planning enable students to earn both degrees on a coordinated basis.

For a description of the curriculum leading to the Master of Public Administration degree, see the Graduate Programs Bulletin.

COURSES OF INSTRUCTION

PROFESSORS:

F. Lee Brown, Ph.D., Purdue University
T. Zane Reeves, Ph.D., University of Southern California
Leonard Stitelman, Ph.D., University of Colorado

ASSOCIATE PROFESSORS:

Timothy J. De Young, Ph.D., Claremont Graduate School
Bruce J. Perlman, Ph.D., Claremont Graduate School
Alan B. Reed, Ph.D., University of Texas
Jose A. Rivera, Ph.D., Brandeis University

LECTURER:

John G. Bretting, M.A., University of Houston

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

PUBLIC ADMINISTRATION (PUB AD)

***421. Introduction to Public Management. (3)**
(Also offered as Pol Sc 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.)

500. Contemporary Public Administration. (3)
(Also offered as Pol Sc 500.)

521. Administrative Behavior. (3)

522. Administrative Process. (3)
(Also offered as Pol Sc 522.)

523. Administration of Urban and Local Government. (3)

524. Intergovernmental Administrative Problems. (3)

525. Public Personnel Administration. (3)

527. Employee Relations in the Public Sector. [Labor Management Relations in the Public Sector] **(3)**

530. Health Services Administration. [Health Care Administration] **(3).**

535. Comparative Public Administration. (3)
(Also offered as Pol Sc 535.)
Prerequisite: 500 or permission of instructor.

536. Social Policy and Planning. (3)
(Also offered as CRP 536.) (Fall, Spring)

540. Administration of State Governments. (3)

544. Public Budgeting and Financial Management. (3)

545. Economics of the Budget Process. (3)
(Also offered as Econ 445.)

546. Public Financial Administration. (3)

550. Automation in Public Management. (3)

551. Problems. (1-3 hrs. per semester)
Prerequisite: permission of instructor.

553. Professional Paper. (1-3)
Must be taken by all students who are not pursuing the thesis option.

555. Workshop for Interns. (1-3 hrs. per semester, to a maximum of 6)
Prerequisite: permission of instructor.

560. Public Policy and Aging. (3)

569. Rural Community Development. (3)
(Also offered as CRP 569.)

570. Pro-seminar in Public Policy. (3)
(Also offered as Pol Sc 570.)

574. Seminar on Environmental Policy and Administration. (3)

575. Seminar: Energy Policy and Administration. (3)
(Also offered as Econ 343 and CRP 575.)

577. Practice of Policy Development. (3)
(Also offered as CRP 577.) Required for the dual MPA-MCRP degree.

580. Criminal Justice Administration. (3)

585. Tribal Administration. (3)

590. Division Seminar. (3)

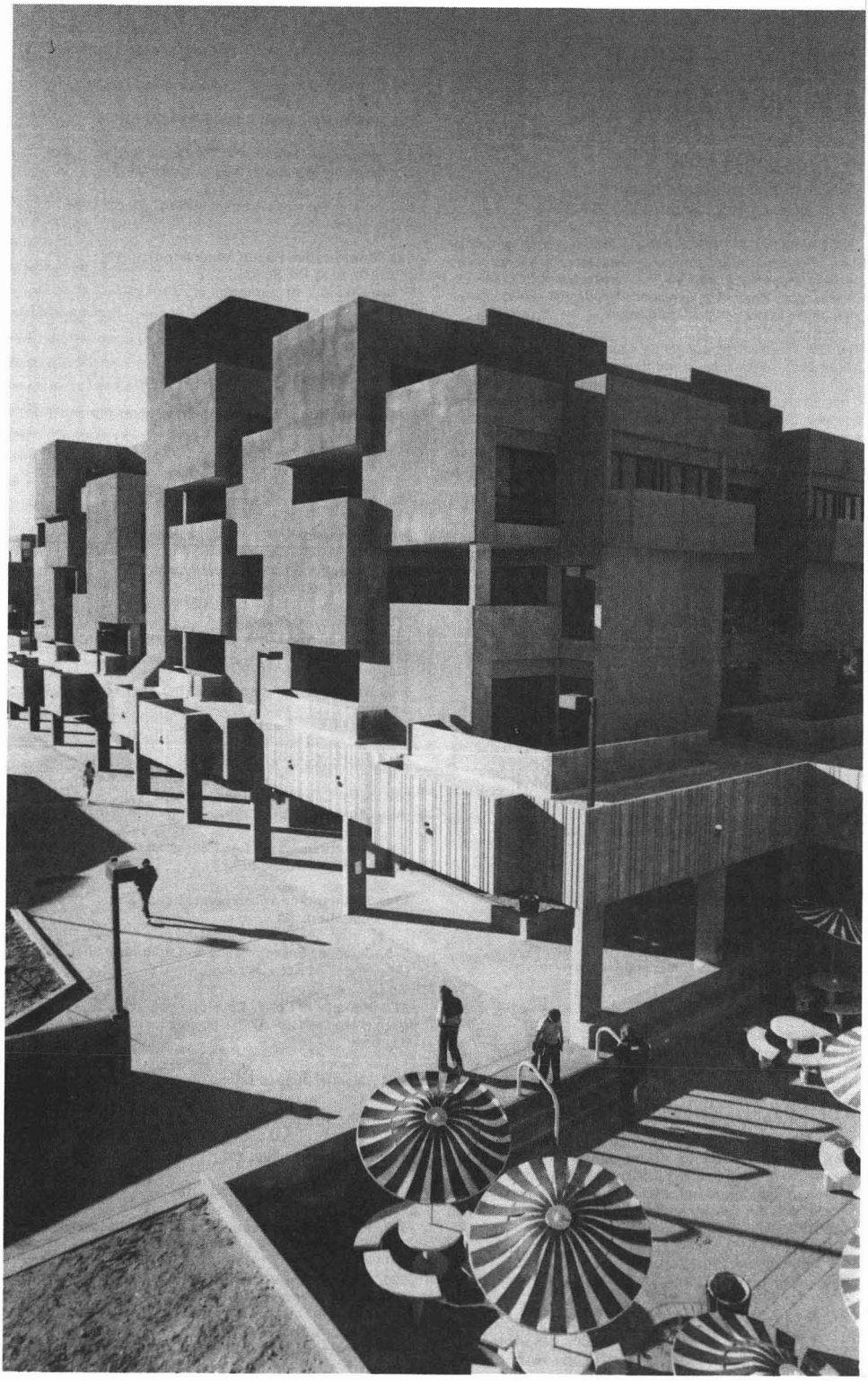
596. Field Research Methods. (3)

597. Program Evaluation. [Research Methodology] **(3)**
Prerequisite: 500.

598. Quantitative Methods in Public Administration. (3)
Prerequisite: permission of instructor.

599. Master's Thesis. (1-6 hrs. per semester)
See the Graduate Programs Bulletin for total credit requirements

Symbols - See page 379



UNIVERSITY COLLEGE

John R. Rinaldi, Dean
University College Rm. 20
277-2631

THE UNIVERSITY COLLEGE is an academic division of the University of New Mexico that incorporates the University College, the Assessment and Counseling Services, the Bachelor of University Studies degree program, the Associate Degree in Business Technology, and University College Introductory Studies.

University College

All freshmen meeting the admission requirements for baccalaureate level work at UNM, together with many lower division transfer students, are admitted to and enrolled in the University College.

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 to 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 advisor prior to registration for their first semester.

Some new freshmen must meet directly with a University College advisor. These students are those who are:

- Required to take three or four Introductory Studies courses, or
- Required to take both Engl 100 and Soc Sci 100, or
- Engineering-bound freshmen who are required to take Math 100 or Math 120 (or who have ACT Math scores 1-17, or ACT Composite scores 1-17).

University College students with a definite major in mind or with a preference in an academic area should 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 should meet with a Special Advisor 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 Advisors of University College endeavor to be consultants, referral sources, and friends. The advisors 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 advisors 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.

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 reenroll 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 introductory studies 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 instance 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.

Symbols - See page 379

For scholastic regulations governing academic probation and suspension, see the General Academic Regulations section of this catalog. Determination of the minimum required grade point average of a 1. 70 or 2.00 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 grade point average of at least 2.0 on all hours attempted; or
   (b) A 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 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 hours attempted to at least 30. (See definition of grade point average in this catalog.)

It should be noted that most degree colleges have admission requirements beyond the minimum 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 initiate the transfer procedures at the *college of their intended major. 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. This should be done no later than the last day of each semester. 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).

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.

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 grade point average of 1. 70 through the semester or session in which the total of college credits earned first becomes 60 or more.

Assessment and Counseling Services

Assessment and Counseling Services, located in the University College Building, (below the Student Health Center), fulfills three major functions for UNM students: (1) A diagnostic service for learning disability, (2) A counseling service, and (3) A major testing service.

Assessment and Counseling Services offers a complete educational diagnostic service which includes evaluation in the areas of intellectual expectancy, academic achievement,and auditory and visual processing abilities. Most full diagnostic *evaluations are designed specifically for* students suspected of having a learning disability; however, testing is available for students in other areas as well. Following all evaluations, an extensive written report is compiled and reviewed with the student during a follow-up appointment. With the consent of the student, the Diagnostic Unit will work closely with other University personnel in conveying this information in order to maximize each students academic potential. Counseling services specific to the above student's needs are available through this unit. Personality typing as well as academic/vocational areas of interest are also assessed and integrated with the student's individual learning style. In addition, counseling services are available to any student with personal problems which may interfere with his or her learning experience.

The Testing Center administers many national testing programs related to University admission such as the Graduate Record Examinations, Miller Analogies Test, Law School Admission Test, ACT (American College Test), GED (high school equivalency test), the National Teacher's Examination, and numerous community oriented testing programs. The Center is also responsible for the administration of the various programs internal to the University, such as testing for placement, challenge, and admission. The Center also administers many inventories (personality, career interests, values, etc.) used as counseling aids to enhance self-understanding.

Information concerning the above services may be obtained by calling Assessment and Counseling Service (277-5345).

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 used 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 Advisors 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. Question 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 Catalog.

Admission to B. U. S. Program

Transfer 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 Engl 102 with a grade of C or higher;
   (b) Passing the Pre-Professional Skills Test (PPST);
   (c) Passing the CLEP exam comparable to English 102;
   (d)Passing the Advance Placement Examination comparable to Engl 102.

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 UNM's general 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 grade point average. The required entry advisement interview must be held no later than the end 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 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. Program. **However, students are solely responsible for completing all the requirements for graduation.** No credit is recognized for Mathematics 100, Natural Science 100 courses, Social Science 100 courses, nor for credits in English 100 or 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-NP 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. 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.

Associate Degree Programs

Business Technology. The core curriculum includes courses in economics, accounting, management, business law, and business communication. The degree qualifies persons for positions as basic retail managers, as entry-level bookkeepers and accountants, and as supervisors or department heads.

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 are older or nontraditional students, many with full-time jobs or families, many courses are scheduled for the late afternoon or evening.

UNM also offers associate degree programs administered by colleges other than through University College. These include programs in dental hygiene, human services, pre-engineering, radiological technology, elementary education and educational foundations.

Introductory Studies Program

Many students come to UNM without the 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.

UNM provides a special environment for this preparation. University College offers not only the Academics series, but also Introductory Studies courses in English, Mathematics, Natural Science and Social Science. All of these classes are small and faculty members are selected with emphasis on their teaching ability. These classes are also offered in the afternoon or evening to accommodate working students or students with family responsibilities. Students have increased access to individualized academic counseling, program planning, and tutoring, both through the University College's facilities and such outside programs as the Center for Academic Program Support (CAPS) located in Zimmerman Library.

Symbols - See page 379

BUSINESS TECHNOLOGY

Janice Corzine, Director
University College 21-D
277-7996

ASSISTANT PROFESSORS:

Janice Corzine, Ph. D., University of New Mexico
Keith E. Wells, M. B. E., University of Colorado

Requirements for an Associate of Applied Science in Business Technology:

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/Behaviorial Sciences, including Math 120.

C. Core Requirements: #

A minimum of 21 hours in the following:

Bus-Tc 107 Economics of the Firm	3
Bus-Tc 108 Accounting I	3
Bus-Tc 109 Accounting II	3
Bus-Tc 115 Basic Management	3
Bus-Tc 218 Business Law	3
Bus-Tc 116 Human Relations in Business	3
Bus-Tc 265 Business Communications	3

D. Speciality in Bookkeeping/Accounting: #

A minimum of 18 hours in the following:

Bus-Tc 120T Bookkeeping Systems and Procedures	3
Bus-Tc 221T Accounting for Product Costs and Costs of Service	3
Bus-Tc 222T Payroll Accounting	3
Bus-Tc 223T Budgeting	3

And one of

Bus-Tc 215T Practicum in Business	3
Bus-Tc 216T Analyzing Financial Statements	3

and one other Business Technology# or general education course of student's choice or CP 101T.

E. Speciality in Retailing: #

A minimum of 18 hours in the following:

Bus-Tc 160 Salesmanship	3
Bus-Tc 161 Retail Merchandising	3
Bus-Tc 162 Fashion Merchandising	3
Bus-Tc 266 Retail Store Management	3
Bus-Tc 267 Purchasing	3

and one other Business Technology# or general education course of student's choice or CP 101T.

F. Speciality in General Business Technology: #

A minimum of 18 hours in the following:

Bus-Tc 131 Intro to Supervisory Practice	3
Bus-Tc 231 Intro to Personnel Practice	3

plus three Business Technology Electives or two Business Technology electives and CP 101T;

plus one Business Technology or general education elective.

G. Any Introductory Studies course taken will add hours to the minimum 63 required and may not be used in fulfillment of the above listed course requirements.

BUSINESS TECHNOLOGY (BUS-TC)

107. 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.

108. 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 109 Accounting, will prepare one for work as an accounting clerk for a large organization or a bookkeeper in a small concern.

109. 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: 108.

115. 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)
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.

120T. Bookkeeping Systems and Procedures. (3)
Emphasis is on the accounting records and procedures necessary in small service and merchandising organizations. Prepares one for work as an accounting clerk for a large organization or as a bookkeeper in a small concern.
Prerequisite: 109.

131. Introduction to Supervisory Practice. (3)
Basic information about supervision. Emphasizes the supervisor's role in planning, training, time management, communication, appraisal, and discipline. Useful for present and future supervisors *and department* heads.

Note: All of the courses with a T following the course number 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.

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.

215T. Practicum in Business. (3)
A student with the permission of the instructor and the cooperation 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 from 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: 120T.

216T. 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: 109.

218. Business Law. (3)
An introduction to the legal environment of business organizations. Topics include common law, constitutional and statutory law, agreements, contracts, and the discharge of contracts. Government regulations and agencies are also discussed.
Prerequisite: permission of instructor.

221T. 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: 109.

222T. Payroll Accounting. (3)
A study of the methods of accounting for payroll costs and deductions (including Federal and State payroll taxes). Teaches one how to compute payroll costs and deductions and how to make payroll payments for large and small organizations.
Prerequisite: 120T.

223T. 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: 221T.

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.

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.

266. Retail Store Management. (3)
Operation of a retail business including store location and layout, store organization and operation, store accounting, expense control and finance, store credit, retail store insurance, and customer services will be studied.

267. 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.

293T. Topics. (1-4)
Focuses on topics of special interest in Business Technology. May be repeated for a maximum of nine hours.

COMPUTER PROGRAMMING

Patricia A. Stans, Director
Onate 115
277-6195

ASSOCIATE PROFESSOR:

Patricia A. Stans, Ph. D., New Mexico State University

General Information

The Associate of Applied Science in Computer Programming (AASCP) curriculum is a two year program requiring a general level of academic accomplishment similar to that required in the first two years of full-time study in a baccalaureate program in computer science. The minimum AASCP course requirements define a level of education in computing similar to the baccalaureate minor in computer science. The AASCP program is intended to provide a background in computer programming (methodology and languages) and communicative skills sufficient to prepare AASCP graduates to begin working as junior programmers. Students may target their education toward particular application areas by electing to take courses in appropriate subjects. AASCP graduates can expect opportunities to further their education in computing through courses at UNM, since they may have completed the prerequisites for study at the junior and senior level in computer science. This would be especially true for graduates remaining in the Albuquerque and Los Alamos areas.

The AASCP program accommodates the educational needs of several groups of people. One aim of the program is to allow for the recognition of the accomplishments of students who must discontinue their studies in the baccalaureate program even though they have made significant progress toward the degree. Another function of this program is to provide an interface between the computing programs at the Albuquerque Technical Vocational Institute (TVI) and those at UNM.

Admission

Students wishing to enroll in the AASCP program must satisfy the same admission criteria as students enrolling as freshmen in University College. This is particularly important for the first semester. Students should consult the section on Admission in this Catalog for details on general admission procedures and regulations concerning application for admission to UNM.

Symbols - See page 379

Transfer Credits

Students wishing to apply coursework from other institutions toward the AASCP degree will have their transfer credits evaluated on an individual basis. A tentative evaluation can be made prior to the completion of the first semester of work at UNM. A final evaluation of transfer credits will be made upon completion of a student's first semester in the AASCP program. It is important to note that the criteria employed in the evaluation of transfer credit for the AASCP program and that used for the B.S. program may be different. Courses which apply to the AASCP program may not carry the same weight toward the B.S. in Computer Science. See the section on Transfer Credit in this Catalog for more details concerning the general procedures and regulations concerning transfer credit.

Students who have completed courses in the business data processing program at TVI may receive 24 semester credit hours in general electives for their work at TVI. In cases where students have not received the TVI certificate in BDP transfer credits will be evaluated on an individual basis and with recommendations from designated TVI representatives.

Graduation

Students must complete the equivalent of the following coursework to be eligible to receive the degree of Associate of Applied Science in Computer Programming:

1. 63 semester credit hours of coursework with a GPA of not less than 2.0 for all coursework completed at UNM;
2. English 101 (Writing with Readings in Exposition), and English 102 (Analytic Writing);
3. 6 semester hours in the social and behavioral sciences (anthropology, geography, economics, history, political science, psychology, linguistics, sociology, communication);
4. Math 180 and 181, or Math 162 and 163 (Calculus);
5. Electives depending on the option chosen. *Courses classified as "introductory studies" may not be used to satisfy the requirements for the AASCP degree.* Two hours of physical education courses may be used as electives.

AASCP as a Second Degree

Students already holding or expecting to receive a university degree should contact their academic advisor.

Associate of Applied Science in Computer Programming

The 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 communications	

Computer Science Option

Mathematics	8 hours
Math 162 Calculus I (4)	
Math 163 Calculus II (4)	
Computer Science	22 hours
C S 154 Found of Comp Sci (3)	
C S 155 Intro to Comp Prog (4)	
C S 253 Intermed Prog (4)	
EECE 238L Comp Logic Design (4)	
C S 255 Intro to Comp Systems (3)	
C S 263 Fund of Data Structures (4)	
Electives (Follow Electives for Computer Science Department)	21 hours

Scientific Programming Options

Mathematics	8 hours
Math 162 Calculus I (4)	
Math 163 Calculus II (4)	
Computer Science	21 hours
Engr-F 120L Engr Computing (3)	
C S 154 Found of Comp Sci (3)	
C S 155 Intro to Comp Prog (4)	
C S 253 Intermed Prog (4)	
EECE 238L Comp Logic Design (4)	
C S 255 Intro to Comp Systems (3)	
Electives (depending on the student's specific area of interest in Computer Programming). Eight hours must must be in a Laboratory science.	22 hours

Business Programming Option

Mathematics	6 hours
Math 180 Elements of Calculus I (3)	
Math 181 Elements of Calculus II (3)	
Computer Science	20 hours
C P 101T Intro to Comp Concepts (3)	
C S 150 Comp for Bus Students (3)	
C S 154 Found of Comp Sci (3)	
C S 155 Intro to Comp Prog (3)	
C S 237 Intro to Data Proc (3)	
C S 253 Intermed Prog (4)	
Electives (depending on the student's specific area of interest in Computer Programming). Twelve hours must be in the Business area.	25 hours

COMPUTER PROGRAMMING (C P)

101T. Introduction to Computer Concepts. (3)
An elementary intoduction to computing concepts. Topics include descriptions of computer systems and languages, and using a computer to solve business problems.
No prerequisite.

150T. 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: 101T or equivalent.

NATURAL SCIENCE (NS)

No major or minor offered.

261. Physical Science. (4)
(Also offered as CIMTE 260.) 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. For elementary and middle school teachers only.
Prerequisite: permission of instructor.

262. Life Science. (4)
(Also offered as CIMTE 262.) Deals with man's peaks of discovery in biology. For elementary and middle school teachers only.
Prerequisite: permission of instructor.

263. Environmental Science. (4)
(Also offered as CIMTE 263) A lecture and activity course with the populaiton-environmental degradation-resource use problem. For Pre-service elementary and middle school teachers.

INTRODUCTORY STUDIES

ASSISTANT PROFESSORS:

Kathleen D. Matthews, Ph. D., University of New Hamphire
Joyce Rogers, Ph. D., University of New Mexico
Jerome P. Shea, Ph. D., University of New Mexico

INSTRUCTORS:

Clare Intress, M. A., University of New Mexico
Edward G. Mahoney, Ph. D., University of New Mexico

ENGLISH (IS-E)

100. Writing Standard English. (3)
Intensive study of grammar, syntax, punctuation, and usage. Concentrated practice in basic composition skills for students who score 16 or below in English on the ACT. Does not satisfy A&S group requirements. **Offered on a CR/NC basis only.** {Summer, Fall, Spring}

MATHEMATICS (IS-M)

100. Arithmetic and Introductory Algebra. (3)
Arithmetic and introductory algebra for students who are not prepared to begin at the intermediate algebra level, having scored 11 or below in Mathematics on the ACT. **Offered on a CR/NC basis only.** {Summer, Fall, Spring}

NATURAL SCIENCE (IS-NS)

100. Natural Science. (4)
For Students who score 17 or below in Natural Science on the ACT, or who are admitted with a Natural Science deficiency. 2 lecture, 3 1-hour discussion/laboratory sessions. Cannot be used for credit toward the biology major or minor. **Offered on a CR/NC basis only.** {Summer, Fall, Spring}

SOCIAL SCIENCE (IS-SS)

100. Social Science. (3)
For students who score 13 or below on Social Science on the ACT or who are admitted with a Social Science deficiency. Study of American Southwest from several social science perspectives. **Offered on a CR/NC basis only** {Summer, Fall, Spring}

NOTE: An increasing number of incoming students are electing to take the Scholastic Aptitude Test (SAT) rather than the American College Test (ACT). Those students who score 360 or below on the SAT Verbal must take E100, those who score 340 or below on the SAT Quantitative must take M100, and those with a combined score of 750 or below must take Natural Science 100 and Social Science 100.

ACADEMICS

120. Introduction to Academic Strategies. (3)
Strategies for successful academic achievement, including techniques for productive time management, effective notetaking from lecture and text, greater reading proficiency, competent testtaking, and basic library practice. Open to any student enrolled in the university. {Summer, Fall, Spring}

121. Introduction to Academic Concepts. (3)
Further development of academic vocabulary, critical thinking, and research skills. Readings from humanities and sciences as well as past and present cultures analyzed as "models" of thought, e. g., different concepts of time, heroes, etc. {Summer, Fall, Spring}

160. Freshman Forum. (3)
Orientation in major subject areas of the humanities and sciences; development of reading, critical thinking, and class discussion skills; introduction to independent research and use of specialized library resources. For students who score 24 or higher on the ACT.
Prerequisite: permission of instructor. {Fall, Spring}

Symbols - See page 379

INTERDISCIPLINARY STUDIES AND SPECIAL PROGRAMS

ETHNIC STUDIES

AFRICAN-AMERICAN STUDIES

Shiame Okunor, Director, Academic Affairs
Mesa Vista 1130
277-5644

Johanna (Juba) Clayton, Director, Student Services
Mesa Vista 1130
277-5645

FACULTY:

Mohamed Ali, M. A., University of New Mexico
Robert Harding, J. D., University of Kentucky
Pamelya Herndon, J. D., University of Texas
Lenton Malry, Ph. D., University of New Mexico
Elwood McDowell, Rev., M. A., University of New Mexico
Shiame Okunor, Ph. D., University of New Mexico
Howard Ross, Ph. D., Southern Illinois University
Admasu Shunkuri, Ph. D., University of Kansas
Susan Srubek, Ph. D., University of New Mexico
Cortez Williams, Ph. D., University of New Mexico

African-American Studies is an interdisciplinary minor-degree granting program. Some of the courses are cross-listed with Political Science, Educational Foundation, American Studies, English, Communications and other departments. All the courses may be taken toward a degree, substitutes for required courses with prior approval of the students' major department, or as electives.

MINOR DEGREE: GENERAL

The General Minor requires twenty-four (24) hours of African-American Studies courses which include Afro A 101, 103, 284, 299, or 309, and twelve (12) hours of 300 level or above courses of which not more that three (3) hours may be earned through independent study or problem courses; substitution of courses from other discipline is possible with prior departmental approval.

PLAN A

101 Intro to Swahili/Arabic I	3
103 Fdn of Afro-Amer Studies	3
284 Afro-American History I	3
299 Black Leaders in the U.S.	3
or 300 Blacks in Politics	
300 & above electives (Afro A)	9
391 Problems	3
	24

MINOR DEGREE: SPECIALIZED

The Specialized option requires twenty-four (24) hours and must have emphasis in economics, anthropology, history or other disciplines offering adequate relevant courses. Students are required to take twelve (12) hours of Afro A courses and the remaining twelve (12) hours out of the department of emphasis. A minimum of six (6) of the twelve (12) hours from each of the two departments must be 300 level or above. Afro A 284, and 285 are required for this option.

PLAN B

284 Afro-American History I	3
285 Afro-American History II	3
300 & above electives (Afro A)	6
300 & above electives (concentration)	6
Concentrations: history, economics, anthropology, psychology, political science, sociology, etc.	6
	24

PLAN C

(Art & Science majors only)

The Afro-American Studies minor required twenty four (24) hours, consisting of a core, and an elective area in a department of the college.

The required core consists of fifteen (15) hours, devided into two parts:

A. 1. Afro A 284 Afro-American History I
   2. Afro A 285 Afro-American History II
B. (These courses must be crosslisted by the relevant Arts & Sciences department, or be taken as courses in such department)
   1. Afro A 329 African Politics (*Political Science*)
   2. Afro A 333 Black Political Theory (Pol. Science)
   3. Afro A 397 Afro-American Literature (English)
      or
      Afro A 380 African Literature (English)
      or
      English 411 (when topic is appropriate)

The elective area consists of nine (9) hours, all of which must be taken in one of the following departments: Political Science, Economics, Anthropology, History, English. A list of approved courses is one file with the Afro-American Studies.

African-American Studies and the African-American Student Services program provide academic advisement and personal counseling. Financial aid, grants, loans, admission assistance, free tutorial assistance, and scholarship information are *also available*.

These activities are augmented by sponsorship of the following univesity-community projects: Mary McLeod Bethune Resource Library, The After School Academy, Youth Summer Program, Student Emergency Loan Fund, and the "Black Experience" television program.

AFRICAN-AMERICAN STUDIES (AFRO A)

101. Swahili I. (3) Staff
Foundation course for all beginning students interested in reading or speaking the language. *(Fall)*

102. Swahili II. (3) Staff
Foundation course for all beginning students interested in reading or speaking the language. {Spring}

103. Foundation of African-American Studies. (3) Okunor
An exploration of the philosophical basis for the creation and the existence of Afro-American Studies program. {Fall, Spring}

105. Elementary Arabic I. (3) Ali
A course in elementary modern standard Arabic.

190. Survey of Africa. (3) Ali
An introductory course on Africa, its society, culture, policy and economy from pre-historic past to the contemporary scene.

200. Research Methods. (3) Srubek
Offers students information on basic research methodology and analyzing research materials on minorities. Students will be involved in research experiences with persons of a minority or ethnic group different from their own.

205. Elementary Arabic II. (3) Ali
A course for those with very minimum exposure to modern Arabic Language.

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) Herndon
A comprehensive survey of the role 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) C. Williams
A comprehensive survey of the story of Afro-Americans from pre-European days in Africa to the Civil War, U. S. {Fall}

285. Afro-American History II. (3) C. Williams
This course will explore each of the major historical events, Black leaders of those times and their influence on the social and political advancement of Afro-American from the Civil War to the present.
Prerequisite: 284. {Spring}

294. Institutional Racism. (3) P. Herndon
A study of the pervasive nature and the broad effects of race-influenced institutional decisions; the differences inthe legal definition of institutional and individual racism.

297. Interdisciplinary Topics. (1, 2, 3)
Special topic courses in specialized areas of Afro-American Studies. Community Economic Development; Black Experience, Race and American Law; Culture and Personality.

299. Black Leaders in the U. S. (3) A Shunkuri
A comparative study of major Afro-American leaders and their impact on race relations in the United States. {Spring}

305. Civil Rignts Politics & Legislation. (3) A. Shunkuri
An analysis of the dynamics of the major events, issues andactors in the civil rights movement (and legislations) in view of the theories of U. S. politics.
Recommended Prerequisite: 103

309. Black in Politics. (3) Malry
(Also offered as Pol Sc 309.) A study of the history and diverse educational and political maturation processes of elected Afro-American officials and the political process function. {Fall}

329. Introduction to African Politics. (3) Shunkuri
(Also offered as Pol Sc 329.) An introductory course in the volatile politics in Africa. The various ideologies that underlie political movements and influence African governments will be explored.
Recommended Prerequisite: 190

333. Black Political Theory. (3) Shunkuri
Survey course of the literature and philosophy of the Black Diaspore.

380. African Literature. (3) Ali
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.

385. The African World. (3) Shunkuri
An interdisciplinary introduction to the study of Africa; its political and economic geographies, its traditional and new societies, and its politics in global perspectives.
Recommended prerequisite: 190

387. Blacks in Latin America I. (3) Williams
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. 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 Philosphers. {Spring}

391. Problems. (1-3) Okunor, Shunkuri, Williams
{Summer, Fall, Spring}

395. Education and Colonial West Africa. (3) Okunor
A study of European Education and its psychological, sociological and cultural impact on traditional African society. {Fall, Spring}

***397. Interdisciplinary Topics. (1, 2, 3)Δ**
Special topic courses, in specialized areas of Afro-American Studies. Afro-American Literature; Socio-Politics: Africa, Culture and Education, Politics of Southern Africa. {Fall, Spring}

Related Courses

Ed Fdn 290. Foundations of Education. (3) Okunor
An introduction to the philosophical, social, historical, and comparative foundations of education.

Ed Fdn *493. Topics. (1-3) Okunor
Comparative Education. African emphasis. {Fall, Spring}

CHICANO STUDIES

Tobias Duran, Academic Coordinator
1829 Sigma Chi NE
277-6414, 2965

COORDINATOR:

Tobias Duran, Ph. D., University of New Mexico

Chicano Studies was established in 1969; it is an interdisciplinary program of study focusing on the Southwest. In 1980 Chicano Studies established and merged with the Southwest Research Institute. The mission of Chicano Studies and the Southwest Institute is to create knowledge and to disseminate it through courses, seminars, forums, and publications. Following is a partial list of courses sponsored by Chicano Studies through various departments.

Symbols - See page 379

Am St 241: The Chicano Experience in the United States. (3)

Am St 286: Introduction to Southwest Studies. (3)

Am St 341: History of Conflict in New Mexico. (3)

Engl 211-001: Chicano Literature. (3)

Engl 211-004: Southwest Literature. (3)

Hist 283: La Raza: A History of Mexican Americans. (3)

Hist 320: Mexico-Chicanos through Film. (3)

Hist 398: Mexico since 1821. (3)

Pol Sc 308: Chicano Politics. (3)

Soc 326: Sociology of New Mexico. (3)

Span 301: Southwest Culture. (3)

Span 316: Southwestern Hispanic Folklore. (3)

Span 437: Chicano Literature and Thought. (3)

NATIVE AMERICAN STUDIES

DIRECTOR: Ted Jojola, NAS/INAD
Native American Studies Center
1812 Las Lomas NE,
277-3917

Courses sponsored by Native American Studies are offered through various academic departments. Instructors are experts in their field and most are Native Americans. Course content and topics vary from semester to semester. Consult current Schedule of Classes for latest offerings.

Presently, a degree option at the Bachelor's level is being considered. Students should also consult directly with prospective graduate programs for degree specializations with Native American topic emphasis. Existing specializations include programs in Art, History, American Studies, Anthropology, Education, Engineering, History, Law and Linguistics.

Native American Studies (NAS) is the academic component of *the Native American Studies Center. The other component* is the Institute for Native American Development (INAD). NAS coordinates academic programming. INAD activities include publications, research, and the sponsorship of special events.

Staffed by Native American professionals, the Center sponsors various programs throughout the year. The Center also serves as a gathering and meeting place for Native American students *and receives and disseminates information pertaining to* academic and career development. The Center houses a small resource library, faculty/staff offices, student workroom, and micro computer facility.

Am St 221. Southwest Indian Communities. (3)

Am St 321. Indian in a Multicultural Setting. (3)

Am St 322. Five Civilized Tribes. (3)

Am St 326. The Indian in American Popular Culture. (3)

Anth 237. Indians of New Mexico. (3)

Anth 255. Ancient Peoples of the Southwest. (3)

Anth 260. Southwest (Native American) Crafts in Context. (3)

Anth 284. Ancient Mexico. (3)

Anth 305. The American Indian: North America. (3)

Anth 306. South American Indians. (3)

Anth 315. Current American Indian Problems. (3)

Anth 337. Ethnohistory of the Southwest. (3)

Anth 338. Southwest Indians II: Modern. (3)

Anth 356. Southwest Archeology. (3)

Anth 371. Images of the Indian in American Culture. (3)

Anth 385. American Archeology: North America. (3)

Anth/Art Hi 402. American Indian Art I. (3)

Anth/Art Hi 403. American Indian Art II. (3)

Anth 405. North American Indian Languages. (3)

Arch/Art Hi 343. Pre-Columbian Architecture. (3)

Art Hi 280. Native American Art. (3)

Art Hi 411. Pre-Columbian Art I. (3)

Art Hi 412. Pre-Columbian Art II. (3)

Art Hi 559. Seminar in Native American Art. (3)

CRP 473. Planning Process and Issues of Native American Reservations. (3)

Econ 340. American Indian Economic Development. (3)

Econ 439. Topics in American Indian Economic Development. (1-6)

Engl 211. Topics in Literature, Indian Autobiographies. (3)

Engl 397. Regional Literature: Native American Traditional. (3)

Engl 397. Regional Literature: Native American Contemporary. (3)

Hist 369. American Indian History. (3)

Hist 574. Seminar in American Indian History. (3)

Law 584. Indian Law. (2, 3)

Law 648. Tribal Governments. (2)

Law 684. Problems in Indian Law. (2)

Law 685. Seminar on Indian Child Welfare Issues. (2)

M Lang 105. Reading and Writing Keresan. (3)

M Lang 302. Advanced Navajo. (3)

Navajo 101-102. Elementary Navajo. (3, 3)

Navajo 105. Written Navajo. (3)

Navajo 201-202. Intermediate Navajo. (3, 3)

Navajo 206. Creative Writing and Advanced Reading. (3)

Navajo 301-302. Advanced Navajo. (3, 3)

Navajo 401. Navajo Linguisitcs. (3)

Navajo 497. Undergraduate Problems - Navajo Language. (1)

Navajo 551. Graduate Problems - Navajo Language. (1-6)

Quechu 311-312. Introduction to Quechua. (3, 3)

Pol Sc 310. Native Americans and Government. (3)

Pub Ad 585. Tribal Administrations. (3)

W St 233. American Indian Women. (3)

GENERAL HONORS

Charles Biebel, Director
Humanities Bldg. 118
277-4211

FACULTY:

Marlene Arieno, Ph. D., University of New Mexico
Charles Biebel, Ph. D., University of Wisconsin (Madison)
Jean P. Hedberg, Ph. D., University of New Mexico
Susan Kilgore, Ph. D., University of New Mexico
Rosalie C. Otero, Ph. D., University of New Mexico
Kenneth Peterson, B. A., University of New Mexico
Ron Reichel, Ph. D., University of New Mexico

The General Honors Program

The General Honors Program is designed to increase opportunities for liberal education by offering intensive interdisciplinary seminars for undergraduates from all UNM colleges and schools. The program is housed in the Honors Center, Humanities Building, Room 112. Participation in this program, leading to graduation with Honors in General Honors, 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.

Honors seminars are offered at the 100, 200, 300, and 400 levels: the Freshman Core Legacy courses offer an introduction to basic ideas in Western culture while 200 and 300 level seminars deal more specifically with various interdisciplinary topics. Lower division students are not necessarily restricted to 100 and 200 level courses but may take other Honors courses with permission.

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 Honors are:

1. Completion of 3 credit hours in freshman core seminars.
2. Completion of 9 credit hours at the 300 level or above, including 403 or 404. Limited exception to these requirements may be granted by the Director of the Program.
3. Completion of 6 additional credit hours selected from any General Honors courses or from courses offered in the Undergraduate Seminar Program.
4. A 3. 2 overall grade point average.
5. 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. 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 Honors are encouraged to undertake Departmental Honors as well.

The Undergraduate Seminar Program

Each semester the General Honors 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 Honors.

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.

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 many colleges. For information on such applicability the student should apply to the office of the dean of the appropriate college.

Symbols - See page 379

THE GENERAL HONORS PROGRAM (GN HON)

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.

111-112. Freshman General Honors Seminar. (3, 3)
Broad, general reading and class discussion for freshmen with senior General Honors students acting as discussion leaders *under faculty direction. {Fall, Spring}*

121-122. Freshman General Honors Core Seminar. (3, 3)Δ
Surveys of major ideas basic to the intellectual, historic, and artistic traditions of Western Culture. One core seminar required for graduation. {Fall, Spring}

199. Concurrent Enrollment Seminar. (1-3)Δ
The nature of the class will vary from semester to semester. Content interdisciplinary, covering such areas as history, philosophy, and literature. The course will not duplicate any departmental offering.

211-212. Sophomore General Honors Seminar. (3, 3)
Broad, general reading and class discussion for sophomores with senior General Honors students acting discussion leaders *under faculty direction.*

219. General Honors Special Seminar. (1-3)
A flexible, open topics seminar to be used particularly for experimental courses; that is, seminars which are not generally a part of the regular Honors curriculum.

221-222. Sophomore General Honors Seminar. (3, 3)Δ
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)ΔΔ

301-302. Honors Seminar. (3, 3)Δ
Selected seminar topics of an educationally broadening and *generally interdisciplinary nature taught by specially selected* faculty. Instructors and topics will vary from semester to semester. {Fall, Spring}

399. Individual Study. (3, 3)ΔΔ
(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)ΔΔ
Educationally broadening seminars of various options specially designed to meet the needs of senior students in the program. Required for graduation, except when waived by Director. {Fall, Spring}

THE UNDERGRADUATE SEMINAR PROGRAM (U S P)

Topics and instructors vary from section to section and from semester to semester. Open to all undergraduate students. No prerequisites. Enrollment limited to 18 students per class. Grading on A/CR/NC or CR/NC only system. (May be 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)Δ
Various sections, various topics each semester.

333-334. Seminars in the General Area of the Sciences. (1, 1)Δ
Various sections, various topics each semester.

335-336. Seminars in the General Area of the Social Sciences. (1, 1)Δ
Various sections, various topics each semester.

337-338. Interdisciplinary Seminars. (1, 1)Δ
Various sections, various topics each semester.

MILITARY STUDIES

David A. Srite Capt. USN, Commanding Officer
Naval Science Building
277-3744

Kerry G. Herron, Col. USAF, Commanding Officer
Aerospace Sciences Building
277-4502

Randall G. Quimby, Capt. USA, Commanding Officer
Military Science Building
277-1891

MAJOR STUDY

Not offered.

MINOR STUDY (ARMY OPTION)

The minor in Military Studies (Army Option) is available to students in the Army ROTC program.

The minor requires 24 hours, including 18 hours in Army courses offered by the Army ROTC program and six hours in elective courses offered by Departments of the College of Arts and Sciences. Normally, students will complete the 18 hours in Army by completing the course of studies under the listing for Department of Army.

MINOR STUDY (AIR FORCE OPTION)

The minor in Military Studies (Air Force Option) is available to students in the Air Force ROTC program.

The minor requires 22 hours, including 16 hours in Aerospace Studies and six hours in elective courses offered by Departments of the College of Arts and Sciences. Normally, students will complete the 16 hours in Aerospace Studies by completing the Air Force ROTC course of studies described under the listing for Department of Aerospace Studies.

MINOR STUDY (NAVY OPTION)

The minor in Military Studies (Navy Option) is available to students in the Naval ROTC Program.

The minor requires 22 hours, including 19 hours in Naval Science and three hours in elective courses offered by Departments of the College of Arts and Sciences. Normally, *students will complete the* 19 hours in Naval Science by completing the Naval ROTC course of studies described under the listing for Department of Naval Science.

ΔΔ May be repeated for credit with permission of program director.

MINOR STUDY (MARINE CORPS OPTION)

The minor in Military Studies (Marine Corps Option) is available to students in the Naval ROTC program.

The minor requires 22 hours, including 16 hours in Naval Science and six hours in elective courses offered by Departments of the College of Arts and Sciences. Normally, students will complete the 16 hours in Naval Science by completing the Naval ROTC course of studies described under the listing for Department of Naval Science.

Reserve Officer Training Corps

Air Force ROTC

Kerry G. Herron, Col., Commanding Officer
AFROTC Detachment 510
(Aerospace Studies Building)
1901 Las Lomas
277-4502

PROFESSOR:

Kerry G. Herron, Col., USAF, M. P. S., Auburn University

ASSISTANT PROFESSORS:

Samuel D. Batten, Capt., USAF, M. S., Michigan State University
Dennis R. Ochocki, Capt., USAF, M. B. A., New Mexico Highlands University

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, analyis, 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 noncredit leadership laboratory each semester.

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), the 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 the POC, normally between the sophomore and junior years.

TWO-YEAR OPTION. 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 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, books, and $100 per month subsistence throughout the academic period that the scholarship is in effect. Scholarships are available for 4, 3 1/2, 3, 2 1/2, and 2 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. Undergraduate or graduate students applying for the two-year program should process as early as possible in the school year *prior* to the following fall term in which they wish to enter the POC. Specifics may be obtained by contacting the Air Force ROTC staff members at 1901 Las Lomas NE. A $10 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). 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 normally offered to freshmen and sophomores. The GMC totals approximately 120 hours, consisting of 60 hours of academics and 60 hours of leadership laboratory over two years. The academics are not sequential and are offered on alternate years.

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 for juniors and for seniors. The POC totals approximately 240 hours, with 180 hours of academics and 60 hours of leadership laboratory over two years. Aerospace 300 (fall semester) and Aerospace 301 (spring semester) are taught on alternate years with Aerospace 400 (fall semester) and Aerospace 401 (spring semester). All four courses are required, but AS 300/301 may be taken before or after AS 400/401. 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 by rotating positions and task responsibilities among cadets. These experiences take place within the cadet corps, led and managed by cadets.

Symbols - See page 379

Department of Aerospace Studies

General Military Course

Fall Semester

AF ASP 150 Development of Air Power	1
AF ASP 010 Leadership Laboratory	0

Spring Semester

AF ASP 151 Development of Air Power	1
AF ASP 010 Leadership Laboratory	0

Alternate Year

Fall Semester

AF ASP 200 The Air Force Today	1
AF ASP 010 Leadership Laboratory	0

Spring Semester

AF ASP 201 The Air Force Today	1
AF ASP 010 Leadership Laboratory	0

Professional Officer Course

Fall Semester

AF ASP 300 Air Force Management and Leadership	3
AF ASP 010 Leadership	0

Spring Semester

AF ASP 301 Air Force Management and Leadership	3
AF ASP 010 Leadership Laboratory	0

Alternate Year

Fall Semester

AF ASP 400 National Security Forces in Contemporary American Society	3
AF ASP 010 Leadership Laboratory	0

Spring Semester

AF ASP 401 National Security Forces in Contemporary American Society	3
AF ASP 010 Leadership Laboratory	0

COURSES OF INSTRUCTION

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 reponsibilities of an Air Force officer. Enrollment in the laboratory is required.

150. Development of Air Power. (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. {Fall}

151. Development of Air Power. (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. {Spring}

200. The Air Force Today. (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. {Fall}

201. The Air Force Today. (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. {Spring}

300. Air Force Management Leadership. (3)
Emphasizes the individual as a manager in an Air Force environment. The individual motivational and behavioral processes, leadership, communication, and group dynamics are covered to provide a foundation for the development of professional skills as an Air Force officer. {Fall}

301. Air Force Managment Leadership. (3)
Emphasizes the individual as a manager in an Air Force environment. The individual motivational and behavioral processes, leadership, communication, and group dynamics are covered to provide a foundation for the development of professional skills as an Air Force officer. {Spring}

400/ National Security Forces in Contemporary American Society. (3)
(Also offered as Pol Sc 245.) 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}

401. National Security Forces in Contemporary American Society. (3)
(Also offered as Pol Sc 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. {Spring}

ARMY ROTC

Randall G. Quimby, Captain, Commanding Officer
Military Science Building
277-1891

FACULTY:

Randall G. Quimby, Captain, B. S., University of Utah
Billy Joe Biberstein Jr., Captain, B. S., Virginia Commonwealth University
Philip J. Allen, Captain, B. S., Regis College
Robert D. Tobin, Captain, B. S., South Dakota State University
Ricky D. Hill, Master Sergeant
Mary V. Jefferson, Staff Sergeant, B. S., Southern Illinois University

The Army Reserve Officer Training Corps at UNM provides the qualified and motivated students an opportunity to earn a commission as a United States Army officer while earning a degree and offers several financial programs that can help with education expenses.

The UNM Department of Army administers the Army ROTC program and offers courses that challenge the student both

mentally and physically. The Army curriculum uses adventurous and challenging activities and academics to stress leading, organizing, and motivating other people. The course includes management techniques to recognize, compare and evaluate various courses of action that utilize resources of people, time and money.

The UNM Army Reserve Officer Training Corps graduate will be a qualified leader ready to accept responsibility in both the military and the private sector and be an asset to the defense of the United States and the management of civilian enterprise.

The ROTC commissioning curriculum consists of a four-year program divided into the Basic Course and the Advanced Course. There are several curriculum variations that compress or waive all or part of the four-semester Advanced Course.

BASIC COURSE

The Basic Course is a general introduction to the Army. It consists of Army 101, 102, 201, 202 with concurrent enrollment in 099 each semester. Any non-scholarship student may enroll in any Basic Course class without incurring a military obligation. Initial instruction is designed to give a working knowledge of the Army, with study in military leadership, management and land navigation.

One variation of the Army program allows the student to compress the Basic Course requirements into one year and then proceed with the Advanced Course. With another variation, students with prior military service may elect to waive the requirements of the Basic Course and begin the Advanced Course.

Students who have completed two years of undergraduate work may join the Two-Year ROTC Program. This begins with a basic six-week summer training camp. Completion of this "basic camp", for which the student is paid, allows the student to enter the Advanced Course.

It is now possible for a student to belong to a National Guard or US Army Reserve unit simultaneously with ROTC enrollment. Upon completion of basic and individual training, the student can qualify for the Two-Year ROTC Simultaneous Membership Program (SMP) and join the Advanced Course.

ADVANCED COURSE

The Advanced Course is open to those students who have completed the Basic Course or who have had the Basic Course requirement waived. Each student must meet the physical and aptitude qualifications established by the Department of the Army. The Advanced Course consists of Army 301, 302, 401, 402, and are normally taken in sequence. Each course requires concurrent enrollment in 099. The course work objective is to train and develop leaders and gain experience in organizing and managing a project. This ability to take charge of an assignment and complete it is useful in every area of our society.

To enroll in the Advanced Course, the student must sign a contract agreeing to complete the commissioning program and accept a commission as a second lieutenant either in the active Army, the National Guard or the U. S. Army Reserve. After completing 301 and 302, each student attends an advanced six-week training camp at Ft. Lewis, Washington. The camp may be delayed in certain cases. All students receive a base pay and mileage allowance. The enrolled student also receives $100 tax-free for each month of the school year.

Upon completion of the Advanced Course, the cadet is commissioned as a second lieutenant in the U. S. Army.

VETERANS, TRANSFERS AND JROTC

Veterans who enroll in the Advanced Course and meet the eligibility requirements may receive placement credit for their experience on active duty. If the student has completed two or more years JROTC training he/she may have all or part of the Basic Course requirement waived at the discretion of the Professor of Military Science (PMS). Qualified students may enter the Army ROTC program from any high school, college or university. Students transferring to UNM with Army, Navy or Air Force experience can transfer those credits to the Army ROTC program. The financial assistance received by the Advanced Course students is in addition to Veterans Administration benefits.

FINANCIAL ASSISTANCE

Army students at UNM may apply for three- or two-year scholarships. Each scholarship pays for books, tuition, required fees and $100 per month during the school year.

All students enrolled in the Advanced Course receive $100 per month for each month of school.

BOOKS, EQUIPMENT AND UNIFORMS

All students enrolling in Army are provided the required books, equipment and uniforms at no expense. Equipment and uniforms must be returned upon completion of the course.

Specifics about the Army ROTC program may be obtained by contacting a staff member at the Department of Military Science building on Las Lomas NE, phone (505) 277-1891.

Department of Army

FIRST YEAR	
First Semester	
Army 101 Intro Milit Science	1
Second Semester	
Army 102 Intro Milit Science	1
SECOND YEAR	
First Semester	
Army 201 Interm Ldrshp Skills	2
Second Semester	
Army 202 Interm Ldrshp Skills	2
THIRD YEAR	
First Semester	
Army 301 Adv Leadership Mgt	3
Second Semester	
Army 302 Thry/Dynamics of Mil Team I	3
FOURTH YEAR	
First Semester	
Army 401 Theory Milit Team II	3
Second Semester	
Army 402 Sem Leadership/Mgt	3
Army 485 Directed Study (optional)	3

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ARMY (ARMY)

099. Leadership Laboratory. (0)
Meets weekly for 1 1/2 hours. 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 Army officer. Enrollment in the laboratory is required for all cadets. {Fall, Spring}

101. Introduction to Military Science. (1)
Provides basic understanding of the Armed Forces: Organization of the Army, and Department of Defense, and customs and traditions of the service; introduction to marksmanship: first aid, and basic map reading. {Fall}

102. Introduction to Military Science. (1)
Provides basic understanding of the Armed Forces: Organization of the Army, and Department of Defense, and customs and traditions of the service; introduction to marksmanship: first aid, and basic map reading. {Spring}

201. Intermediate Leadership Skills. (2)
Land navigation: conversion of grid and magnetic azimuths, intersection and resection, elevation and relief, terrain association; military leadership: organizational structures, first aid, communications skills, human relations, power and influence, and introduction to management skills. {Fall}

202. Intermediate Leadership Skills. (2)
Land navigation: conversion of grid and magnetic azimuths, intersection and resection, elevation and relief, terrain association; military leadership: organizational structures, first aid, communications skills, human relations, power and influence, and introduction to management skills. {Spring}

301. Advanced Leadership Management. (3)
Fundamentals and dynamics of the military team: small unit tactics, field communications, artillery fire and adjustment, application of principles of offensive and defensive operations to the infantry battalion; preparations for advanced summer training. {Fall}

302. Advanced Leadership Management. (3)
Fundamentals and dynamics of the military team: small unit tactics, field communications, artillery fire and adjustment, application of principles of offensive and defensive operations to the infantry battalion; preparations for advanced summer training. {Spring}

310. Military Physical Conditioning. (1)
Physical training and procedures for establishing and conducting a sports program in a military unit. Two semesters are required for commissioning. {Fall, Spring}

401. Theory and Dynamics of the Army. (3)
Advanced principles and dynamics of the military team; command and staff relationships, organization for military operations, logistical support for combat operations, and training management. Leadership laboratory: advanced drill and ceremonies, professional integrity seminars. {Fall}

402. Theory and Dynamics of the Army. (3)
Advanced principles and dynamics of the military team; command and staff relationships, organization for military operations, logistical support for combat operations, and training management. Leadership laboratory: advanced drill and ceremonies, professional integrity seminars. {Spring}

485. Directed Study. (1-3)
Directed study of problems in the field of military science. Prerequisite: 400 level classification with approval of department head.

Naval ROTC

David A. Srite, Capt., USN, Commanding Officer
Naval ROTC
Naval Science Bldg. 130
277-3744

Faculty

Captain David A. Srite, USN, M. P. A., Golden Gate University
Lieutenant Colonel John J. Sullivan, USMC, M. P. A., Golden Gate University
Major Harry W. Gullett, USMC, M. S., Air Force Institute of Technology
Lieutenant Robert A. Stubblefield Jr., USN, B. S., U. S. Naval Academy
Lieutenant Jeffery A. Winkeljohn, USN, B. S., University of New Mexico

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 recieve 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 87131-1301, 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

Second Semester

Nav Sc 105 Naval Ships Sys I 3

SECOND YEAR
First Semester

Nav Sc 201 Naval Ships Sys II 3

Second Semester

Hist 320 St/U. S. Naval History 3

THIRD YEAR
First Semester

Nav Sc 303-303L Navigation 3

Second Semester

Nav Sc 304 Naval Operations 3

FOURTH YEAR
First Semester

Nav Sc 407 Principles of Naval Leadership and Management 3

Second Semester

Mgt 361 Organizational Theory 3

Marine Corps subjects, given below, are substituted by Marine Corps applicants during the junior and senior years:

THIRD YEAR
First Semester

Three Hour Elective 3

Second Semester

Nav Sc 331 Evolution of Warfare 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 Sc 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.

NAVAL SCIENCE (NAV SC)

010. Naval Professional Laboratory. (0)
Drills and information for NROTC students. (30 hours each semester) {Fall, Spring}

100. Principles and Concepts of Naval Science. (1) Gullett
Introduction to the naval service, customs, traditions, courtesies, and naval officers communities. {Fall}

105. Naval Ships Systems I. (3) Winkeljohn
Introduction to naval engineering systems concepts, and practices. Topics include ship design, compartmentation, ship stability, damage control, fire-fighting, and ship propulsion systems. {Spring}

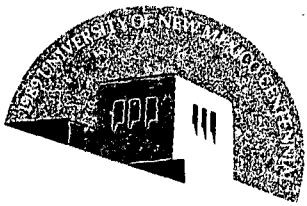
201. Naval Ships Systems II. (3) Winkeljohn
Principles of naval weapons systems. Topics include sensors and detection systems, computational systems, tracking systems, weapon delivery systems, the fire control problem, and new developments in weapon systems integration. {Fall}

303L-304. Navigation and Naval Operations. (3, 3) Stubblefield
Theory, principles, and procedures of ship navigation and employment. Included are spherical rigonometry, 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) Gullett
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}

407. Principles of Naval Leadership and Management. (3) Srite
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) Sullivan
Concepts, techniques, and history of amphibious warfare. The role of the U. S. Marine Corps in the development and implementation of amphibious warfare is emphasized. {Fall} Science.



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GENERAL LIBRARY

Robert Migneault, Dean
General Library, Zimmerman Library
277-4241

The General Library offers courses within an Academic Skills Management series. The series of courses is designed to assist students with the acquisition of lifelong learning, research, and paper writing skills. The Library/Media program is offered through the Educational Foundations Department of the College of Education.

ASSOCIATE PROFESSORS:

Judith Bernstein, M. A., Cornell University; M. L. S., Columbia University
Eulalie Brown, M. P. A., Arizona State University; M. L. S.,Rosary College
Russ Davidson, M. A. T., Colorado College; Ph. D., Vanderbilt University; M. S. L. S., University of North Carolina (Chapel Hill)
Marilyn Fletcher, M. S. L. S., Louisiana State University
Robert Migneault, M. A. L. S., University of Denver
David Null, M. A., College of William and Mary; M. A. L. S., University of Chicago
Connie Thorson, M. A., University of Arkansas (Fayetteville); Ph. D., University of New Mexico M. S. L. S., University of Illinoir (Urbana-Champaign)
James Wright, M. L. S., University of Oregon

ASSISTANT PROFESSORS:

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Joanne Colley, M. L. S., University of Arizona
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Susan Deese, M. A., and Ph. D., University of New Mexico
Carolyn Dodson, M. A., City University of New York; M. L. S., Pratt Institute
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Harry LLull, M. A. L. S., University of Michigan
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Sharon Moynahan, M. A., University of Florida; M. S. L. S., Florida State University
Diana Northup, M. S., University of New Mexico; M. S. L. S., University of Illinois (Urbana-Champaign)
Nancy Pistorius, M. S. L. S., University of Illinois (Urbana-Champaign)
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Dorothy Wonsmos, M. A. L. S., George Peabody College
Sidney Yen, M. A., University of New Mexico; M. L. S., George Peabody College

LIBRARY (LIBR)

110. Academic Skills Management-Learning. (2)
Systems of learning skills emphasizing information processing theory will be studied. Personal systems of study will be developed by each student.
Prerequisite: all required Introductory Studies 100 level courses must be completed.

111. Academic Skills Management-Information. (2)
Library tools will be utilized to support information management/research strategies. Students will investigate their own areas of study/interest.
Prerequisite: any University Skills requirements.

112. Academic Skills Management-Research Paper Development. (1)
Strategies learned in Libr 111 will be utilized to develop a research paper. Writing styles, style manuals, etc. will be studied.
Prerequisite: 111.

WOMEN STUDIES

M. Jane Slaughter, Ph. D., (Acting) Director
Mesa Vista South 2142
277-3854

Patricia Franzen,ABD, (Acting) Associate Director
Mesa Vista South 2137
277-7535

WOMEN STUDIES ADVISORY BOARD:

Beverly Burris, Assistant Professor (Sociology)
Jane Caputi, Assistant Professor (American Studies)
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Carolyn Woodward, Assistant Professor (English)
Jane Young, Associate Professor (American Studies)

Women Studies Mission

Women Studies is an interdisciplinary program which strives to provide equal education for both women and men by making the study of the history and culture of women, generally omitted from the traditional curriculum, the central focus of concentrated scholarship and learning. We are committed to the full integration of multicultural perspectives and female intellectual and leadership models at UNM. We support the

development and application of new theories of feminist studies throughout the university, and work to create an academic atmosphere in which research about women and their achievements can continue to take place and receive serious attention.

Women Studies courses emphasize participatory education, in which student involvement, insight, and intellect are encouraged and made relevant in the learning process. Certain Women Studies courses may be applicable for group requirement credit in various colleges, and our courses are acceptable for elective credit in all colleges. Any student interested in the Women Studies minor, as well as anyone with questions about our academic program, should contact the Program's academic advisor.

WOMEN STUDIES MINOR

The Women Studies minor consists of a multidisciplinary program of 24 credits in courses offered both by the Women Studies Program and by other departments. All minors are required to complete nine (9) hours in the following core courses:

W St 200 Women in Contemporary Society.
either W St 322 Race, Class and the Feminist Movement
or W St 324 Contemporary Feminist Theory
W St 392 Senior Seminar

The remaining 15 hours will be distributed among 4 groups of courses: Women in Cultural Context, History of Women, Social Science Analyses of Women, and Women Studies in the Arts and Humanities. Students must take at least one course from group A, Women in Cultural Context, and at least one course from two other groups. When this distribution requirement is met, the remaining hours may be concentrated in the group or groups the student chooses. At least 9 hours must be in courses numbered 300 or above. Students may not apply to this minor courses included in their programs of studies for their major.

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, Spring}

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. Women in Contemporary Society. (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. La Chicana: Historical. (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)Δ
Can be repeated for credit three times.
Prerequisite: 200 or permission of instructor. {Fall, Spring}

322. 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 backgound, 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)Δ
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. {Fall}

353. Women and Creativity. (3)Δ
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)Δ
Can be repeated for credit three times.
Prerequisites: 200 or permission of instructor. {Fall, Spring}

386. Women in Sports. (3)
(Also offered as PE-P 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}

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.

498. Field Experience. (3)
Planned and supervised work experience in a community agency serving women.
Prerequisites: 200, prior completion of placement procedures

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(including meeting specific training or course work requirements of certain agencies), and permission of instructor. {Fall, Spring}

499. Undergraduate Problem. (1-3)
Student is expected to present a topic for study. Can be repeated for credit three times.
Prerequisite: permission of instructor required before registering. {Fall, Spring}

Related Courses:

Afro Am St 250. Black Women. (3)

Am St 231. Women's Experience in the United States. (3)Δ

Am St 301-302. Interdepartmental Studies in the Culture of the United States. (1-3, 1-3)Δ
Women, Violence & Media.
Women & Ethnicity.
Women, Myth & Madness in Literature.

Am St 331. Classics of Feminism in the United States. (3)

Am St 332. Women and Nature. (3)Δ

Am St 501. Interdepartmental Seminar in the Culture of the United States. (3)Δ
Women, Patriarchy & Pop Culture.

Anth 230. Topics in Current Anthropology. (3)
Women in Anthropological Perspective.

***Anth 340. Biosocial Bases of Women's Health. (3)**

***Anth 341. Biosocial Bases of Sex Roles. (3)**

***Anth 430. Topics in Ethnology. (3)**
Women & Oral Tradition.

Couns 562. Non-Sexist Counseling. (3)

Econ 239. Economic Status of Women. (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)Δ
Women in Literature.
Minority Women Poets.

Engl 315. Interdisciplinary Approaches to Literature. (3)
Women's Literature.

Engl 360. Individual Authors. (3)Δ
Virginia Woolf.

Engl 470. Contemporary Literature. (3)Δ
Contemporary Women Poets.

Engl 511. Special Topics: History of Ideas, Literary Movements, etc. (3)
Twenthieth-Century Women Writers.

***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 544. Seminar in the History of Women. (3)

M Lang 439. Topics. (3)
Women Writers of Latin America.

Mgt 594. Special Topics in Management. (3)
Women in Management.

Nurs 307. Problems in Nursing: Selected Topics. (3)
Women and Health Care.

***Pol Sc 300. Political Topics. (3)Δ**
Women and the Law I and II.
Women and Politics.

Psych 450. Special Topics in Psychology. (1-3)
Psychology of Women.

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
and Community Services
1634 University Blvd NE
277-2527

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. *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 Credit Programs, Division of Continuing Education and Community Services, The University of New Mexico, Albuquerque, New Mexico 87131.

Resident Credit through Continuing Education. Any of the regular University courses may be offered for resident credit in Bernalillo County, subject to appropriate *approval and timelines. Persons interested in offering a* course for resident credit should contact Credit Programs, 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-Degree Students. The Division of Continuing Education supervises the programs and provides academic counseling for all students enrolled in Non-Degree status, as well as maintaining the College office records for these students. Non-degree students may contact the Non-degree advisors at the Division of Continuing Education and Community Services for assistance.

Non-Degree Satellite Registration Center. As a special service for those students enrolling in Non-degree status, a Non-Degree Satellite Registration Center is operated at the Division of Continuing Education and Community Services. Students may apply for admission to to Non-degree status, pay tuition and register for their courses. They may also add or drop classes from their schedule, initiate withdrawal procedures and request overload approval.

NON-CREDIT PROGRAMS

The Community College 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 Training Institute. The UNM Training Institute is a department of the UNM Division of Continuing Education in charge of planning workshops, seminars, conferences, teleconferences and certificate programs for professional and lay people with a variety of career interests. Training programs are available in such diverse subject areas as nursing, computer applications, marketing and sales, engineering, general management skills, small business development, and personnel management. The UNM Training Institute also provides customized, in-house training and consultative services to New Mexico businesses, corporations, government agencies, and community organizations.

Individuals and groups interested in these services should contact the Assistant Dean of the UNM Training Institute, Division of Continuing Education, 1634 University Blvd NE, Albuquerque, New Mexico 87131, 277-9060.

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.

Continuing Education Units (CEU's)

In order to systematically record non-credit educational activities held under responsible sponsorship, capable direction and qualified instruction, and in order to recognize the participation in these activities of individuals seeking occupational and technical competency, or general education enrichment or special knowledge or skills, the University of New Mexico, through the Division of Continuing Education and Community Services, will apply continuing education units (CEU's) to those programs approved for such recognition under the contained guidelines and administrative procedures.

A CEU is defined as follows: Ten contact hours of participation or equivalent in an organized non-credit continuing education experience under sponsorship and direction of the University of New Mexico. The CEU is applicable to the appropriate learning experiences of adults at all levels from post secondary to post doctoral; for all University of New Mexico classes of adult learners, whether vocational, technical, professional, managerial or adults bent on personal improvement; and in all formats of teaching and learning known to the field of education. The CEU is expected not only to provide a record for the individual student, but to provide a measure which can be used by the University to record the amount of its continuing education activity. To apply for the CEU, contact the appropriate Dean in the Division of Continuing Education and Community Services.

University Facilities

The scheduling of campus facilities, other than for the intended purpose of regular university classes, is administered by the Continuing Education Scheduling Office, 277-2527. However, Popejoy Hall, Johnson Gym, North Campus, the South Campus Athletic Complex and The New Mexico Union manage all rentals within their facilities.

The Continuing Education Conference Center

Contained in the nearly 30,000 sq. ft. Conference Center are meeting rooms from 850 sq. ft. to 7,290 sq. ft. Our 540-seat Educational Auditorium is the largest single area in the Center. In addition, we offer 4 meeting rooms, a small conference/ boardroom, a 100-seat dining room (expandable to 300), a modern holding kitchen area, special display area and a separate computer-assisted registration area.

Complete meal service is available through the University Food Service. From meeting breaks with coffee and rolls to complete lunches and dinners, the Center can meet nearly any need.

State-of-the-art video/audio capability. Teleconferencing is an example of the sophisticated facilities available in the Center. Equipped with big screen monitors, two-way communications can be linked to other centers around the globe through satellite uplinks and network downlinks. In addition, if you need videotape or other audiovisual equipment, the University can meet almost anyone's need.

For information on scheduling a meeting room, contact the Division of Continuing Education, 1634 University Blvd NE, Albuquerque, New Mexico 87131, 277-2527.

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. However, the University also operates three branches - 2 year colleges - which provide academic and vocational training leading to certificates, associate degrees and for transfer to baccalauriate programs. Additionally, students are provided with the opportunity to fulfill special academic needs through supplementary programs in extension and independent study.

Most credits earned by students while attending a branch campus 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

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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

The Gallup Campus was established to fulfill the educational need of this large diverse multicultural region. Growth and development will continue in accord with the desires of the people who reside in this service area.

Opened on September 16, 1968, the University of New Mexico--Gallup Branch has grown from operating from the Gallup High School to its present campus on over 80 acres. In October of 1985 the college moved into its new complex. It includes a new fine arts wing, additional classrooms, faculty offices, a student services complex, administrative offices, student food services area and remodeling of the Career Education Building. The Library was also expanded to improve services.

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.

Post secondary educational opportunities are essential in a community the size of Gallup to assist with its economic growth and social changes. 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 to the University of New Mexico main campus, and to other institutions. The Gallup Branch Campus offers thirty-seven different degree and certificate programs in a variety of academic and technical fields. The student may earn an Associate of Science degree in in four areas, an Associate of Arts degree in six areas, or an Associate of Applied Science degree in seventeen specialities.

The College also operates an Adult Basic Education Center on campus and at sites throughout McKinley County. These centers are operated under the jurisdiction of the College Learning Center located on campus. The Centers provide instruction in preparation for the GED test.

The College also serves as an Area Vocational School for high school students. High school students are bussed daily in for three hours of instruction in four areas. Students come to the Gallup campus from the Gallup McKinley County School System, Ft. Wingate BIA School, Rehoboth Christian School, and the Zuni Public School System.

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 Branch was established in 1981. In order to accommodate its rapidly growing full and part-time student population, the Branch moved from its temporary facilities in Belen to a new spacious campus near historic Tome Hill in mid 1986. The new site, located on 150 acres of land overlooking the Rio Grande Valley, provides UNM-VC with one of the most beautiful and impressive campuses in the region.

In accordance with its mission statement, UNM-VC offers high-quality daytime and evening instruction in academic, technical, and continuing education programs. Each program is committed to the philosophy that post-secondary educational opportunities should be available to all persons regardless of age, sex, race, religious affiliation, or handicap. As a comprehensive community college, UNM-VC is especially proud of its superior teaching, small college atmosphere, and model student services operation.

Associate degrees are offered in Business Administration, Business Technology, Computer Science Technology, Construction Technology, Criminal Justice, Education, General Agriculture, General Studies, Human Services and Liberal Arts. Certificates are also available in Banking and Finance, Real Estate, Business Technology, Computer Science Technology, Computer Aided Drafting, Construction Management, Education, Health Education, Human Services, Pre-Health Science Professions and Studio Art.

In addition, approved credits earned at UNM-VC may be transferred to UNM or other post-secondary institutions to be applied toward baccalaureate degrees in many subject areas.

A Tutorial Center on campus provides tutorial and individualized instruction at no cost to the student. Special classes in English as a Second Language (ESL), Adult Basic Education (ABE), and General Educational Development (GED) are offered through the Adult Basic Education Center. A Special Needs Program provides a wide range of human, instructional and physical resources to students with disabilities.

For more information about the Branch and its various programs, students are urged to obtain the UNM-VC Branch Catalog or visit the Student Services Center on campus for a personal tour and individual advisement session. UNM-VC's mailing address is 280 La Entrada, Los Lunas, New Mexico 87031.

The Los Alamos Branch Campus

The University of New Mexico-Los Alamos Campus began offering postsecondary-level courses in August 1980 for the Los Alamos community and the surrounding region.

The University of New Mexico-Los Alamos is committed to the philosophy of comprehensive community college education and to providing with available resources, high-quality education for all its students.

Guided by this philosophy UNM-Los Alamos has developed a variety of educational programs to meet the changing needs of the community. A policy of open-admissions permits entry to all interested students, regardless of their level of educational preparation. UNM-Los Alamos is pledged to promoting student success.

UNM-Los Alamos offers a wide variety of academic courses, most of which may be transferred to UNM main campus or other institutions.

Academic transfer program - UNM-Los Alamos is authorized to select any freshman or sophomore course from the UNM main campus catalog for which an appropriate instruc-

tor and facilities can be obtained. UNM-Los Alamos may also design courses that respond to student needs. Students may complete most of and, in many cases, all of the first two years of their UNM course work at UNM-Los Alamos before continuing their studies at UNM or other institutions.

Associate degrees and certificates—are awarded in Business Administration/Management, Computing Science, Microcomputer Technology, Liberal Arts, Pre-engineering, Science, Electronics Technology, Electronic Technology with Laser option, and General Studies.
Certificate programs - are offered in Business Technology, Computing Science, Digital Electronics Technology, Laser Technology, Microcomputer Technology, and Studio Art.

A Introductory Studies program is offered in math, English, university skills, Adult Basic Education, and English as a Second Language for students who are need of preparation for college-level work. Special classes in English as a Second Language (ESL), Adult Basic Education (ABE) and General Educational Development (GED) are offered through the Adult Basic Education Center.

Student Support Services—include the Testing-Assessment-Placement program, student advisement, financial assistance, free turoring, workshops, and assistance to the handicapped.

Occupational, Adult, and Continuing Education Division - offers a wide variety of non-credit programs, courses, and workshops to meet the educational and professional development needs of the community and to provide opportunities for learning new job skills or upgrading others. The "Business Assistance Center" provides low-cost seminars and training programs for small businesses, employees, and persons interested in beginning new businesses.

Resources - The Los Alamos campus relies entirely upon an outstanding part-time faculty recruited from Los Alamos and the northern New Mexico region. UNM-Los Alamos is located on a three acre campus and its facilities include a computer center, microcomputer laboratory, science and technology laboratories, an art studion, a library/learning resource center, and multipurpose classrooms. Additional evening classroom space is rented from Los Alamos High School across the street and other appropriate areas in the community

For more information about UNM-Los Alamos and its programs, students should review the UNM-Los Alamos College Catalog or write to the Registrar, UNM-Los Alamos, 4000 University Drive, Los Alamos, New Mexico 87544 or call (505) 662-5919 (or from Albuquerque 867-2379).

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 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 multi- disciplinary courses are also offered (presently in the areas of energy, environment, geology, opto-electronics, etc.). Under these arrangements, it is possible for properly qualified masters and 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.

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 or counselor education, as well as graduate level course work in the fields of special education, curriculum and instruction, communication, history, political science, educational administration, and related fields such as educational foundations. For further details, see the UNM Graduate Programs Bulletin.

GRADUATE PROGRAMS

Richard J. Griego
Office of Graduate Studies
Humanities 107
277-2711

GRADUATE WORK leading to the master's degree is offered in the following major fields: American studies, anthropology, architecture, art, biology, chemistry, communication disorders, communications, community and regional planning, comparative literature, economics, education (administration, adult, art, counselor, elementary, family studies (home economics), foundations, health, nutrition, physical, recreation, secondary, special, technical and occupational), engineering (chemical, civil, computer science, electrical, mechanical, nuclear), English, French, geography, geology, German studies, history, language sciences, Latin-American studies, management, mathematics, medical sciences, music, music education, nursing, pharmaceutical sciences, philosophy, physics, political science, Portuguese, psychology, public administration, sociology, Spanish, theatre arts. Also, the Master of Fine Arts degree is offered through the auspices of the Department of Art and Art History.

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, optical science, pharamceutical 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

The University of New Mexico will be pleased to receive your application for graduate study. Please address communications to the Dean of Graduate Studies, The University of New Mexico, Humanities Bldg 107, Albuquerque, New Mexico 87131 (telephone: 277-2711).

REQUIREMENTS

Bachelor's Degree. Applicants for admission to graduate study must hold a bachelor's degree from an accredited college or university. (See Special Admission.)

Academic Record. Although each application is reviewed individually, in general the student must present averages of at least B in his or her last two undergraduate years and in the major field. Any student may be refused admission if her or his previous scholastic record indicates little likelihood of success in advanced work.

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Previous Attendance. The student must indicate on the application all previous college attendance. Failure to disclose previous college attendance or misrepresentation of the record may result in disciplinary action, including possible dismissal from the University.

Departmental Screening. Applicants for admission must specify a major department and may apply only to one department at a time. Admission decisions are made by the department, formal offers of admission are made only by the Office of Graduate Studies. Departments frequently have more rigorous admission requirements than the B averages mentioned above and sometimes find it necessary to refuse qualified applicants on the basis of available openings. Admission offers are made only for the semester for which the student applied.

Concurrent Registration. In order to register concurrently in another college or university, a graduate student must have prior written approval from the Dean of Graduate Studies.

PROCEDURE

1. A formal application is required of all new students, including graduates of the University of New Mexico, and of any student seeking readmission to graduate study after an absence of a semester or more. Application forms are available from the Graduate Office.
2. A nonrefundable application fee of $25.00 must accompany the application. This fee is paid only once.
3. Applicants from other institutions must have two copies of their transcripts sent directly to the Office of Graduate Studies from each institution previously attended, undergraduate or graduate. Even though a master transcript may carry records from other institutions, it is mandatory that these records be sent by each institution. Transcripts in the possession of students will not be accepted for admission purposes.
4. The applicant is required to write a letter describing his or her interests, professional objectives, and any other factors bearing upon qualifications for graduate work. This letter should be sent directly to the department chair.
5. Three letters of recommendation are required of all applicants, however, Special Education doctoral and Educational Specialist applicants are required to submit five. **Note: All letters of recommendation are sent directly to the department involved.**
6. It is the applicant's responsibility to comply with any additional admission requirements of the particular departments.

APPLICATION DATES

Admission

The student must have his/her application, application fee, and transcripts on file in the Graduate Office by the deadlines shown in the departmental sections of the **Graduate Bulletin.** For those departments that review applications continuously and do not stipulate a deadline, early applications is encouraged. Students should submit a complete application (i. e., application, fee, transcripts) **and receive departmental approval** by August 1 (fall admission), January 2 (spring admission) or June 1 (summer admission); **failure to do so may prevent a student from registering for classes.** Please consult departmental sections of the **Graduate Bulletin** for admission and financial aid deadlines. For Anderson School of Management deadlines, see their publications.

Readmission

A student who stops attending for one or more regular semesters must file an application for readmission; the application fee is not required.

Applications for readmission to graduate study should be submitted to the department to which readmission is being sought sixty days in advance of the beginning of the semester or summer session. Some graduate departments have more flexible deadlines, but students are advised to process readmission materials early.

INTERNATIONAL APPLICANTS

International students must meet the same requirements and follow the same procedures as listed above for domestic students, with the following additional provisions:

1. When applying from abroad, all inquiries are to be directed to the Office of International Admissions, Student Services Center, Room 144, University of New Mexico, Albuquerque, New Mexico 87131. Application materials must be received by May 1 for the fall semester, or by October 1 for the spring semester. These deadlines may be earlier, depending on the department (see individual departmental sections of the Graduate Bulletin.
2. The applicant must hold the equivalent of a U. S. bachelor's degree, with First Class marks, from an approved institution.
3. The applicant must have an adequate command of the English language as shown by the Test of English as a Foreign Language (TOEFL) of the Educational Testing Service (TOEFL score of 550 or higher) or by presenting an undergraduate degree obtained from an accredited or approved institution in an English-speaking country.
4. A Certificate of Financial Competency must be completed by a bank and submitted to the Office of International Admissions along with the application. The applicant must be able to cover all tuition and living expenses while in residence. It is estimated that a total of $10,600 is necessary to cover all expenses (tuition, fees, books, supplies, room and board, etc.) for the regular academic year of nine months. This estimate does not include travel expenses to and from the University, nor does it include an estimate for clothing expenses. A student planning to remain at the University during the summer should allow $2,500 in addition to the above estimate. Funds for graduate assistantships are limited, and chances of the international student obtaining such aid during the first year of residence are minimal. The applicant who wishes to investigate the possibilities of securing financial aid for study in the United States should contact the nearest United States Consulate. Students from other countries are expected to carry a full academic load during the regular school year and are not permitted to defray expenses by part-time, off-campus employment during this period.
5. International students are required to carry UNM student group health and accident insurance for themselves and their dependents. Inquiries may be directed to the Student Health Center, (505) 277-3136.

FINANCIAL AID

Students seeking advanced degrees may apply for financial aid in the form of service awards (assistantships) and nonservice awards (fellowships). Nonservice awards are available only in limited numbers.

Teaching Assistantships (TA) and Graduate Assistantships (GA) are awarded each year in open competition; these are available to applicants from UNM's undergraduate and graduate programs as well as to applicants from outside the University. Given good work performance and satisfactory academic progress, contracts may be renewed.

Applicants will be informed in writing of the results of the evaluation of their applications as soon as appointments to GA/TA positions are completed and confirmed. Applicants placed on a "stand-by" status will be so informed in writing.

Deadlines

For application deadlines see departmental sections of the **Graduate Bulletin.**

Graduate Credit for Work Taken as an Undergraduate and Non-Degree Students.

Non-degree and undergraduate students may take graduate courses for graduate credit provided they meet requirements and follow procedures as outlined below.

Non-Degree Students

No special action needs to be taken by non-degree students who wish to enroll in 500-level courses. These courses automatically carry graduate credit. To receive graduate credit for a 300-or 400-level course must carry graduate credit. The student must obtain the instructor's signature on an Enrollment Authorization Form (the "orange card"). By signing this card, the instructor ackowledges that the student will be held accountable for graduate-level work.

Undergraduate Students

An undergraduate student who wants to enroll in a graduate course for graduate credit must first meet the following requirements:

1. is within 10 hours of the baccalaureate degree;
2. has an overall GPA of at least 3. 0; and
3. seeks no more than nine hours of graduate credit during that semester (six during summer session).

If these requirements are met, the student then files an Enrollment Authorization Form ("orange card") to enroll in a graduate course in order to obtain graduate credit. The card must be signed by the instructor and the Dean of the student's college. (It is the responsibility of the college to ascertain student eligibility.) The student will not be allowed to enroll in more than nine graduate credit hours. The courses(s) taken will apply toward an advanced degree after completion of the baccalaureate degree. The same course cannot count for both graduate and undergraduate credit.

Both non-degree and undergraduate students must file the "orange card" with the Registration Center by the last day of the fourth week of classes during the regular semester and by the end of the first week of four-week classes or the second week of eight-week classes during the summer sessions. No upgrades will be allowed after these deadlines. Graduate credit status downgrades for courses will be allowed only with the instructor's approval (signature on an orange card) through the twelfth week of classes during the regular semester, and through the sixth week of classes for an eight-week course or the third week of classes for a four-week course during summer session.

Undergraduate Credit in 500-Level Courses

Although courses numbered above 500 are open only to graduate students, senior students with GPAs of 3. 0 or higher may receive undergraduate credit in such courses. They must obtain approval in advance from the instructor concerned, the chair of the department and the dean of their college. Undergraduates may not enroll in graduate problems for undergraduate credit.

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 the Graduate Bulletin.

Information. For further information consult the Graduate Bulletin, the Office of Graduate Studies, or the graduate unit concerned.

EVENING AND WEEKEND DEGREE PROGRAMS

David E. Stuart, Asst. V.P. Academic Affairs\
Student Services, Rm 262
277-0896

In 1987 the University of New Mexico created this program to schedule more evening and weekend courses leading to regular academic degrees. The current late afternoon and evening courses are listed in the Schedule of Classes and in the Continuing Education course schedule. For separate course listings check the posted Addendum to the Schedule of Classes at the Registration Center in the Student Services Center. Call for additional information about non-traditional degree programs and the newly expanded resources (advisement, tutoring, escort service, etc.) for those who cannot enroll in traditional, daytime programs. The evening programs currently offered lead to 30 academic degrees. About 11,000 students take some of the 900 courses offered at night or on Saturdays each semester.

For additional information contact David E. Stuart, Asst. V.P. Academic Affairs, Student Services Bldg. Room 262, 277-0896.

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KEY TO SYMBOLS USED IN COURSE DESCRIPTION

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 or Medicine. **See the Graduate Programs description of courses numbered**

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.
- ** 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.
- Δ may be repeated for credit because subject matter varies.
- ΔΔ(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.

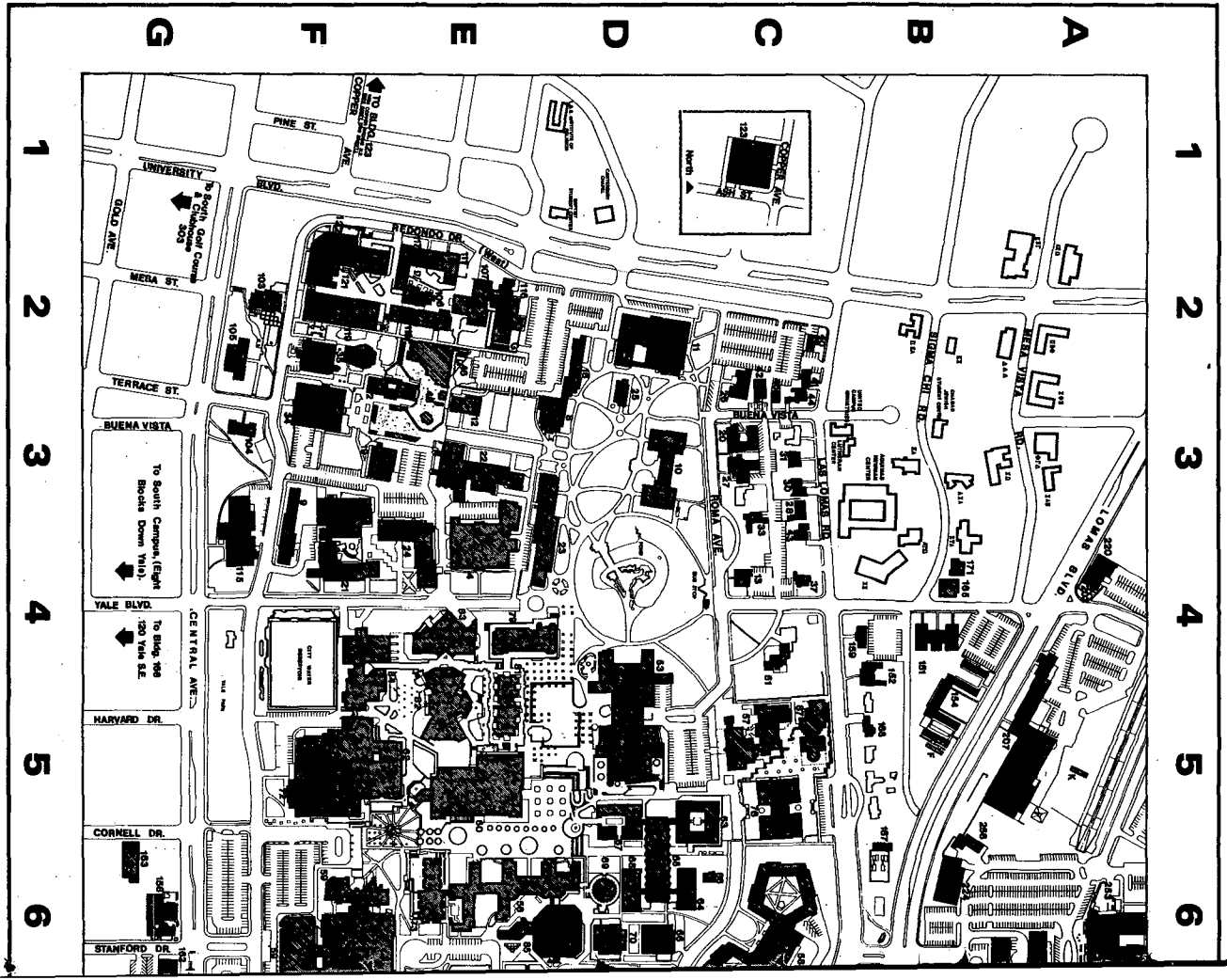
A schedule of course offerings, including hours of meeting, is issued at the opening of each session. **The University reserves the right to cancel substitution in instructors.**

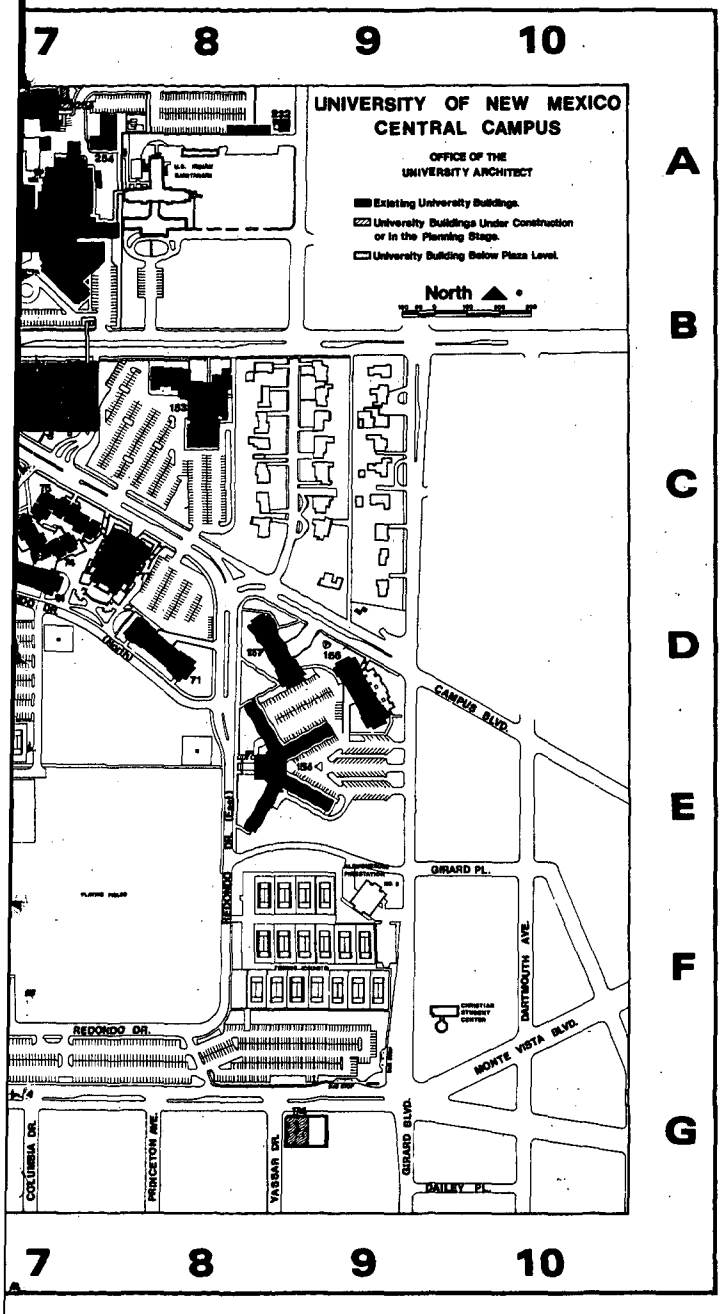
Central Campus Legend of Buildings

(Numerical Listing)

(The first number listed matches map numbering, the letter-number combinations designate location by map coordinates.)

2. Classroom Annex E-3
4. Carlisle Gym E-4
8. Bandelier East D-3
9. Marron Hall (Office) F-3
10. Administration (Scholes Hall) D-3
11. Anthropology & Maxwell Museum D-2
12. Anthropology Annex D-2
13. 1821 Roma NE C-4
16. Bandelier West (Offices) 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. UNM Club (1805 Roma NE) C-3
28. 1812 Las Lomas NE C-3
30. 1808 Las Lomas NE C-3
31. 1804 Las Lomas NE C-3
33. 1815 Roma NE C-4
34. Psychology F-3
35. Physics (Regener Hall) F-2
37. 1824 Las Lomas NE C-4
40. Centennial Center (1700 Las Lomas NE) C-2
41. Parking Services (1712 Las Lomas NE) C-3
42. Purchasing (609 Buena Vista NE) C-3
43. 1816 Las Lomas NE C-3
44. Police (1716 Las Lomas NE) C-3
45. 613 Buena Vista NE C-3
46. Electrical & Computer Engineering Science/Engineering Library E-2
51. President's Home C-4
53. Zimmerman Library D-5
56. Mesa Vista Hall (Departmental Offices) E-6
57. Social Sciences C-5
58. Hokona Hall (Dormitory) C-6
59. Johnson Gymnasium F-6
60. New Mexico Union E-5
61. Santa Clara Hall (Dormitory) C-7
62. Fine Arts Center F-5
63. Education Office Building C-5
64. Industrial Arts C-6
65. Education Administration D-6
66. Family Studies D-6
67. Education Classroom Building D-5
68. Art Education (Masley Hall) 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-8
79. Ortega Hall (offices and classrooms) D-4
81. Humanities Building (Offices) D-5
82. Woodward Lecture Hall E-5
83. Bookstore E-4
84. Art F-4
86. Anderson School of Management Lab C-6
87. Graduate Schools of Management & Parish Library C-5
89. Student Services Center D-6
103. Hodgin Hall F-2
104. Sara Raynolds Hall F-3
105. Art Annex F-2





Central Campus Legend of Buildings

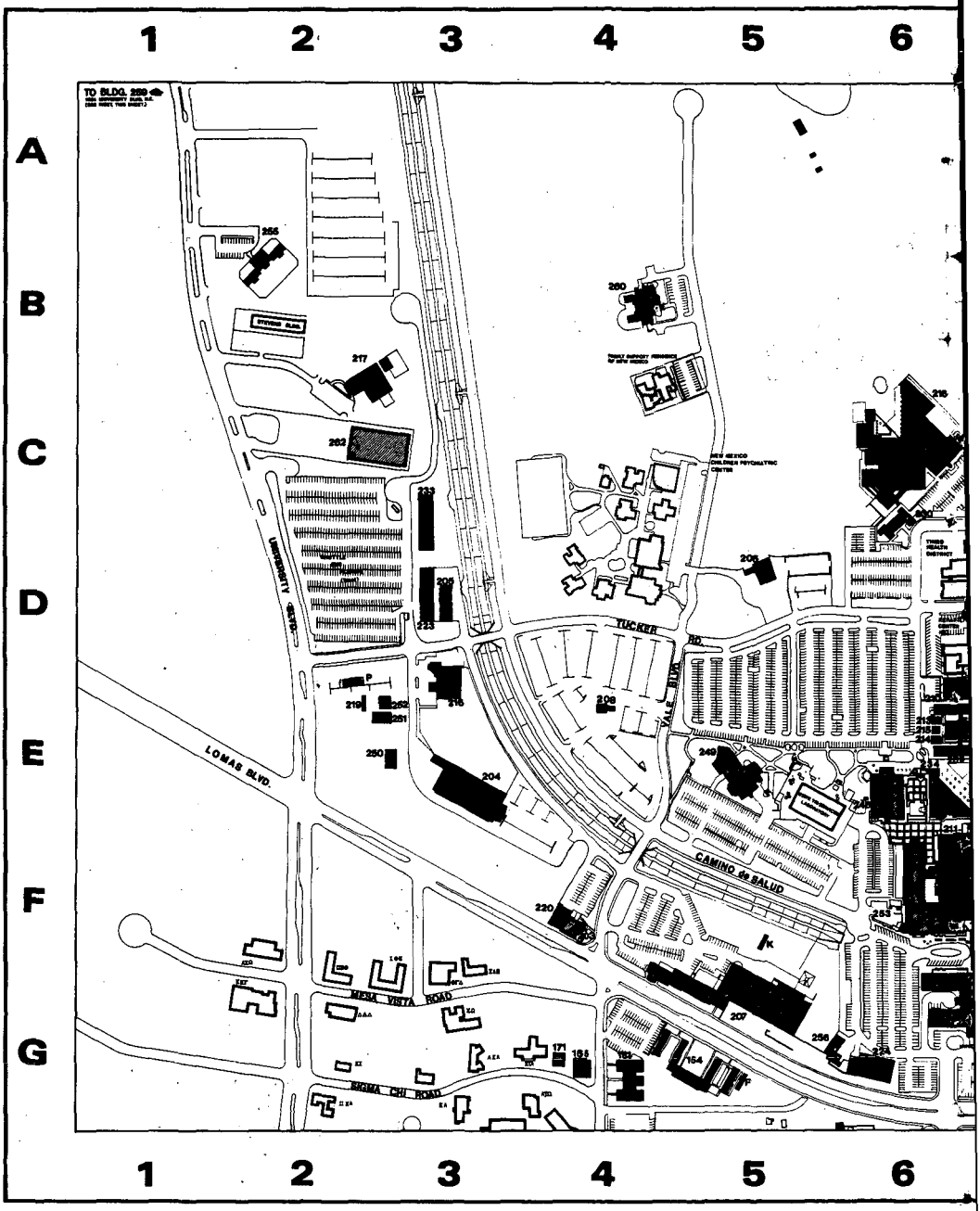
(Alphabetical Listing)

(The parenthetical number matches map numbering, the letter-number combination designates location by map co-ordinates.)

Administration (Scholes Hall) (10) D-3
Aerospace Studies (159) B-4
Alumni Memorial Chapel (25) D-3
Alvarado Hall (Dormitory) (157) D-8
Anderson School of Management (76) C-5
Anderson School of Management Lab. (86) C-6
Anthropology (11) D-2
Anthropology Annex (12) E-3
Architecture & Planning (158) G-6
Art (84) F-2
Art Annex (105) F-2
Art Education (Masley Hall) (68) D-6
Bandelier West (16) D-2
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
Centennial Center (1700 Las Lomas NE) (40) C-2
Chemical & Nuclear Engineering Laboratory (111) E-2
Chemistry (Clark Hall) (22) E-3
Civil Engineering (Tapy Hall) (118) E-2
Civil Engineering Research Laboratory (106) E-2
Classroom Annex (2) E-3
Computing Center (153) B-8
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 Engineering (46) E-2
Engineering Annex (107) E-2
Family Studies (66) D-6
Farris Engineering Center (119) F-2
Fine Arts Center (62) F-5
Ford Utilities Center (116) E-2
Geology (Northrop Hall) (24) E-4
Graduate School of Management (87) C-5
Hodgin Hall (103) F-2
Hokona Hall (Dormitory) (58) C-6
Humanities Building (81) D-5
Industrial Arts (64) C-6
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 (801 Yale NE) (165) B-4
Library, Zimmerman (53) D-5
Manzanita Center (Educational Laboratory) (70) D-6
Marron Hall (9) F-3
Masley Hall (Art Education) (68) D-6
Mattox Sculpture Center
(1524 Copper NE) (123) ..... Insert
Materials Management (609 Buena Vista NE) (42) C-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
Naval Science (151) B-4
New Mexico Union (60) E-5
Nuclear Engineering Laboratory (121) F-2
Onate Hall (Offices) (156) D-9
Ortega Hall (offices and classrooms) (79) D-4
Parish Library (67) C-5
Parking Services (1712 Las Lomas NE) (41) C-3
Personnel (1717 Roma NE) (26) C-3
Physics (Regener Hall) (35) F-2
Physics–Astronomy (207) A-5
Police (1716 Las Lomas NE) (44) C-3
Popejoy Hall (72) F-5
President's Home (51) C-4
Psychology (34) F-3
Registration Center (Student S[illegible]s) (89) F-3
Santa Ana Hall (Dormitory) (7[illegible]) D-8
Santa Clara Hall (Dormitory) (61) C-7
Sara Raynolds Hall (104) F-3
Scholes Hall (Administration) (10) D-3
Science/Engineering Library (46) E-3
Social Sciences (new) (57) C-5
Speech Communication (20) C-3
Student Health Center—University College (73) E-6
Student Services Center (89) D-6
Tamarind Institute (163) G-6
University Architect (1841 Lomas NE) (203) A-4
UNM Club (1805 Roma NE) (27) C-3
Wagner Hall (Engineering Labs) (117) E-2
Woodward Lecture Hall (82) E-5
Zimmerman Library (53) D-5
613 Buena Vista NE (45) C-3
2500 Central SE (162) G-6
2808 Central SE (172) G-9
1804 Las Lomas NE (31) C-3
1808 Las Lomas NE (30) C-3
1812 Las Lomas NE (28) C-3
1816 Las Lomas NE (43) C-3
1821 Las Lomas NE (13) C-4
1824 Las Lomas NE (37) C-4
1919 Las Lomas NE (168) B-5
1920 Lomas NE (154) B-5
1815 Roma NE (33) C-3
1821 Roma NE (13) C-4
1829 Sigma Chi NE (171) B-4

106. Civil Engineering Research Laboratory E-2
107. Engineering Annex E-2
111. Chemical & Nuclear Engineering Lab. E-2
115. Journalism F-3
116. Ford Utilities Center E-2
117. Engineering Labs (Wagner Hall) E-2
118. Civil Engineering (Tapy Hall) E-2
119. Farris Engineering Center F-2
121. Nuclear Engineering Laboratory F-2
122. Mechanical Engineering F-2
123. 1524 Copper NE (Mattox Sculpture Center) ..... Insert
151. Naval Science B-4
152. Johnson Gym B-4
153. Computing Center B-8
154. 1920 Lomas NE B-5
155. Coronado Hall (Dormitory) E-8
156. Onate Hall (Offices) D-9
157. Alvarado Hall (Dormitory) D-8
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 (801 Yale) B-4
171. 1829 Sigma Chi NE B-4
172. 2808 Central SE G-9
203. University Architect A-4
207. Physics–Astronomy A-5

Jan. 1987 Update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154A
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171
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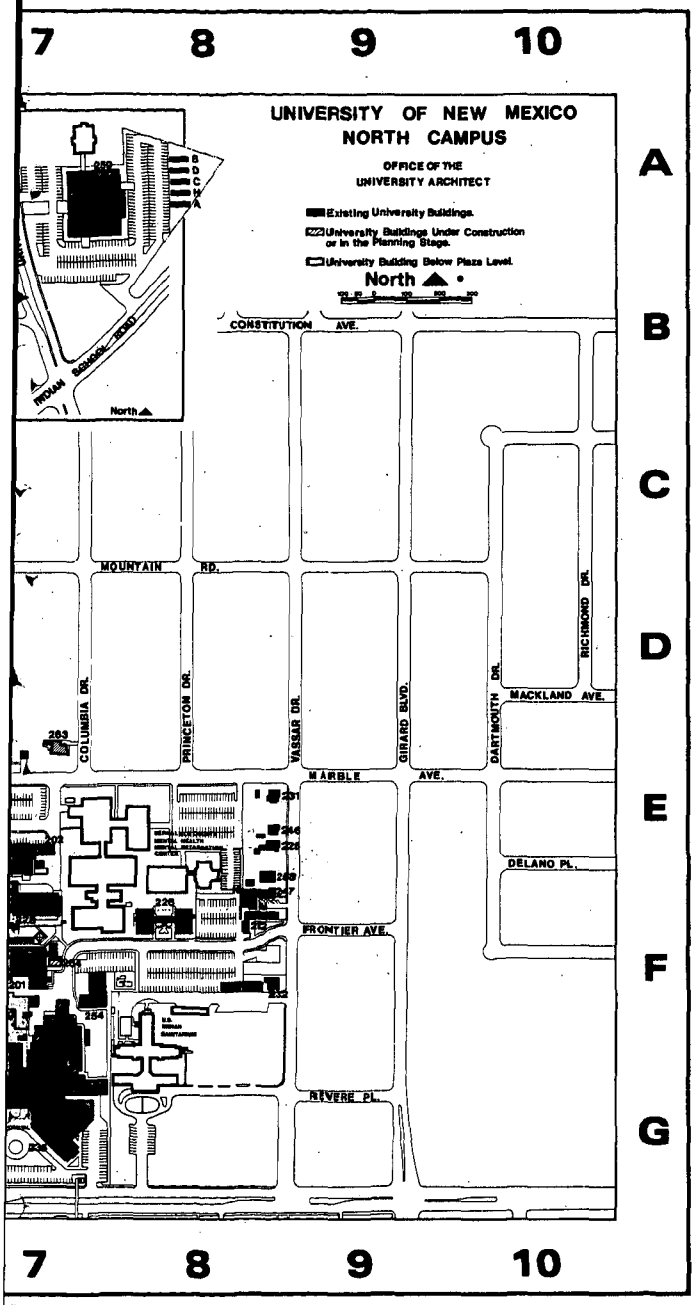
UNIVERSITY BLVD.
LOMAS BLVD.
TUCKER RD.
VALE BLVD.
CAMINO de SALUD
SIGMA VISTA ROAD
SIGMA CHI ROAD
NEW MEXICO CHILDREN PSYCHIATRIC CENTER



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
Center for Non-Invasive Diagnosis (260) B-4
Child Care Co-op (255) B-2
Communicative Disorders Unit and School of Medicine Building 3A (212) F-8
Continuing Education (1634 University Blvd NE) (259) ..... Insert
Dental Programs (Novitski Hall) (249) E-5
Diabetes Control Center (264) F-7
Family Practice Center and School of Medicine Building 9 (248) E-6
Golf Course Clubhouse (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

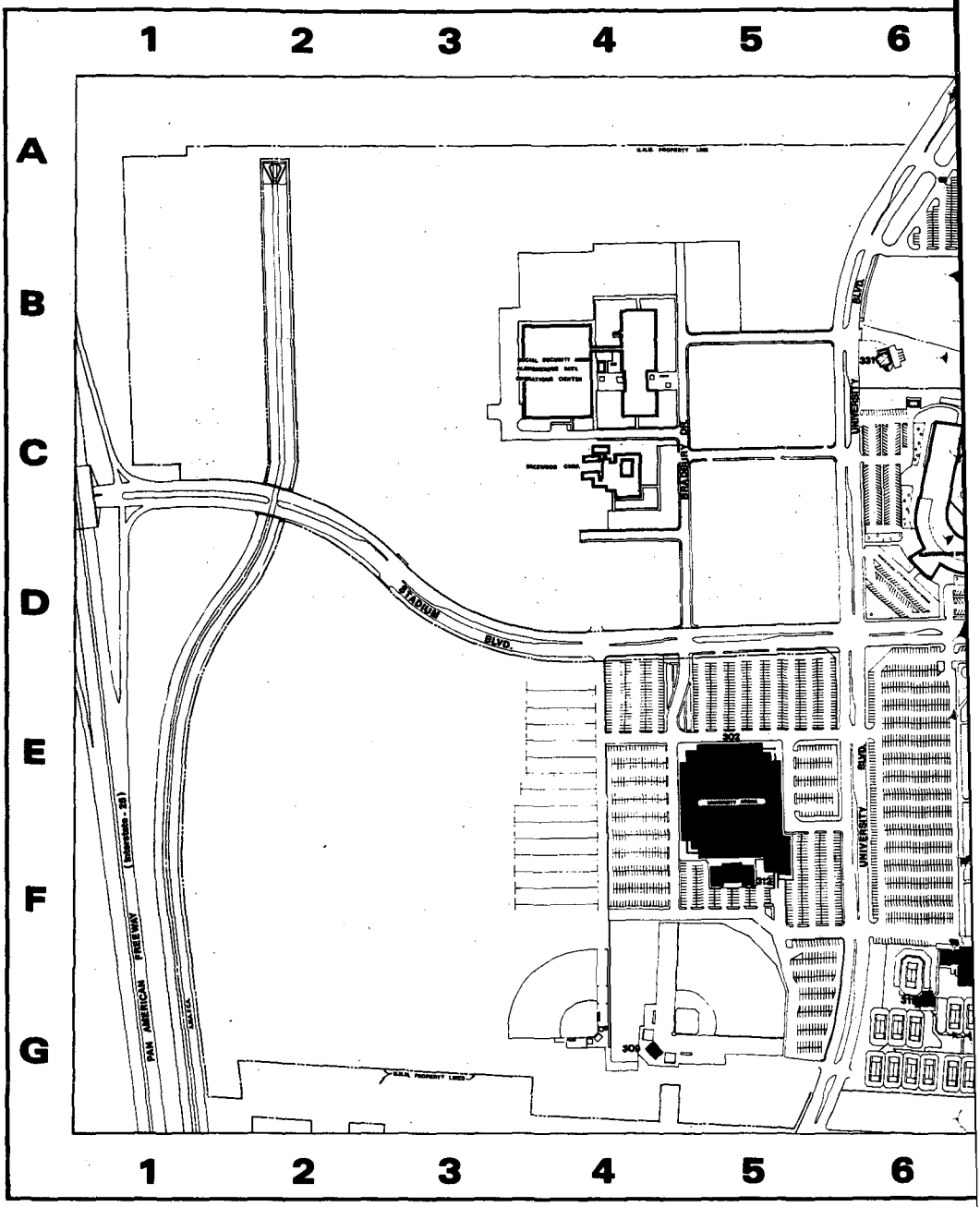
Naval Science (115) G-4
New Mexico Law Center (230) C-6
North Campus Chilled Water Plant (224) G-6
Nursing–Pharmacy (228) F-7
Observatory (208) E-4
Physics–Astronomy (207) G-5
Records Center (233) D-3
Service Building (204) E-3
Tele-Communications (256) G-6
University Architect (203) F-4
Warehouses (205), (223) and (233) D-3
1005 Columbia NE (263) E-7
1837 Lomas NE (220) F-4
1920 Lomas NE (154) G-5
1000 Stanford NE (221) E-7
1128 University Blvd NE (262) C-3
815 Vassar NE (232) F-9
905 Vassar NE (247) E-9
909 Vassar NE (258) E-9
917 Vassar NE (225) E-9
919 Vassar NE (246) E-9
925 Vassar NE (231) E-9

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 ..... F-7
202. School of Medicine Building 3 ..... E-7
203. University Architect F-4
204. Service Building E-3
205. Warehouse D-3
206. Golf Course Clubhouse 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-6
213 & 214. Animal Facilities 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 & 233. Warehouses D-3
224. North Campus Chilled Water Plant G-6
225. 917 Vassar NE E-9
226. Surge Building, School of Medicine Building 8 ..... F-7
227. Cancer Research and Treatment Center E-7
228. Nursing–Pharmacy F-7
230. New Mexico Law Center C-6
231. 925 Vassar NE E-9
232. 815 Vassar NE F-9
233. Records Center D-3
234. Medical Center Library E-6
246. 919 Vassar NE E-9
247. 905 Vassar NE E-9
248. Family Practice Center and School of Medicine Building 9 ..... E-6
249. Dental Programs (Novitski Hall) E-5
253. BioMedical Research Building 10 ..... E-6
255. Child Care Co-op B-2
256. Tele-Communications G-6
258. 909 Vassar NE E-9
259. Continuing Education (1634 University Blvd NE) ..... Insert
260. Center for Non-Invasive Diagnosis B-4
262. 1128 University Blvd NE C-3
263. 1005 Columbia NE E-7
264. Diabetes Control Center F-7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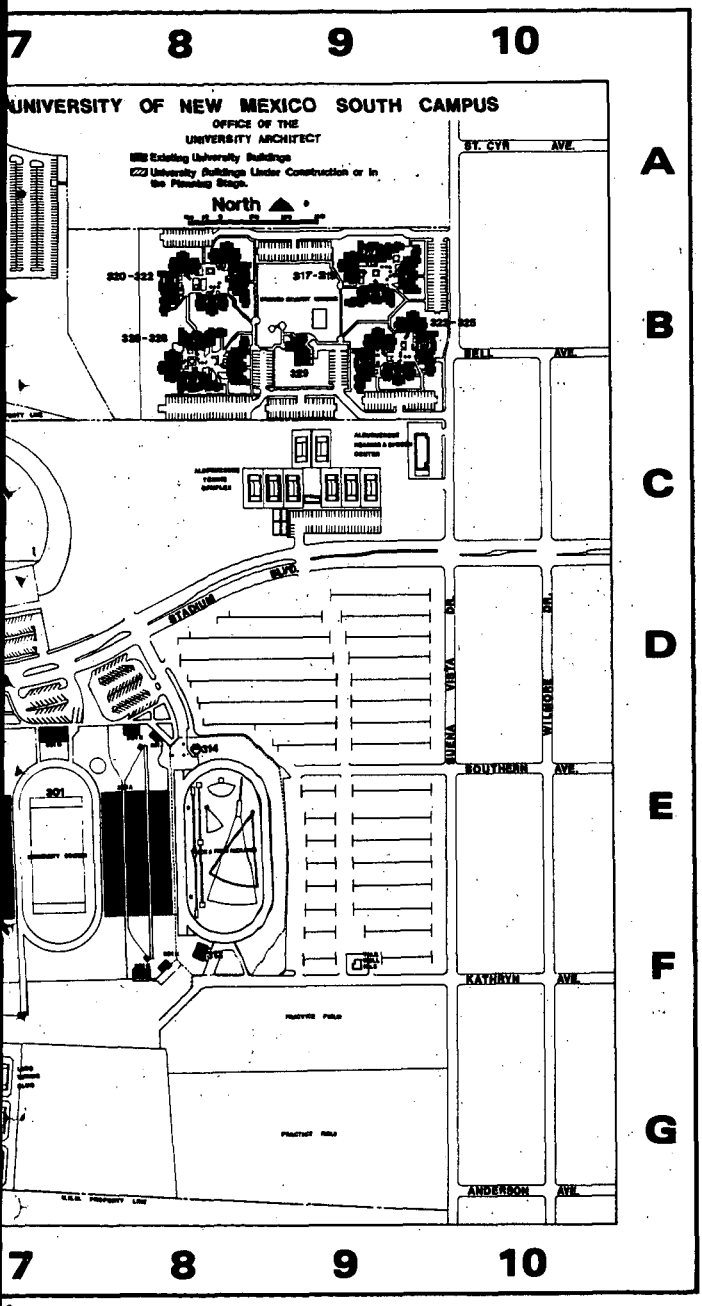
BRAZOS CANAL
BRADBURY DR.
STADIUM BLVD.
UNIVERSITY BLVD.
PAN AMERICAN FREEWAY
(Interstate - 69)
U.S. 83
202
312
306
337
U.A.B. PROPERTY LINES



South Campus Legend of Buildings

(Alphabetical Listing)

South Campus Legend of Buildings

(Numerical Listing)

INDEX


THE UNIVERSITY OF NEW MEXICO
1889

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, ethnicity, physical handicap, or military involvement (Vietnam era veteran or handicapped veterans). 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 has assigned responsibility to him for promoting and encouraging progress in meeting the University's equal opportunity goals. All grievances, questions or requests for information relating to employee concerns should be referred to 1821 Roma 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..."

DIRECTIONS FOR CORRESPONDENCE

All departments of the University recieve 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 Admissions 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. However, the Student Services Center which houses the Office of Admissions and Records, Registration Center, Career Planning and Placement, School Relations, Student Accounting and Cashiers, Dean of Students, and Student Financial Aid, is open from 8:30 through the noon hour to 5:00 Monday, Thursday, and Friday, with the exception of the Cashier Office hours of the University Cashier are 8:30 to 4:00 Monday through Friday. On Tuesday and Wednesdays some Center Offices have extented hours to 7:00 p.m. 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 **Kathleen Sena** and **Ida Padilla**. Photographs were furnished by the **Publications Office** and **IDEA Center**. Special assistance with typesetting and layout were provided by **Rocky Mountain Computers, Inc.**, and **Jim Young**, student employee.

About This Catalog

THE CATALOG is the student's guide to the programs 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 Catalog 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 **Catalog** 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 and present programs and services, and its goals. The undergraduate program section includes 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 this **Catalog** 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, arranged alphabetically by department. Refer to the index for a particular course listing.

The provisions of this **Catalog** are not intended to be regarded as a contract between the student and the University. 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 **Catalog**, please contact individual departments or administrative offices.