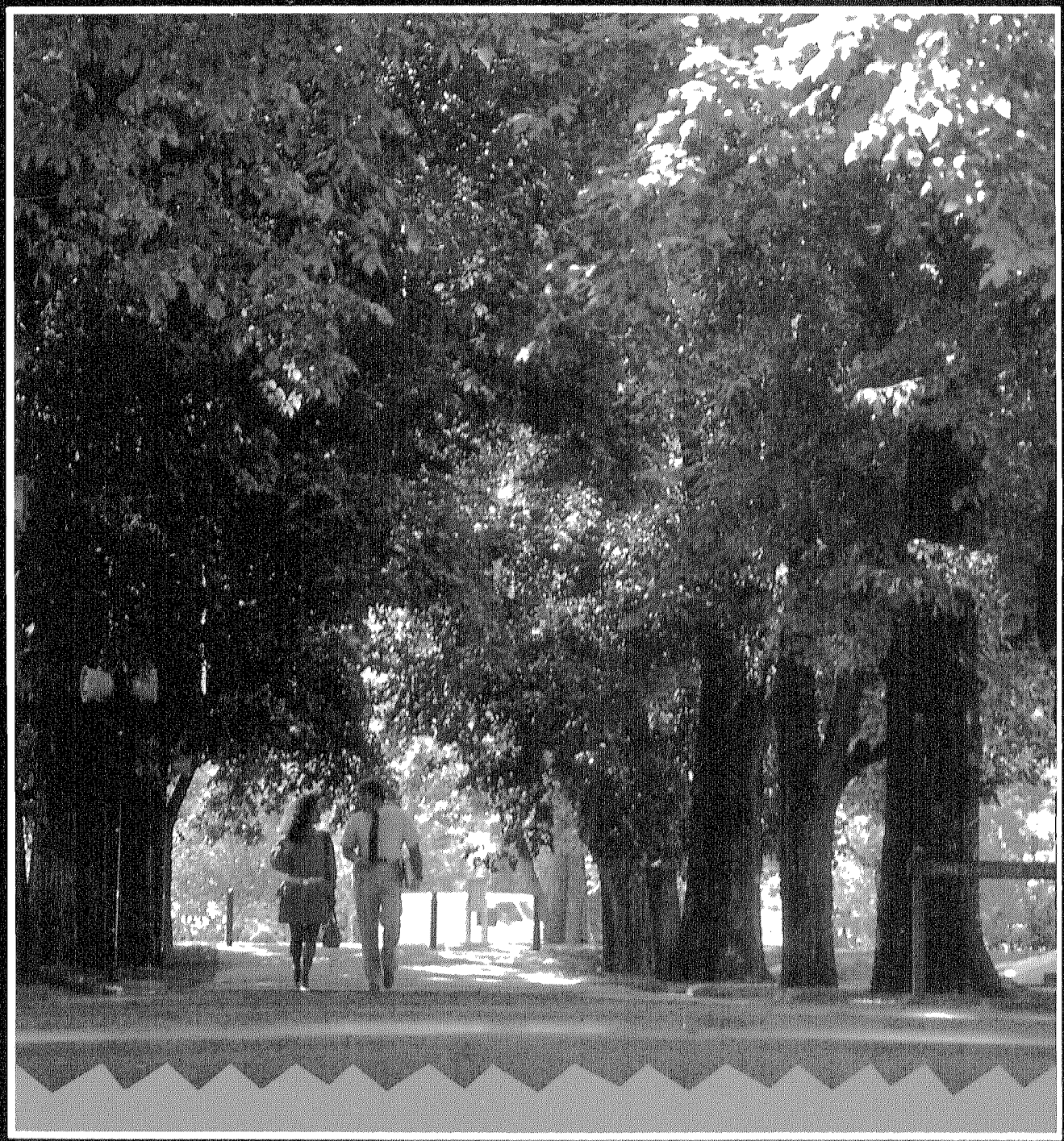
UNIVERSITY OF NEVADA-RENO

1988-89 General Catalog



Catalog 1988-89

Agriculture
Arts and Science
Business
Education
Engineering
Home Economics
Journalism
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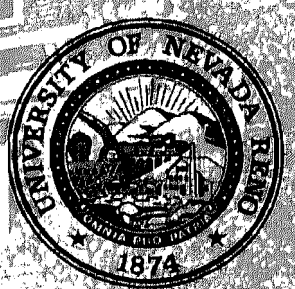
Mining
Nursing
Graduate Studies



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(name)
(department)
University of Nevada-Reno
Reno, NV 89557

Where to Call: (area code 702)

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Bibliographic Control, Yoshiko T. Hendricks, M.L.S.
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Head of Collection Development, Milton T. Wolf, A.M.L.S.
Head of Public Services, Steven D. Zink, M.L.S.
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Special Collections, Robert Blesse, M.A.

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Executive Director of the National Council of Juvenile and Family Court Judges, and Dean, National Council of Juvenile Justice, Louis W. McHardy, M.S.W.
President, Alumni Association Inc., Louis Test

University Calendar

Fall Semester 1988

Final date for filing: application for admission; application for readmission following suspension; returning student application for registration materials; application for resident fees (if applicable)	F, July 1
Independence Day[1]	M, July 4
Semester begins[3]	M, August 22
Residence halls open	T, August 23
Orientation and testing new students	T-W, August 23-24
Advisement for new and returning students	T-W, August 23-24
Registration	Th, August 25
Registration	F, August 26
Instruction begins	M, August 29
Labor Day[1]	M, September 5
Final date for late registration and addition of courses	W, September 7
Applications for graduation filed with Office of Admissions and Records	M, September 12
Final date for dropping courses or withdrawing without grades	M, October 10
Final date for filing late application for graduation	F, October 14
Final date to drop courses if passing	M, October 24
Nevada Day[1]	M, October 31
Homecoming	Sa, November 5
Veterans Day[1]	F, November 11
Final date for filing graduate final oral examination reports	W, November 23
Thanksgiving Day[1]	Th, November 24
Family Day[1]	F, November 25
Final date for filing approved thesis or dissertation with Graduate School Office	F, December 2
Preparation for final week[2]	W, December 14
Final week schedule begins	Th, December 15
Instruction ends	W, December 21
Final grades filed with Office of Admissions and Records by 9 a.m. Semester ends[3]	F, December 23
Christmas Day/Holiday[1]	Su-M, December 25-26

Spring Semester 1989

New Year's Day/Holiday[1]	Su-M, January 1-2
Final date for filing: application for admission; application for readmission following suspension; returning student application for registration materials; application for resident fees (if applicable)	T, January 3
Martin Luther King Jr.'s Day[1]	M, January 16
Semester begins.[3] Residence halls open.	T, January 17
Orientation and testing new students	T-W, January 17-18
Advisement for new and returning students	T-W, January 17-18
Registration	Th, January 19
Registration	F, January 20
Instruction begins	M, January 23
Final date for late registration and addition of courses	T, January 31
Applications for graduation filed with Office of Admissions and Records	F, February 3
Final date for filing late application for graduation	W, February 15
President's Day[1]	M, February 20
Final date for dropping courses or withdrawing without grades	M, March 6
Spring recess[2]	Sa-Su, March 18-26
Final date to drop courses if passing	M, March 27
Final date for filing graduate final oral examination reports	M, April 24
Mackay Week	M-Sa, April 24-29
Final date for filing approved thesis or dissertation with Graduate School Office	M, May 1
Honors Convocation	Th, May 4
Preparation for final week[2]	W, May 10
Final week schedule begins	Th, May 11
Instruction ends	W, May 17
Final grades filed with Office of Admissions and Records by 9 a.m. Semester ends[3]	F, May 19
Commencement	Sa, May 20
Memorial Day[1]	M, May 29
Independence Day[1]	T, July 4

[1]A legal holiday. Offices are closed. No classes.
[2]Offices are open. No classes.
[3]The academic year for employment purposes consists of two semesters – each commencing the date the "semester begins" and ending the date the "semester ends."

1989 Summer Session

Registration for mini-term in Office of Admissions and Records — 8 a.m.-5 p.m. ..... Monday, May 15
Mini-term instruction begins; last day to receive a full refund ..... Monday, May 22
Registration for mini-term closes. Last day to add classes or change from audit to credit; letter grade to S/U, or S/U to letter grade — 5 p.m. ..... Tuesday, May 23
Last day to drop mini-term classes and receive a 50% refund ..... Wednesday, May 24
Last day to drop mini-term classes, change from credit to audit, or withdraw from the university without a grade being recorded ..... Friday, May 26
Memorial Day[1] ..... Monday, May 29
Application for August graduation due in Admissions and Records. Late fee applies after June 1 ..... Monday, June 5
Mini-term instruction ends. Registration for first- and second-terms in Lombardi Recreation Building ..... Friday, June 9
First-term instruction begins; last day to receive a full refund ..... Monday, June 12
Final grades for mini-term due in Office of Admissions and Records — 5 p.m. ..... Monday, June 12
Late registration for first-term closes. Last day to add classes or change from audit to credit; letter grade to S/U, or S/U to letter grade — 5 p.m. ..... Wednesday, June 14
Final date for filing late application for August graduation ..... Thursday, June 15
Last day to drop first-term classes and receive a 50% refund ..... Friday, June 16
Last day to drop first-term classes, change from credit to audit, or withdraw from the university without a grade being recorded ..... Friday, June 23
Last day to drop a course, change from credit to audit, or withdraw from first-term if passing ..... Wednesday, June 28
Independence Day[1] ..... Tuesday, July 4
First-term instruction ends. Registration for second-term continues in Office of Admissions and Records ..... Friday, July 14
Second-term instruction begins; last day to receive a full refund ..... Monday, July 17
Final grades for first-term due in Office of Admissions and Records — 5 p.m. ..... Monday, July 17
Late registration for second-term closes. Last day to add classes or change from audit to credit, letter grade to S/U, or S/U to letter grade — 5 p.m. ..... Wednesday, July 19
Last day to drop second-term classes and receive a 50% refund ..... Friday, July 21
Final date for filing graduate final oral examination reports ..... Friday, July 28
Last day to drop second-term classes, change from credit to audit, or withdraw from the university without a grade being recorded ..... Friday, July 28
Last day to drop a course, change from credit to audit, or withdraw from second-term if passing ..... Wednesday, August 2
Final date for filing approved thesis or dissertation with Graduate School Office ..... Friday, August 11
Classes in session ..... Saturday, August 12
Second-term instruction ends ..... Thursday, August 17
Final grades for second-term due in Office of Admissions and Records — 5 p.m.; Summer Session ends ..... Friday, August 18

[1]A legal holiday. No classes. Offices closed.

Legal Notice

The UNR General Catalog describes anticipated programs, courses, and requirements, but these are subject to modification at any time to accommodate changes in university resources or educational plans. The catalog does not constitute a contractual commitment that the university will offer all the courses or programs described. The university reserves the right to eliminate, cancel, reduce or phase-out courses, programs and requirements for financial, curricular or programatic reasons, to limit enrollments in specific programs and courses, to change fees during the student's period of study, and to require a student to withdraw from the institution for cause at any time.

Affirmative Action/Equal Opportunity

The University of Nevada-Reno is an Equal Opportunity Employer and does not discriminate based on race, creed, color, sex, age, national origin, handicaps, or veteran status in any program or activity it operates, in compliance with federal, state, and local nondiscrimination laws and regulations. The affirmative action officer is responsible for coordinating all compliance efforts, for investigating complaints, and for receiving grievances from students in matters dealing with discrimination. Anyone with questions or concerns may call the affirmative action officer, Clark Administration, Room 209, telephone 784-1547 or 784-4300.

International Student Visas

The university is authorized under federal law to enroll nonimmigrant alien students.

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University Terminology

ASUN—Associated Students of the University of Nevada.
Academic Status—Determined by regulations governing honor roll, good standing, probation, suspension and disqualification.
Admission—Formal application and acceptance as a regular student in a degree program.
Adviser, advisee—The adviser is the faculty member assigned by the university to assist each student in planning the proper academic program. The student is called the adviser's "advisee."
Audit—To take a course without credit and grade.
Corequisite—A course required to be taken simultaneously with another.
Course—A particular subject being studied—thus, a course in English.
Credit—The numerical reward received for completing a course. It is described in semester credit hours, and is defined as 3 hours of work per week for one semester. Usually this work is made up of one period in class plus 2 hours of preparation for lecture-seminar classes, or 3 hours of laboratory classes.
Curriculum—The total group of courses required for a degree.
Department—A part of a college which offers instruction in a specific area of knowledge.
Disqualification—The involuntary separation of a student from the university for unsatisfactory academic performance following second academic suspension.
Extracurricular—Those activities which are part of student life but are not part of the regular course of study, such as debate, dramatics, and athletics.
Fee—A charge which the university requires for services provided, such as a music fee paid for private lessons.
Freshman on Probation—A regular, undergraduate, Nevada resident who does not satisfy the freshman admission requirements.
GPA—Grade point average.
GSA—Graduate Students Association.
Good Standing—A student who is not on probation, suspension or disqualification.
Grade Points—Grades are evaluated in terms of quality points. For each credit of A completed, four grade points are earned; for each credit of B, three grade points; for each credit of C, two grade points; for each credit of D, one grade point; and for each credit attempted of F, zero grade points. In order to be graduated, a student must have an average of two grade points for each credit attempted for regular letter grades, including all courses which are failed or repeated.
Graduate Special—A regular post-baccalaureate nondegree student not admitted to advanced degree study.
Graduate Standing—A regular advanced degree seeking student officially admitted to graduate study.
Graduate Study—Work beyond the bachelor's degree, usually toward a master's or doctor's degree.
Honor Roll—Awarded each semester to undergraduate students who achieve a 3.5 GPA or above on 15 credits or more completed with letter grades.
I.D. Card— Identification card.
Incomplete—The I is not a grade. It is a mark which is given when a student has been performing satisfactory work, but for a reason beyond the student's control has been unable to complete the required work for the course.
International Student—An individual who is attending on a student visa.
Load—The total credits for which a student is registered in any registration period. The normal undergraduate load is 16 or 17 credits, also called a program of study.
Major—The subject or field of study in which a student plans to specialize. A plan to specialize in mathematics would be to major in that field. To specialize in two such subjects is called a double major. In some curricula the major with related areas of study is called a field of concentration.
Nondegree Student—An individual who is not officially admitted to the university. Registration is limited.
Prerequisite—The preliminary requirement which must be met before a certain course may be taken.
Probation—A warning status resulting from unsatisfactory academic achievement or conduct.
Registration—The act of enrolling in classes, usually at the beginning of a semester. This involves choosing classes with the help of the adviser, completing all registration forms, paying all fees, and filing the forms with the registrar.
Regular Student—A degree-seeking student who is officially admitted to the university.
Required Subjects—Those subjects which are prescribed for the completion of a particular program. The student has some choice in the elective subjects; the required subjects are determined by the college.
Resident Alien—A student attending as a permanent immigrant who has not attained U.S. citizenship.
Schedule, Class—The list of courses and sections offered, together with the names of the teachers, the days, hours, and locations of classes.
Schedule, Student—A listing of the courses which the student takes each semester. It is also called a program of study.
Semester—Fifteen weeks of instruction including final examinations.
Suspension—The involuntary separation of a student from the university for unsatisfactory academic achievement or conduct.
Transcript—A certified copy of the student's permanent academic record on file in the Office of Admissions and Records listing each course and the final grade received.
Tuition—An additional charge for regular instruction and is required only of nonresident students.
Undergraduate—A student who has not yet obtained the bachelor's degree.
Withdrawal—The act of officially leaving the university. Students may also drop individual courses without withdrawing from the university.

University of Nevada-Reno

The University of Nevada-Reno (UNR), one of seven institutions within the University of Nevada System, is located in the city of Reno in northwestern Nevada.

The University of Nevada-Las Vegas (UNLV) is near the metropolitan center of Las Vegas in southern Nevada.

The four community colleges consist of Clark County Community College in North Las Vegas, Northern Nevada Community College in Elko, Truckee Meadows Community College in Reno-Sparks and Western Nevada Community College in Carson City.

The Desert Research Institute (DRI) is located at its north Reno site and at the Stead facility of UNR, about eight miles north of the Reno main campus. It also has special branch operations in southern Nevada.

The University

The University of Nevada-Reno offers an opportunity for higher education to qualified applicants, regardless of race, color, creed, handicap, or sex. The university provides an environment where learning may take place both inside and outside the classroom.

The main purposes of the university are the discovery and transmission of knowledge and the development of various ways of apprehending reality.

As a state-supported institution, the university also has an important responsibility to serve society by investigating and discussing problems of the past, the present, and the future in an effort to facilitate intellectual, political, economic, and social growth. To meet this responsibility the university serves as a repository of knowledge as well as a center of independent inquiry and critical thinking.

The university offers baccalaureate study in the colleges and schools of agriculture, arts and science, business administration, education, engineering, home economics, journalism, medicine, mines, and nursing. Graduate degrees are offered by each college and school. Additional intructional units include Continuing Education and Summer Session.

While the university has grown steadily by every standard, it is still a comparatively small, personalized institution. The student is offered personal contact with every form of higher education.

The Campus

The main campus is located on 200 acres of rolling hills north of the business district of Reno, overlooking the picturesque expanses of the Truckee Meadows.

A blend of the old and the new, the campus is marked by ivy-covered buildings and traditional pillars in a setting of tall elms and sweeping lawns. In what is called the "new" part of the campus, some of the most modernistic facilities in the state graphically illustrate the university's progress. Together, they offer rich surroundings for the cultural and intellectual development of the student.

The City

Reno/Sparks, cities of approximately 240,000, are bounded on the west by the majestic Sierra Nevada, and on the east by the rolling basin and range province. The climate is cool and dry, and is marked by the full pageant of the seasons.

A mixture of metropolitan and quietly provincial, the area is noted on the one hand for its fashionable hotels and tourist attractions, and on the other for its beautiful parks, which line the Truckee River, and its modern residential areas.

Recreational activities abound, both in Reno and its environs. Within an hour of the campus, for example, a student can drive to the Lake Tahoe resort area in the high Sierra or to the unique prehistoric desert sea, Pyramid Lake. The adjoining Sierra is also the site of a number of nationally famed ski areas, including Squaw Valley, site of the 1960 Winter Olympics. Other scenic attractions include Virginia City, setting for one of the West's richest mining bonanzas, and Genoa, the state's first pioneer settlement.

History of the University

Established by the Nevada State Constitution of 1864, the year of the state's admission into the Union, the university actually began work in 1874 in Elko as one of the rare preparatory higher schools in the intermountain region. In 1886, the university was moved to Reno, near the center of the state's population. College-level study formally began in 1887.

The University: Missions and Goals

The University of Nevada-Reno is a constitutionally-established, land-grant university. UNR served the state of Nevada as its only state-supported institution of higher education for almost 75 years. In that historical role, it has emerged as a doctoral-granting university which focuses its resources on doing a selected number of things well. UNR offers a wide range of undergraduate and graduate programs, including selected doctoral and professional studies, which emphasize those programs and activities which best serve the needs of the state, region, and nation. By fostering creative and scholarly activity, it encourages and supports faculty research and the application of that research to state and national problems. In performing its mission, the University of Nevada-Reno resolves to:

1. Offer high-quality degree programs in the arts, sciences, and in selected professions.
2. Emphasize undergraduate, graduate, and professional programs which meet the needs of the citizens of Nevada.
3. Maintain a select number of doctoral and organized research programs.
4. Offer a range of applied, interdisciplinary, and career oriented programs at both the undergraduate and graduate levels.
5. Provide community and public service programs through continuing education and cooperative extension.
6. Contribute to the advancement and dissemination of knowledge that will help to improve society at the state, regional, and national levels.

Goals identified to support the mission statement in the 80s include:

1. Continually improve the quality of teaching, research, and public service activities.
2. Develop a curriculum that is sensitive to change, but

which places a special value on a liberal arts foundation.

3. Provide an institutional environment supportive of the internal quality of campus life.

4. Utilize resources efficiently and effectively through prioritized allocations and reallocations.

5. Develop the means to obtain funds from public and private sources that will provide the support required to achieve these goals.

Accreditation

The University of Nevada-Reno is accredited by the Commission on Colleges of the Northwest Association, an institutional accrediting body recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education. The university has been accredited since 1938. The most recent evaluation was completed in 1978 with an approved interim report in 1983.

In addition to the Northwest Association institutional accreditation, there are numerous university programs which are accredited by their national professional accrediting organizations. These specialized accrediting organizations, which are recognized by the Council on Postsecondary Accreditation, include the American Assembly of Collegiate Schools of Business, the American Chemical Society, the Accrediting Council on Education in Journalism and Mass Communication, the American Psychological Association, the American Home Economics Association, the Council on Social Work Education, the Liaison Committee on Medical Education, the National Accreditation Agency for Clinical Laboratory Sciences, the National Association of Schools of Music, the National Council for Accreditation of Teacher Education, and the National League for Nursing. In addition, selected programs in engineering and mines are accredited by the Accreditation Board for Engineering and Technology as noted in the individual college sections. The university is also a member of many national professional associations.

Degrees and Majors

The university offers major fields of study leading to bachelor's and advanced degrees through the academic departments in the various schools and colleges.

Specific degrees are listed in the registration section.

Options within majors are described in the college and departmental sections.

The majors offered are:

Agriculture: Agricultural economics, agricultural education, animal science, biochemistry, integrated pest management,* plant science, resource management, and veterinary science.

Arts and Science: Anthropology, art, atmospheric physics,* biology, botany, chemistry, computer science, criminal justice, English, foreign languages and literatures,* French, general studies, geography, German, health education, history, international affairs, mathematics, music, music applied, music education, philosophy, physical education, physics, political science, predental, prelegal, premedical, prephysical therapy, psychology, public administration and policy,* recreation, social psychology, social work, sociology, Spanish, speech communication, teaching of English,* teaching of mathematics,* theatre, and zoology.

Business Administration: Accounting, business administration,* computer information systems, economics, finance, logistics management, management, and marketing. (Law school preparation may be obtained in all majors.)

Education: Art, biological sciences, business education, chemistry, counseling and guidance personnel services,* educational administration and higher education,* elementary education, elementary/special education, English, French, German, health education, history, industrial education, journalism, mathematics, music, physical education, physical sciences, physics, political science, recreation, secondary education, social studies, Spanish, special education,* and speech communication, and theatre.

Engineering: Civil engineering, computer integrated manufacturing systems engineering,* computer science, electrical engineering, engineering physics, and mechanical engineering.

Home Economics: Child and family studies, consumer sciences, food and nutrition, home economics,* housing and interior design, textile and apparel merchandising.

Journalism: Journalism.

Medicine: Biochemistry, clinical laboratory science, medicine,* (Medical School class ONLY), pharmacology,* speech pathology, and speech pathology and audiology.*

Mines: Chemical engineering, geochemistry,* geological engineering, geology, geophysics, metallurgical engineering, and mining engineering.

Nursing: Nursing.

Graduate: The master's degree is offered in the areas noted in each of the colleges. The education specialist degree offers majors in counseling and guidance personnel services, curriculum and instruction, and educational administration and higher education. A combined M.D./Ph.D. degree is offered with a major research emphasis in anatomy, biochemistry, pharmacology or physiology. Doctoral programs are offered in anthropology, Basque studies, biochemistry, biology, cellular and molecular biology, chemistry, counseling and guidance personnel services, curriculum and instruction, educational administration and higher education, engineering, English, geochemistry, geology and related earth sciences, geophysics, history, hydrology and hydrogeology, medicine, metallurgical engineering, pharmacology, physics, psychology, and social psychology.

Interdisciplinary and Special Programs

There are several interdisciplinary and special programs offered, including Basque studies,* cellular and molecular biology,* computer science, early childhood special education, environmental studies, ethnic studies, general studies, gerontology, historic preservation, honors study, hydrology and hydrogeology,* international affairs, juvenile court judges,* trial judges,* land use planning,* London studies program, Medieval and Renaissance studies, museology, National Student Exchange Program within the U.S., religious studies, study abroad through the Institute of European Studies, teacher certification, Western Interstate Commission for Higher Education (WICHE), and women's studies.

Additional information is presented in the special section preceding the school and college sections.

Commissioning Programs for the Military Services

The Reserve Officers Training Corps (ROTC) at the university provides an opportunity for men and women to earn a

*Graduate majors only.

commission in the United States Army while completing baccalaureate degree requirements. Program information is contained in the Military Science Department section in this catalog. Additional information is available from the Department of Military Science, University of Nevada-Reno, Reno, NV 89557, (702) 784-6751.

Intercollegiate Athletics

Intercollegiate athletics has a long tradition at the university and has produced All-Americans, professional athletes, many outstanding coaches, and graduates in a multitude of academic disciplines.

The intercollegiate athletic program offers a variety of team and individual sports for men and women with a commitment to the development and education of the student athlete.

The men's program competes under the auspices of the National Collegiate Athletic Association (NCAA) in eight intercollegiate sports: football, basketball, baseball, track and field, cross-country, tennis, golf, and skiing. Nevada is a member of the highly competitive Big Sky Conference in all sports except baseball, and skiing. Baseball competes in the West Coast Athletic Conference.

The UNR women's intercollegiate program is also a member of the NCAA and the Mountain West Conference. Sports offered include volleyball, basketball, skiing, softball, swimming and diving, tennis, cross-country, track and field.

Involvement in the intercollegiate program at the university is considered a desirable part of the total educational experience.

Additional information about specific sports is available upon request from the Intercollegiate Athletics Office, Lawlor Annex, (702) 784-6900.

University Research and Services

All colleges and schools of the university maintain well-equipped laboratories and special facilities in support of instruction and research.

Relics of the past, samples of the present, and specimens which may unlock secrets in the future are maintained in the several scientific collections and museums on the Reno campus, primarily in the fields of agriculture, biology, and the earth sciences.

The university also operates the Little Valley outdoor laboratory, a gift from Captain George Whittell which is located in the Sierra Nevada. This tract of land encompasses approximately four square miles of natural meadow and forest, and is used for the study of both basic and applied problems in the natural sciences.

In addition, a number of public service and research organizations, including federal and state agencies, are located at the university and are operated in cooperation with or as part of the university programs and facilities.

University of Nevada System

Computing Services

UNSCS serves all divisions of the University of Nevada System, providing computing support for their instructional, research, and administrative objectives.

Physical facilities consist of regional centers in Reno and Las Vegas. A UNSCS computer network provides access from all UNS campuses to the following UNSCS computers: two CDC dual Cyber 830's (primarily for administrative processing), two Sun 3/280S's, two Harris H800's, a Harris HCX-9, and a Digital VAX 11/750. The UNSCS network also links various campus local area networks. Remote printing stations are located in the UNR Business Building, at CCCC, NNCC, TMCC, WNCC, and at DRI Stead. Many academic computing resources are provided by local campus departments and colleges.

In addition to access to the above-mentioned computers and a wide range of application software, UNSCS provides consultant assistance, documentation, workshops, and a newsletter. Information on accounts and services may be obtained by calling (702) 784-1131.

Campus computing coordinators and committees play an active role in coordinating UNSCS academic computing services with campus needs and existing campus resources and facilities. The system Computing Planning and Policy Committee, CPPC, composed of chief academic and administrative officers from each campus, oversees the allocation of UNSCS administrative and academic computing resources. Two other system committees which participate in planning and in the allocation of resources are the Academic Computing Committee, ACC, and the Management Systems Committee, MSC.

University of Nevada Press

The University of Nevada Press is a publisher of scholarly books. Established by the Board of Regents in 1961, the press is a public service division of the University of Nevada System. Its purpose is to make a contribution to the state of Nevada and to the scholarly community by publishing books dealing with history, government, natural resources, ethnic groups, and contemporary affairs.

In addition to publishing books of general interest, the press is also the publisher of four distinguished series of books: the Max C. Fleischmann Series in Great Basin Natural History, a collection of life histories on the flora, fauna, and natural resources of the region; the Basque Book Series, devoted to the study of Basque culture, history, and politics in America and Europe; the Vintage West Series, reprint editions of significant early titles; and the History and Political Science Series, analytical studies of important political figures and topics. The press also publishes art portfolios of works by prominent western artists.

Decisions as to the publication of manuscripts are made by the Press Editorial Advisory Board, consisting of faculty members from the University of Nevada-Reno, the University of Nevada, Las Vegas, and the community colleges. Twelve to 15 titles are produced each year.

Faculty, staff, and students are welcome to stop by the press's offices, located in the basement of Morrill Hall, during regular business hours (8:00 a.m. to noon and 1:00 to 5:00 p.m., Monday through Friday), or to call (702) 784-6573 for more information.

University of Nevada-Reno

Academic Services

Campus Computing Services

In addition to the mainframe computers provided by the UNS Computing Center, UNR maintains over 1,000 microcomputers and 12 minicomputers. Campus Computing Services coordinates the planning, acquisition and utilization of these computers, terminals and other computer equipment. It also provides technical advice, software support, consulting, and training support to administrators and faculty.

Division of Continuing Education

The Division of Continuing Education provides postsecondary educational opportunities for individuals who are interested in furthering their training and preparation in selected areas.

Any individual who is 18 years of age or over, or who can present evidence of high school graduation, may register as a nondegree student in Continuing Education for a maximum of six semester credits (or equivalent) of undergraduate classroom instruction in one semester or six semester credits per five-week term in Summer Session without being officially admitted to the university.

Continuing Education is made up of the following departments: independent study, intensive English language center, professional development, extension programs, and summer session.

Extension Academic Programs

Educational opportunities are offered at locations throughout northern Nevada to individuals wishing to continue their education on a part-time basis. These may be academic credit or noncredit special programs, depending on the needs of the individual communities. Programs may be offered in the evenings, on weekends, or during the summer.

Independent Study by Correspondence

Students who wish to pursue academic study but find they cannot attend regular classes or for other reasons choose to study independently may enroll in courses offered by this department. Numerous college-level courses as well as a few noncredit courses are available through this program. Applications for enrollment in correspondence courses may be made at any time throughout the year. Students have one year in which to complete the course but may progress at their own pace with a minimum of restrictions. These courses may be taken for college credit and teacher certification. Correspondence courses may also be taken for advancement in vocation or for personal improvement. Most of the courses are approved by the Veterans Administration for those pursuing educational goals under this program.

While one course at a time is the recommended load, students may enroll in a maximum of two courses simultaneously. Nondegree students may enroll in correspondence courses in addition to the six semester credits or equivalent of classroom instruction.

A maximum of 60 semester credits earned in acceptable correspondence courses completed through a regionally accredited correspondence division in extension or off-campus courses may be applied toward a baccalaureate degree.

A catalog listing the course descriptions, in addition to information regarding the procedures and fees, may be obtained upon request from Independent Study, Continuing Education, Room 333, College Inn, (702) 784-4652.

Intensive English Language Center

The center offers elementary, intermediate and advanced levels of instruction in English as a Second Language to international students who are interested in learning the English language to qualify for admission to educational institutions in the U.S. upon completion of the program.

The program is offered on a year-round basis in eight-week sessions. The curriculum provides for 20 hours per week of instruction in facilities located on campus. Applicants must be 17 years of age or over and have completed the equivalent of a U.S. secondary school diploma.

Individuals approved for the program are issued appropriate immigration forms to attend on a student visa.

Additional information is available upon request from the director, Mackay Science 129, (702) 784-6075.

International Division in Japan

The International Division in Tokyo, Japan offers a full intensive English language program which provides the same curriculum and teaching standards as the Intensive English Language Center on the UNR campus. All instructors are native speakers of English and hold master's degrees in TESL or linguistics. In addition, certificate programs in professional development are offered.

Students attending the Tokyo center are encouraged to participate in English language and academic programs on the UNR campus.

For further information, contact the director of UNR's Intensive English Language Center, (702) 784-6075, or contact Kiyoshi Nagai, University of Nevada-Reno International Division, Izumi-Hamamatsucho Building 7F, 1-2-3 Hamamatsucho, Minato-ku, Tokyo, 105 Japan. Tel.: (03) 459-5551.

Professional Development

Professional Development works closely with the university community to provide noncredit conferences, seminars, and workshops. These activities, presenting state-of-the-art theories and procedures, are intended to assist Nevada's professionals in maintaining and improving their specific areas of expertise.

Summer Session

Summer Session annually offers a variety of courses, workshops, and institutes ranging from one to ten weeks. In addition to the two five-week terms, a three-week mini-term period for both on-campus and field study, following the end of the spring semester, is offered.

Graduate and undergraduate students have maximum flexibility to accelerate their study programs to approximate a full semester's study load. Teachers and administrators may complete certification requirements or gain additional knowledge or training. Adults and nondegree students may take part in special enrichment programs, lectures, and seminars.

Summer Session uses a single fee schedule and does not charge out-of-state tuition.

Instruction is provided by the university's own outstanding faculty and by nationally known visiting academicians.

Official admission is not required of students enrolling in undergraduate courses in the summer. The Summer Session student must have graduated from an accredited or approved high school or be 18 years of age and have the ability to do university work.

Official admission to the university is required prior to registration for each student who wishes to enroll in graduate courses.

Additional information, or a Summer Session class schedule, may be obtained through the Summer Session Office, (702) 784-4062.

Fire Protection Training Academy

A comprehensive, year-round schedule of intensive training programs in flammable liquids and gases fire control is operated at the Stead Campus in coordination with the Western Oil and Gas Association. The training is available to public fire service and petroleum industry personnel and offers not only classroom instruction but also field work on practical fire problems.

Sierra Nevada Job Corps Center

Job Corps is a highly successful national vocational training program funded by the U.S. Department of Labor. The Sierra Nevada Job Corps Center is operated by UNR through its Continuing Education Division. The program, designed to serve the individual needs of each enrollee, provides a comprehensive residential program to prepare youth, 16 through 24 years of age, of all ethnic groups, for meaningful employment and the responsibilities of citizenship. Program support is contributed by UNR academic departments. For information call (702) 677-3500 or write to Sierra Nevada Job Corps Center, P.O. Box 60181, Reno, NV 89506.

Instructional Media Services

The Office of Instructional Media Services functions as the educational technology center for the campus. Faculty and students use this office for consultation on the design and production of classroom instructional media materials; design and production of audio, video, and photographic materials; loan and delivery of all types of audio-visual equipment; electronic maintenance and consultation on technical concerns related to telecommunications and media. Facilities include photography laboratories, television studios, audio studios, and multimedia production equipment.

The office provides an instructional environment for students wishing to learn television production, radio production, photography, instructional design, broadcast engineering, or other media related skills through independent study projects and classes scheduled through academic departments.

A number of unique functions are supported by the Office of Instructional Media Services, including: UNITE, an interactive audio teleconferencing system which extends university activities throughout rural Nevada and beyond; KUNR-FM, providing national public radio for Reno and instructional services for the campus; and the Campus Cable Network, providing state-of-the-art telecommunications, data, and video distribution. The office also serves as the formal liaison to Channel 5, the community licensed public television affiliate located on campus. The facilities of the television station are available to departments for teaching, production, and student internships. All scheduling and coordination are done through the Office of Instructional Media.

Libraries

University of Nevada-Reno libraries are designed to meet the diverse academic and research needs of the campus' faculty and students. The main collection, housed in the Noble H. Getchell Library, contains approximately 791,000 volumes, 2.2 million microforms and 5,900 current periodicals and newspapers. As part of a land-grant institution, the library serves as a regional depository which receives virtually all federal documents and publications from various international organizations, including the United Nations, OPEC and UNESCO.

Six branch libraries, located at different points on campus, house specialized collections that support university curricula. These include engineering, life and health sciences, medicine, mines, physical sciences, and the water resources and atmospheric sciences collections of the Desert Research Institute.

Specialized services include computerized information searches in over 200 databases, interlibrary loan, classes in library science, photocopying facilities and access to an audiovisual learning laboratory. There is also a film library of over 3,000 films and videotapes serving the entire University of Nevada System.

The library recently installed new computerized systems for the acquisition and processing of books. A powerful new online public access catalog and computerized circulation system are scheduled for full operation in 1988, to include a large portion of the library's collections. Ultimately the entire card catalog will be replaced by the new system.

Among the library's extensive collections are the Nevada History, Modern Authors and Basque collections. The university is also privileged to have the 70,000-volume law library of the National Judicial College located on campus.

College Service and Research

College of Agriculture

Agricultural Experiment Station

The Agricultural Experiment Station, a part of the Max C. Fleischmann College of Agriculture, has been in continuous operation since its establishment in 1888. The passage of the Hatch Act of 1887 and succeeding state legislation provided for the organization of the station.

The majority of the Agricultural Experiment Station's faculty have joint responsibility with resident instruction or cooperative extension programs.

Federal funds are appropriated under the Hatch Act to promote the efficient production, marketing, distribution, and utilization of agricultural products and under the McIntire-Stennis Act to promote the development, protection, and utilization of resources from the nation's forest and rangelands. Station personnel conduct scientific investigations of wildland management as well as arid land agricultural practices to assist in the maintenance of a quality environment and a productive agriculture for the future through wise use of our natural resources. Projects include research on soil and water management, animal disease, internal parasites of animals, production and marketing of agricultural products, control of insect pests and plant diseases, forest management, land use classification, water quality, range and wildlife habitat management, and the development of more productive plants and animals.

Additional research programs are designed to protect consumer health and improve the well-being of Nevada residents' nutritional status as well as to promote community development through improvements involving recreation, environment, economic opportunity, and public services. Assisting rural families to improve their level of living is an important consideration in all agricultural research efforts.

Research is conducted in the laboratories of the Max C. Fleischmann College of Agriculture facilities on the campus of the University of Nevada-Reno, as well as at seven field laboratory sites including (1) Main Station — Reno, (2) Valley Road — Reno, (3) Newlands — Fallon, (4) Central Nevada — Austin, (5) Gund Ranch — Beowawe, (6) Southern Nevada — Logandale, and (7) Holly Park — Pahrump.

Nevada Cooperative Extension

The university extends its educational missions throughout the state through the Nevada Cooperative Extension. This educational outreach program of the college provides information, instruction and practical demonstrations to Nevada residents in agriculture, natural resources, home economics, youth, community resource development, and other related subjects.

An increasing number of rural and urban families are participating in a variety of program offerings.

A campus-based faculty of subject matter specialists working with field faculty headquartered in 14 counties constitute the organizational structure of the service. The faculty, working with local citizens and groups, plan and carry out educational programs to meet the local situations and needs.

The offices of the field faculty located throughout the state serve as local campuses of the university and provide citizens information about university programs.

Extension programs are financed by an agreement between the U.S. Department of Agriculture, the state, and the coun-

ties, and are consistent with the provisions of federal and state laws relating to extension work.

College of Arts and Science

The Center for Advanced Study

Fellows: B. Blackadar, Mathematics; B.T. Gardner, R.A. Gardner, Psychology; Jacobsen, English; Lightner (Director), McReynolds, Scott, Shin, Chemistry; B. Vig, Biology.

The Center for Advanced Study endeavors to recognize, facilitate and promote research and scholarship in the College of Arts and Science at the University of Nevada-Reno.

Fellows in the center are recipients of the University of Nevada-Reno Outstanding Researcher Award and also members of the College of Arts and Science.

Senator Alan Bible Center for Applied Research

As a college-wide center for research and development, the center functions in a support role to the university as well as to the 20 departments within the college. The center serves four primary functions:

1. as a center for stimulation of applied research by faculty and graduate students, with a facilitating role ranging from advice on project design to supervision of research projects;
2. as a publication outlet for occasional research monographs and shorter studies concentrating on Nevada state and local issues, plus the periodical, *Nevada Public Affairs Review;*
3. as a resource center, through maintenance of a small library specializing in intergovernmental relations and state and local policies, which is available to students, faculty and the general public; and
4. as a liaison between the university and state and local governments and business/industry to foster joint-venture endeavors to utilize faculty expertise within the college.

College of Business Administration

Bureau of Business and Economic Research

The research activities of the College of Business Administration are carried on through the Bureau of Business and Economic Research. This bureau collects and disseminates economic data about the state; provides economic and business information to individuals, businesses, and governmental agencies; engages in studies relative to the economic development of the state and its adjoining regions; and encourages and assists research efforts of students and faculty members. The quarterly *Nevada Review of Business and Economics* and periodic monographs and working papers are published to report on studies and make data available to the public.

Center for Economic Education

The Center for Economic Education carries on curricular and instructional research and development, publication, and in-service teacher training; and provides consulting services and other programs related to the teaching of economics from preschool through adult levels.

Programs are partially funded by grants from the Nevada Council on Economic Education, a nonprofit organization. Services are provided free to Nevada students, teachers, school systems, and the general public.

Nevada Small Business Development Center

The Nevada Small Business Development Center (NSBDC) is a business development and management assistance program created and sponsored by the College of Business Administration and the U.S. Small Business Administration.

The program objective is to provide high quality professional management assistance to small businesses throughout the state. Resources available to existing or new small businesses include NSBDC professional staff, faculty, paid consultants, students and private sector volunteers. Services include one-on-one counseling, sponsored training programs and a wide variety of publications to assist small businesses. Offices are located at UNR, UNLV, NNCC, and through Economic Development Authorities, chambers of commerce and the Agricultural Extension Service.

College of Engineering

Engineering Research and Development Center

The Engineering Research and Development Center promotes and encourages interdisciplinary research and administers sponsored grants and contracts for the college. Engineering faculty work diligently to expose both undergraduate and graduate students to research that is important to Nevada and at the same time significant on a national and international level. Research at UNR is conducted with funding from federal agencies, the state, industries, foundations and individual contributions.

The ERDC operates a state of the art computer aided design facility which is used by students and industry.

The ERDC has also developed a Standards and Calibration Center. This center provides necessary calibration to other university departments as well as state, federal agencies and private industries.

School of Medicine

Nevada Health Education Program (AHEC)

The Nevada Area Health Education Program has the mission of improving the supply, distribution, quality, utilization, and efficiency of health personnel in the state. The University of Nevada School of Medicine, through the Nevada Area Health Education Program, proposes to continue a three year cooperative agreement with the Bureau of Health Professions in order to support a regional area health education center in the northeastern area of Nevada; and provide health education outreach services which link underserved areas of northeastern Nevada in a coordinated system with existing health information resources, using innovative technologies.

A summary of the major program activities includes (1) arranging and supporting accredited educational experiences for medical and allied health profession students at affiliated health agencies; health facilities, and ambulatory care clinics. The planning of these activities is based upon a health workforce study and educational needs assessment made by the AHEC staff; (2) providing for and conducting various continuing education and training activities targeted to health professionals in the northeastern region; (3) providing a coordinated outreach health education system, which includes library and electronic learning resources; and (4) helping structure the University of Nevada School of Medicine's Family Practice medical residency program experiences in health promotion and disease prevention by rotating residents through the center.

Geriatric and Gerontology Center

This joint program of the Schools of Medicine, Nursing and Home Economics and the College of Arts and Science provides

a focus for university teaching programs, research in gerontology and geriatrics, and community service. The director works with university faculty from all disciplines as well as with local, state and federal agencies and organizations to develop and enrich educational courses and programs; to advance scientific knowledge of aging and the special problems of the aged; and to improve health and social services for Nevada's elderly citizens.

An eventual goal is to offer an interdisciplinary certificate in gerontology for university undergraduates. The teaching of geriatric content to medical students and resident physicians is also emphasized. The center is aligned closely with the geriatric and extended care program at the Reno Veterans Administration Medical Center; this program includes the Nursing Home Care Unit, a Geriatric Evaluation Unit, a consultation service, an outpatient clinic and respite care.

Nutrition Education and Research Program (NERP)

This program coordinates nutrition instruction and activities within the medical school's curriculum. It serves the medical community by integrating nutrition into the overall health care delivery system by providing nutritional counseling for patients on referral by their private physicians (Nutrition Associates by appointment, 784-4474) and ambulatory care services through the Departments of Pediatrics, Internal Medicine, and Family Medicine. NERP also provides educational seminars for the public and sponsors an annual continuing education conference for health professionals.

NERP conducts clinical nutrition research activities and currently has enrolled 500 normal subjects from the Reno community in their five-year study to determine the effects of diet and weight on cardiovascular risk factors.

Office of Rural Health

The Office of Rural Health is dedicated to the support of rural health care providers and institutions throughout the state. The office provides assistance in health manpower needs studies, recruitment of providers and continuing education programs for both providers and consumers. The office has a recruitment function, the clearinghouse, which specializes in the recruitment of primary care personnel, especially in rural and underserved areas of the state. Staff are in close and continuous contact with state, national and local health care agencies and help monitor health manpower shortage areas. The office assists rural communities in the design and procurement of health services and is responsible for the placement of senior medical students for their rural practice experience.

Medical Care

Craniofacial Pain and Temporomandibular Joint (TMJ) Dysfunction Clinic: This special clinic, housed at 834 Willow, treats those patients suffering from craniofacial and TMJ problems. The clinic serves as a diagnostic aid for physicians and dentists treating patients with head and face pain.

Aside from diagnosis and treatment, the clinic is also a center for collecting research data on TMJ pain and provides continuing education programs for Nevada physicians and educational materials for patients.

Ambulatory Care Centers: The centers listed below, staffed by School of Medicine faculty in Reno, offer the gamut of professional medical services: Internal Medicine, 781 Mill Street, 323-5263; Family Medicine Center, UNR, Brigham Building, 784-1533; Pediatric Clinic, Family Medicine Center, UNR, Brigham Building, 784-6180; Speech Pathology and Audiology, UNR, Mackay Science Building, 784-4887; and Nutrition, UNR, Brigham Building, 784-6180.

Mackay School of Mines

Center for Neotectonic Research

The Center for Neotectonic Research was established within Mackay School of Mines to coordinate research related to the evaluation of the geological environments which may affect land utilization. The center coordinates research related to evaluation of seismic and volcanic hazards, ground water environments, slope stability and sub-surface disposal of hazardous or radioactive wastes. The director of the Center for Neotectonic Research reports to the dean of the Mackay School of Mines.

Center for Strategic Materials Research and Policy Study

The Center for Strategic Materials Research and Policy Study was established within the Mackay School of Mines by congressional legislation in 1986. That legislation provided for a $9.4 million research facility which will be completed in 1988 and a $5 million facility for strategic materials policy study that will be completed in 1990. These major research facilities were funded out of a national concern for the availability of strategic materials to the industrial economy of the free world. Strategic materials are essential in the production of high-temperature alloys, steel and stainless steel, industrial and automotive catalysts, and solid state electronic components used in computers. Research in the center is focusing on improving domestic mineral production and metal processing of strategic materials, exploration for new domestic and free-world supplies of strategic materials, evaluation of substitutes for strategic materials, development of recycling technology and evaluation of existing laws and strategic materials policy.

Cooperative Institute for Aerospace Science and Terrestrial Applications (CIASTA)

The Cooperative Institute for Aerospace and Terrestrial Applications was established within Mackay School of Mines in cooperation with the National Oceanic and Atmospheric Administration (NOAA). The institute is one of three national centers of excellence in land remote sensing established by NOAA in 1986. The institute also coordinates research funded by the National Aeronatics and Space Administration (NASA) related to global earth system science, earth observations with the Manned Space Station and its co-orbiting Polar Platforms, and geophysical studies of the internal constitution of the solid earth. A major focus of the institute is related to informing the mineral engineering and geological sciences community on the use of aerospace remote sensing techniques for non-renewal resources management. Research in atmospheric and oceanic remote sensing is conducted cooperatively with the Desert Research Institute. Research in hydrology and hydrogeology is conducted cooperatively with the U.S. Geological Survey Water Resources Division. The director of the institute reports to the dean of the Mackay School of Mines.

Mackay Mineral Resources Research Institute

The Mackay Mineral Resources Research Institute was established as a research division of Mackay School of Mines. The institute was established under a program sponsored by the U.S. Bureau of Mines. In 1982 Mackay School of Mines was selected to be one of four national centers for research in

mining. The Generic Center managed under the institute is concentrating on mined land waste reclamation and is coordinating the research efforts of four other institutions on this problem. Other programs within the institute include research in critical and strategic mineral resource appraisal, development of new exploration methodologies, and geothermal research and engineering. The director of the institute reports to the dean of the School of Mines.

Nevada Bureau of Mines and Geology

The Nevada Bureau of Mines and Geology is one of the public service divisions of the Mackay School of Mines. The bureau was established by an act of the legislature of 1929. The director of the bureau reports to the dean of the School of Mines who oversees bureau activities.

The principal purposes of the bureau are to assist the public in the proper development and utilization of Nevada's mineral resources, and to provide geoscience data to individuals, industry, and public agencies.

Field studies are made of mineral deposits and geologic formations throughout the state to develop information needed by prospectors and mining companies in their search for new deposits. Field, laboratory, and library studies are made of the geology of urban areas to provide basic data for agencies, engineers, environmentalists, and others who have responsibility for development planning. Reports pertaining to these activities are published or made available to the public by other means.

The bureau conducts cooperative programs with the U.S. Bureau of Mines and the U.S. Geological Survey, and conducts funded research programs for other governmental agencies. It is also the Nevada affiliate of the National Cartographic Information Service and supplies information on base maps and aerial photography.

Seismological Laboratory

Established as a separate research division reporting to the dean of the Mackay School of Mines in 1974, the Seismological Laboratory has overall responsibility for instrumental studies of earthquakes in the Nevada region. The laboratory operates a statewide network of seismographic stations, and investigates the distribution of earthquakes, earthquake recurrence statistics, maximum earthquake magnitude, and problems related to seismic risk in Nevada. The laboratory publishes a series of bulletins, listing information on earthquakes analyzed for various periods of time, and serves as a repository of information and exchange of information on earthquake activity in Nevada and adjoining states. In addition to work of interest to the state, the laboratory carries out grant- and contract-supported research on seismic problems of national importance.

Financial and Administrative Services

The finance and administration division provides essential planning and operational services to the university community. It strives to enhance the instructional, research, and public service programs of the university by providing those services in a timely and useful manner. The five units that report to the vice president of this division are responsible for the following:

Business Affairs

Business affairs is located in the Artemesia Building and is an organizational unit comprised of central services (mail, receiving, shipping, and stores), the College Inn, employee relations and benefits, personnel services, printing services, purchasing and real estate, and safety and loss control.

Business affairs provides services to the University of Nevada System's Business Center North institutions (the Chancellor's system units, Desert Research Institute, Northern Nevada Community College, Truckee Meadows Community College, the University of Nevada-Reno, and Western Nevada Community College).

Central Services

Central services is located in the Central Receiving Building and provides mail, receiving, shipping, and stores services to the university.

The mail service includes distributing incoming and outgoing mail (including UPS, Federal Express, etc.) for the university and providing free distribution of intra-campus and intra-state agency mail and facsimile service. The receiving service includes receipt and delivery of all non-mail freight and packages. The shipping service includes the packaging and sending of all non-mail freight and packages. The stores service includes ordering, stocking, and delivery of commonly used items which are inconvenient to purchase off-campus, require lengthy delivery times, or result in savings by purchasing in bulk quantities.

College Inn

The College Inn is a 156-room residence/conference facility, with full food service capabilities, located immediately adjacent to the UNR campus. The College Inn was secured by the university through a grant from the Fleischmann Foundation. It serves adult continuing education programs offered by the university, the National Judicial College and the National Council of Juvenile and Family Court Judges, and all other organizations, faculty, and staff of the University of Nevada System. For additional information, call (702) 323-0321.

Employee Relations and Benefits

Employee relations and benefits is located in the Artemesia Building and administers all employee benefits and assistance programs for all faculty and staff of units within the University of Nevada System's Business Center North. These programs include retirement and group insurance plans, tax sheltered annuities, counseling and employee assistance programs, worker's compensation and safety programs, and related training programs, seminars, and workshops.

Personnel Services

Personnel services is located in the Artemesia Building and administers such personnel programs as employment, recruitment and selection, compensation and classification, employment contracts and personnel records, and other employee-related services. In addition to providing these services to the University of Nevada-Reno, personnel services also administers the classified personnel programs for the other University of Nevada System's Business Center North institutions.

Postal Services

A branch of the U.S. Postal Service (University Station) is located on the university campus at the corner of Sierra and

Artemesia. All usual U.S. post office services, except general delivery, are available, and mail boxes may be rented.

Students living on campus must have a post office box to receive mail since mail addressed to residence halls cannot be delivered by the U.S. Postal Service and is returned to the sender. (Also see "Central Services.")

Printing Services

Printing services is available to all faculty, staff, and students, and provides offset printing, photo-direct printing, high speed copying, phototypesetting, darkroom facilities, and bindery services from its main office in the Artemesia Building. A satellite copy center is located in the Business Building.

Purchasing and Real Estate

The purchasing and real estate office is located in the Artemesia Building and provides centralized buying services for the institutions in the University of Nevada System's Business Center North.

The purchasing and real estate office also processes all university insurance claims, provides for short-term risk insurance for special occasions, the registration and licensing of all motor vehicles and trailers, and manages the real estate for the university, including off-campus rental units and the Stead Apartments.

The property inventory section in the purchasing office maintains a computerized listing of all Business Center North equipment and handles the disposal of excess property for all BCN institutions.

The Stead Apartments: One and two bedroom unfurnished apartments are available at Stead for married students who are enrolled full-time and married staff. Students with children are given preference. These apartments are managed by the Stead Apartment Manager, telephone 972-0781.

Safety and Loss Control

The Safety and Loss Control Department is located in the Artemesia Building and directs the worker's compensation and employee safety programs for units within the University of Nevada System's Business Center North.

Controller

The controller provides a system for financial reporting and control of all university and university related funds and is responsible for collection, disbursement and custody of these funds.

Services provided include cashiering (fee assessment and collection, and other cash collections); accounts payable; payroll; sponsored project management and reporting; student loan disbursement and collection; accounting services for plant funds, endowment funds and auxiliary funds; and agency funds custodianship.

The controller's office supports the development effort by receipting all gifts and keeping all donor and alumni giving records for the university and the UNR Foundation.

Physical Plant

The Physical Plant Department provides services for operation and maintenance of the university's facilities and grounds. Planning, engineering, designs and construction of new facilities and work is provided under the department. Building repairs and maintenance, heating, air conditioning, custodial services, key assignments, motor pool services and utility services are available through the Physical Plant Department.

Planning, Budget, and Analysis

The Office of Planning, Budget, and Analysis coordinates the development and refinement of the academic and fiscal planning of the university, and the development and allocation of its budget. It prepares the biennial budget request and the annual operating budget. It conducts studies which describe, analyze, and evaluate the operations and outcomes of the institution. The office serves as the staff to the university planning and budget team.

University Services

University services is a unit which includes the Planetarium, public safety (parking and police), facilities planning, scheduling services, supervision of the university administrative manual, and the university's drug education, testing and treatment program.

Fleischmann Planetarium

The Fleischmann Planetarium, known as the "Space Place," is operated by UNR for the community as a science education/entertainment center. Located at the northern end of the campus, its heart is a domed theater containing a planetarium instrument, a sophisticated array of special effects equipment, and a Cinema 360 projector. This is an all-sky motion-picture system that recreates daytime environments in the theater, just as the planetarium shows objects in the nighttime sky.

The Hall of the Solar System, located on the upstairs building level, contains six-foot-diameter globes of the earth and moon, a meteorite collection, and other exhibits about the sun, planets and their satellites.

Programs are presented for school groups and the general public throughout the year. In addition, a museum containing exhibits and displays on astronomy, is open daily. Call 784-4811 for a schedule, 784-4812 to make reservations.

Public Safety

Parking: All members of the university community — students, faculty, and staff — are permitted to park their vehicles in specified areas on university property in accordance with the University Parking and Traffic Regulations. Vehicles must be registered and have official parking permits. University personnel are required to complete vehicle registration cards during registration before a permit is issued.

Meter parking, visitor parking, and parking for the handicapped are also available in designated areas.

The University Parking and Traffic Regulations, approved by the Board of Regents, governs all vehicles operated on campus. Vehicles parked in violation of the regulations are subject to citation and/or impounding.

Permits and parking information are available at the Department of Public Safety, Parking Division, at 1303 Evans Avenue, (702) 784-4654, and in the Lombardi Recreation Building (second floor multi-purpose room) during registration.

Police: *Emergency Number: 784-6971.* The University of Nevada-Reno Department of Public Safety (UNRDPS) is an agency of the university community. Its purpose is to serve and protect the students, staff, faculty, and all other persons and property within the jurisdiction of that community.

Police officers and personnel are on duty 24 hours a day every day of the year, and their services and facilities are available at all times.

University police have the exclusive responsibility of acting upon law enforcement matters and performing police functions for the University of Nevada System in the Reno area. This area includes the university's Reno and Stead campuses including the Sierra Nevada Job Corps, and the extended installations of the Agricultural Experiment Station and Veterinary Science facility in the eastern part of the Truckee Meadows; the Community College Division; and the Desert Research Institute.

Police personnel of the UNRDPS are sworn peace officers, performing the same services as those of any municipal police agency. They investigate all crimes and enforce federal, state, and local laws within their jurisdiction, as well as university regulations.

Officers of the UNRDPS are among the best trained and equipped in the state. They are graduates of the Nevada Highway Patrol Academy or the Northern Nevada Police Academy. They are also certified in first aid and CPR. Many of the officers hold either associate or bachelor's degrees in the sciences relating to criminal justice, sociology, psychology, community relations, and other public service-related fields. In addition to this extensive training they also attend many short courses and training seminars throughout the year.

Any member of the university community who needs emergency help or medical assistance may contact the police personnel day or night. They are located at 1305 Evans Avenue, on the east side of the main campus.

The emergency number, shown above, is the 24-hour dispatch center, which is in direct contact with other emergency centers in the area.

Facilities Planning

The Office of Facilities Planning (6948) maintains the inventory of all UNR instructional and non-instructional space and generates evaluative space to the Facilities Planning and Management Board whose chief responsibility is campus master planning. The office also processes long-term space assignment requests made to the board and provides alternative emergency instructional settings.

Scheduling Services

The scheduling office (6837) coordinates all off-campus and faculty/staff requests for meeting space. The office also processes classroom changes after the add/drop registration deadline.

Development

University Development coordinates the alumni relations, fund-raising, and public information efforts of the university. The units involved in these efforts include the Alumni Association, Alumni Relations, the Office of Legislative Relations, the Office of Public Information, and the UNR Foundation/Office of Development. These units are administered by directors who are responsible to the vice president for development.

Alumni Association

The University of Nevada Alumni Association, organized in 1895, encourages a lifelong relationship between alumni and their university and works to promote the welfare of the institution.

The association's activities include the operation of regional chapters throughout Nevada and other states, support of a variety of student activities, an annual giving program, and development of programming in the field of alumni continuing education.

The association's communication arm, the *UNR Times,* is distributed to alumni on a monthly basis.

Officers and executive committee members are elected annually during Homecoming weekend. Membership in the association is open to all graduates and those who attended the university for one semester or more.

The association offices are located in Morrill Hall on the Reno campus. For further information, write to the Alumni Office or call (702) 784-6620.

Alumni Relations

Alumni Relations works closely with the Alumni Association representing the 29,000-plus graduates of the university who maintain contact. Call (702) 784-6620 for more information.

Public Information

The Office of Public Information is the communications liaison between UNR and the publics it serves. The office is responsible for both on and off-campus communications, and is the central clearinghouse and authorized source of reference for commonly quoted university facts and figures. This office contains three units: the News Bureau, Publications and Graphics, and the Speakers Bureau.

The News Bureau disseminates university news through news releases and public service announcements to newspapers, magazines, radio, and television stations as well as educational and other professional publications throughout the United States. The bureau also produces the in-house campus newsletter *Item-Miser,* serves as liaison between the university and the news media, and provides institutional video and script support. The News Bureau is housed in Jones Visitor Center. Call (702) 784-4941 for more information.

Publications and Graphics coordinates the design and production of university publications, including brochures, fliers, posters, magazines, catalogs, newsletters, and other promotional materials. This office is charged with implementing the university's visual and written style guidelines. Publications and Graphics is located in Ross Hall, room 210. Call (702) 784-4959 for more information.

The Speakers Bureau, celebrating its twentieth anniversary in 1988, is a free public service which makes available the resources of the university system to organizations throughout the state. The bureau is comprised of faculty and staff from UNR as well as members of participating community colleges,

the Desert Research Institute, and the Nevada Historical Society who volunteer their time to present topics of interest to requesting groups and organizations. The Speakers Bureau is housed in Jones Visitor Center. Call (702) 784-1583 for more information.

UNR Foundation/Office of Development

Established in May 1981, the UNR Foundation and Office of Development is the central fund-raising organization for all academic and public service programs at the university. The foundation is governed by a 60-member board of trustees made up of alumni, community leaders, businessmen, and other friends of the university.

The Foundation/Office of Development is charged with the coordination, cultivation, solicitation, and processing of all private funds and gifts donated to the university. The professional staff is comprised of resource people within the university who are available to all colleges, schools, and departments for consultation and assistance. The office oversees several major programs, including the annual fund campaign, the UNR Associates, capital campaign coordination, planned giving, and scholarship solicitations.

Through the efforts of the UNR Foundation staff and many volunteers, as well as support from the community, the UNR Foundation is able to fund or lend support to such areas as scholarships, new equipment, buildings, libraries, the Alumni Association, the Graduation Gift Celebration, Foundation Professorships, and the Foundation Faculty Travel Program. The UNR Foundation/Office of Development is housed in room 102 of Morrill Hall. Call (702) 784-6622 for more information.

Lawlor Events Center

The Lawlor Events Center is a multi-purpose public assembly facility. It maintains a top quality, professional staff and is capable of accommodating university sponsored athletics, entertainment, educational and cultural events, as well as outside public and private events for which the facility is suited. The 12,000-plus seat center, which opened in the fall of 1983, has been designed and constructed with flexibility and quality in mind. Along with providing a new home for Wolf Pack basketball, the center provides UNR students, staff, and area residents with entertainment, cultural and educational opportunities not otherwise available in the Reno/Sparks area. The center also brings in events which promote business and bring visitors to our community. For information on the Lawlor Events Center or event information call (702) 784-4659.

Affiliated Organizations of the University

Desert Research Institute

The Desert Research Institute is a division of the University of Nevada System established by special act of the Nevada Legislature in 1959 to conduct scientific research on topics of particular relevance to Nevada as well as on topics of national concern or basic scientific interest. The institute was activated in October of 1960 by a grant from the Max C. Fleischmann Foundation, which continued as a major private supporter of the institute until the foundation's dissolution in 1981. Organizationally, the DRI president reports through the chancellor of the University of Nevada System to the governing board of regents. The institute is staffed by approximately 200 full-time professional scientists, technicians and support personnel and receives about 10 percent of its annual budget as direct support from the state of Nevada. The remainder, including the funds for all indirect operating expenses (maintenance, utilities, office supplies, staff, travel, etc.) comes from the research grants and contracts from government and industrial clients.

DRI is comprised of five research centers, each oriented toward a particular area of scientific inquiry and employing a multidisciplinary approach to research problems. It is common for DRI research teams to be assembled from among several centers, and also at times from the faculties of the university campuses in Las Vegas and Reno and other universities, depending upon the nature of the task. DRI faculty also teach selected, technical subjects at UNR and UNLV, an arrangement that provides additional expertise in highly technical curricula without the corresponding full-time staffing requirements. Selected UNR and UNLV graduate students are also employed to support DRI researchers on contracted projects, providing underwritten topics for theses and dissertations.

The Research Centers

The five DRI centers are the Atmospheric Sciences Center, Biological Sciences Center, Energy and Environmental Engineering Center, Social Sciences Center and Water Resources Center. The centers' offices, laboratories, shops and engineering and support facilities are located in facilities at Stead, Reno, Las Vegas and Laughlin, Nevada, but research teams are based throughout the U.S. and the world as projects require.

The *Atmospheric Sciences Center* has built an international reputation in the areas of cloud physics, air motions and weather modification research. Its scientists participate worldwide in projects ranging from the formational processes of Gulf and Atlantic hurricanes and High Plains hail suppression, to the development and application of weather modification techniques to augment the winter snowpack in the Sierra Nevada Range and elsewhere. Intriguing ice crystal studies conducted with one eye on the potential space production of crystals and studies on the design, management and evaluation of cloudseeding efforts worldwide are other highlights of ASC's science program. The center's sophisticated instrumentation development capability is particularly strong in the areas of remote sensing, aircraft probes and atmospheric aerosol equipment. These support ASC's own efforts as well as providing state-of-the-art research tools for numerous other leading American and foreign research groups.

The *Biological Sciences Center* examines the photosynthetic response of plants to the low moisture, high solar radiation and wide daily and annual temperature ranges of arid environments. The center's research program is considerably expanded by scientists from universities and research groups around the world who take part in the center's operation as an international focus for research on arid lands plant problems. The center is equipped for complex field site analyses as well as sophisticated laboratory research.

The *Energy and Environmental Engineering Center* investigates the factors influencing air quality from the point of the contributing pollutant sources, through the transport of pollutants and their chemical conversions in the atmosphere, to the eventual or potential environmental impacts. The center's combined programs in basic and applied research include extensive field monitoring and analysis for metropolitan and regional air resources conditions. Technical innovations involve the development of prototype instrumentation, supported by new analytical techniques and sophisticated modeling capabilities. Laboratory activities include an atmospheric simulation "cloud" chamber for reproducing real world air quality conditions or for anticipating the potential consequences of various air quality control strategies.

The *Social Sciences Center* focuses on the development of human cultures in arid lands, emphasizing an anthropological approach to historic, prehistoric, geologic and archaeological studies concentrated in the western and southwestern United States. The center's interdisciplinary program includes specialists in the fields of social analysis, demography, geology, palynology, paleoclimatology, and climate modeling in addition to the core subjects of archaeology and anthropology.

Major ongoing projects include an examination of the technological change of Native Americans from a hunter-gatherer culture to agriculture in the American Southwest and cultural resources surveys and analyses in advance of industrial or governmental land disturbing activities to preserve and interpret the archaeological record. Center scientists also conduct demographic and social surveys of the behavior of Native American populations relevant to public health concerns, geomagnetic (polar movement) research, tephrachronology (volcanic ash dating), and evaluation of "rediscovered" low-level resource management techniques suitable for Third World economics in arid regions

The *Water Resources Center* investigates the hydrologic, chemical, engineering, economic and legal aspects of water resources with regard to both quality and quantity. These investigations include development of computer simulation models used in planning, managing and evaluating groundwater flow, geothermal resources, hydroelectric applications and other water topics. The center has a strong water quality program examining the effects of radionuclide transport at the Nevada Test Site. A related program in the environmental pollution of groundwater seeks new techniques for detecting, identifying and containing hazardous wastes. Other research efforts examine existing water management systems and the feasibility of new management techniques for conserving or increasing water supplies and maintaining or improving water analysis. The center's facilities include an EPA certified water equality laboratory to support hydrogeologic, geochemical and biological studies, an isotope laboratory involved with groundwater recharge investigations, extensive computer facilities, field analytical equipment and technical library.

The Alessandro Dandini Research Park, a 470-acre tract overlooking the Truckee Meadows on Reno's northern boundary, currently contains the offices and laboratories of several Desert Research Institute centers, the institute's administration and the adjacent Truckee Meadows Community College. The park is planned as a site for private, corporate or public research firms or agencies who will be able to collaborate scientifically with DRI and take advantage of the institute's expertise and facilities.

For further information about the Desert Research Institute, contact the President's Office, P.O. Box 60220, Reno, Nevada 89506, or call (702) 673-7311 in Reno or (702) 798-8882 in Las Vegas, Nevada.

National College of Juvenile Justice

The National Council of Juvenile and Family Court Judges, founded in 1937, is the oldest and largest judicial membership organization in the country. The council is dedicated to improving the standards and effectiveness of the nation's juvenile and family courts through continuing judicial education, research, technical assistance and publications.

The council's headquarters and its training branch, the National College of Juvenile and Family Law, are located at the University of Nevada-Reno. Its research center, the National Center for Juvenile Justice, is located in Pittsburgh.

The National College of Juvenile and Family Law, the nation's largest training center for judges and other professionals in the juvenile justice system, conducts a variety of programs on campus for judges and court administrators from all parts of the United States, its territories, Canada, and several other foreign countries. In addition to the resident programs, the college also provides regional and state institutes across the nation. Since 1969, more than 85,000 juvenile justice personnel have participated in its continuing judicial education programs.

From its headquarters at the university's Judicial College Building, the council publishes books and several periodicals, including *Juvenile and Family Court Journal,* a quarterly journal devoted to the behavioral and legal problems of juvenile delinquency, the *Juvenile and Family Law Digest,* a monthly review of major court decisions affecting juveniles, and the *Juvenile and Family Court Judges Newsletter,* published eight times annually.

The council receives support through the generosity of corporations and foundations as well as local, state, and federal agencies. Past supporters include the Max C. Fleischmann Foundation, the United States Department of Justice, the Office of Juvenile Justice and Delinquency Prevention, the American Bar Endowment and a broad group of individuals concerned with the improvement of justice for children.

The National Judicial College

The university is the academic home for the National Judicial College. This institution has the high purpose of improving the administration of justice by providing programs of judicial education and training for the nation's judges. The college is an affiliate of the American Bar Association.

The college conducts resident, extension, and special and innovative programs on a year-round basis. Resident sessions are of one, two, three, or four weeks duration. More than 500 foreign judges from 99 countries and over 400 military judges have received training at the Judicial College during its history, along with a number of appellate and federal judges, Indian tribal judges, court administrators, and other personnel. More than 21,000 certificates of completion have been issued to judges attending the resident sessions.

Outstanding judges, lawyers, and law professors from across the nation serve without compensation as members of the faculty. The law faculty is joined by representatives of other disciplines including medical doctors, psychologists, sociologists, communications experts, and others.

In 1986 the college inaugurated the nation's first advanced degree program for trial judges, the Master of Judicial Studies program, in cooperation with the university.

Extension programs are conducted in the states in association with state supreme courts, judicial associations, and other judicial agencies. The college also provides assistance to other state judicial colleges.

From time to time, the college conducts national conferences of the judiciary on contemporary issues such as victims of crime, family violence, jail and prison crowding, rural courts, senior citizens in the courts, and bioethics.

The college's law library contains more than 60,000 volumes and is available to the students of the university and to the community.

Supported by a mix of private and public funding, the college is presently conducting a major development effort for endowment funds so that its mission can be continued and its independence maintained. Initial funding for the endowment fund was made possible by an unprecedented $2.5 million challenge grant approved by the Nevada Legislature in 1985 and matched by the alumni, and other contributors in 1986. The current goal is to establish a $10 million endowment fund.

Federal Agencies

The Reno Research Center, Bureau of Mines, U.S. Department of Interior, is located adjacent to the campus of the university. This facility performs extractive metallurgy research and is headquarters for the bureau's state mineral officer for Nevada and California.

Offices of the Agricultural Research Service, Economic Research Service, and Forest Service of the federal government are also housed on the Reno campus.

Admission Information

General Requirements

Age: Applicants for admission to the university must be at least 15 years of age.

Nondiscrimination: Applicants are not denied admission because of sex, race, color, religion, handicap, or national origin.

Placement Tests:[1] American College Test (ACT) scores are required for freshman admission to the university for use in academic advisement, proper course placement, and for those resident applicants who do not qualify on the basis of their high school records. An applicant who completes the Scholastic Aptitude Test (SAT) and otherwise qualifies for admission is exempt from the ACT requirement. Special testing arrangements may be made for handicapped applicants.

An applicant 25 years of age or older is exempt from the ACT/SAT requirement.

The Foreign Language Placement Test is a special examination required prior to registration in other than a beginning course in foreign languages. This examination is scheduled during the orientation period prior to the beginning of each semester.

A transfer applicant who has successfully completed freshman-level courses in English, foreign language, or mathematics is placed on the basis of demonstrated achievement and is exempt from the ACT/SAT requirement.

Admission Filing Dates: Application forms should be submitted with proper credentials not later than July 1 for admission to the fall semester and prior to January 2 for admission to the spring semester.

Application for Admission: Application forms are available in the Office of Admissions and Records. Each individual who interested in attending the university is responsible for submitting complete admission credentials to the Office of Admissions and Records which become the property of the university nd are not returnable. The following credentials are required:

1. A completed Application for Admission, properly dated and signed.
2. A nonrefundable $20 application fee.
3. An *official transcript*[2] must be sent directly from the high school.
4. If applying with advanced standing, a separate official transcript must be sent directly from each college or university attended whether credit was earned or not.
5. ACT or SAT scores, as specified.
6. *International applicants* must submit the following additional credentials:

(a) Satisfactory scores on the Test of English as a Foreign Language (TOEFL) indicating an ability to speak, write, and understand the English language sufficiently to pursue full-time study. The Test of Written English (TWE) is recommended but is not required.

(b) Adequate proof of financial responsibility or sponsorship by a reputable U.S. citizen or organization for all obligations while attending the university.

(c) A recently completed (within six months) medical history and examination signed by a medical doctor.

Application for Resident Fees: Individuals claiming eligibility for resident fees at the university are required to submit a completed application to the Office of Admissions and Records. Students registering for seven credits or more who have not proven resident status are charged nonresident tuition.

Admission Evaluation: Each newly admitted student is issued an *Admission Evaluation* which is valid for the registration period requested. Those who do not register at that time must submit the additional credentials necessary to bring the admission file up to date so a new admission decision may be made. Admission credentials for students who do not register are retained for a maximum of one year and then destroyed in accordance with established policy.

Cancellation of Admission or Registration: The university reserves the right to cancel the admission or registration of an individual whose attendance at the university, in the opinion of the appropriate administrative offices and the president, is not mutually beneficial to that person and to the institution.

Individuals who have registered at other educational institutions may *not* disregard such records and make application on the basis of their high school or selected college transcripts.

An ineligible applicant who gains admission to the university on the basis of incomplete or fraudulent credentials or misrepresentations in the written application for admission, shall have his or her:

- Admission and registration cancelled without refund of any fees; and
- Total credits rescinded that have been earned following such admission; and
- Future registration at the university prohibited.

The director of admissions and registrar is responsible for the verification of documents and credentials. If it is determined the student sought admission on the basis of incomplete or fraudulent credentials or misrepresentations in the written application for admission, the student is notified in writing of the director's intention to take the above action. The student has ten days thereafter to reply in writing. The director then makes a determination and takes appropriate action, notifying the student in writing. The student may file a written appeal to the president within ten days. The decision of the president is final.

Early Admission

Application by ACT/SAT: A qualified high school student who has completed the junior year may be admitted pending graduation on the basis of ACT or SAT standard scores and the self-reported grades. To be considered, a high school senior must take the ACT or SAT and designate UNR as first, second, or third choice to receive the official score reports.

Admission is offered to Nevada resident applicants who have an ACT composite standard score of 19 or higher, or an SAT

[1]The American College Testing Program (ACT), P.O. Box 168, Iowa City, Iowa 52243, and the Scholastic Aptitude Test (SAT), CN 6200, Princeton, New Jersey 08541-6200.

[2]*Transcript Note:* All academic records must be submitted in the English language. Applicants who are enrolled in other educational institutions at the time of application may submit incomplete transcripts and end-of-course grade reports, but official final transcripts of the work in progress must be submitted before the final admission status may be determined.

combined score of 900 or higher, supported by an ACT or SAT self-reported high school grade point average of 2.3 (A = 4.0) or above. Nonresident applicants are required to have the same ACT or SAT scores supported by an ACT or SAT self-reported high school grade point average of 2.5 or higher. Applicants whose grade point averages are B or higher qualify with an ACT composite standard score of 16 or higher or an SAT combined score of 800 or higher.

To accept admission, the applicant must provide all information requested by the Office of Admissions and Records. Upon satisfying the requirements, a certificate of admission is provided with relevant information for planning reference.

In addition, early admission consideration is given based upon an official six- or seven-semester transcript and ACT or SAT scores received in support of the application for admission.

Superior Student Program: High school seniors who have demonstrated above-average achievement through the junior year may qualify for *early admission to register in university courses prior to graduation* subject to these requirements:

1. Evidence of an overall grade point average of 3.0 (A = 4.0) or above after six semesters—the end of the junior year, or 2.5 or above after seven semesters.
2. An American College Test composite standard score of 21 or above or SAT combined score of 950 or above.
3. Be within three units of high school graduation.
4. Be enrolled, or approved for enrollment, in the courses that will satisfy high school graduation requirements as certified by secondary school officials. An approved student who ceases attending high school becomes ineligible to continue in university courses. Registration is cancelled upon the recommendation of the principal or counselor.
5. Have a personality showing mature social behavior.
6. Have parental approval and be recommended by the high school principal or counselor.

An approved student is a regular freshman and is assigned a faculty adviser. Registration may be in any courses for which the student is qualified, subject to the approval of the adviser and the department offering the course. A maximum of six credits may be earned per semester or during a summer term for a combined total of 18 credits prior to high school graduation. Any exceptions require the advance approval of the director of admissions. University correspondence courses are available to those who cannot attend on campus. Special application forms are available upon request from the Office of Admissions and Records.

Undergraduate Academic Requirements

Admission to Bachelor's Degree Programs

The minimum academic requirements for admission to all undergraduate degree programs are the same.

High School Graduation: Each applicant for admission to regular first year or freshman standing must present satisfactory evidence of graduation from an accredited or approved high school. Graduates of nonaccredited or nonapproved high schools who otherwise satisfy the freshman entrance requirements are admitted on probation.

Grade Point Average: A minimum overall high school grade point average of 2.3 (A = 4, B = 3, C = 2) or above is required. All credit courses with grades are included in computing the average.

High School Preparatory Courses: In January 1985, the University of Nevada System Board of Regents approved requiring the satisfactory completion of specified high school courses for freshman admission to UNR or UNLV, effective for those entering for the 1989 Fall Semester.

High School	English	Math	Social Studies	Natural Science	Computer Literacy	Total
Units	4	3	3	3	½	13½

Even though the specific high school units are not required at the present time, each high school student who is planning future attendance at the university should complete as many of the specified courses as possible before graduation.

Additional detailed information for admission requirements effective for the 1989 fall semester is contained in the announcement at the end of this section.

Admission for International Students

The minimum academic requirements for international applicants are:

1. Official evidence of an educational level equivalent to graduation from an accredited American high school.
2. Evidence of above-average ability (B or higher) in an academic curriculum as verified by official transcripts or satisfactory test scores. Applicants who cannot submit official transcripts of record may obtain specific information upon request from the Office of Admissions and Records.
3. Applicants with advanced standing must submit evidence of above average achievement in their college-level courses.

Admission on Probation

Freshman on Probation: Legal residents of Nevada not satisfying the minimum freshman admission requirements who have earned an overall high school grade point average between 2.0 and 2.29 are admitted as freshmen on probation.

Nevada residents graduating with less than an overall high school grade point average of 2.0 (C), or Nevada resident applicants over 18 years of age who have not graduated from high school, may qualify for admission as freshmen on probation by submitting an ACT composite standard score of 20 or higher, or a SAT combined score of 925 or higher.

Freshmen admitted on probation are removed from probation when 15 semester credits or more are earned at the university with a cumulative grade point average of 2.0 or above.

The freshman on probation classification does not apply to applicants transferring from other educational institutions.

Special Admissions Program: An applicant who does not satisfy the minimum undergraduate academic requirements for admission may apply for probationary consideration through the Special Admissions Program. The maximum number of applicants who may be admitted each year may not exceed 4 percent of the total freshman enrollment for the previous fall semester as published in the official enrollment report.

Each applicant is required to meet the following educational criteria to the satisfaction of the director of admissions and registrar:

1. Provide documented evidence of the necessary capability (test scores), readiness, achievement, and motivation to be successful in university-level study.

FRESHMAN ADMISSION: Recommended High School Preparatory Courses and Minimum GPA Requirements

Subjects	Agriculture	Arts and Science	Business Administration	Education	Engineering	Home Economics	Journalism	Medical Sciences	Mines	Nursing
ENGLISH Emphasis upon composition, rhetoric and American, English and world literature	4	4	4	4	4	4	4	4	4	4
MATHEMATICS Including algebra and geometry	3	3	3	3	3 Algebra 1½ Pl. Geom. 1 Trig. ½	3	3	3 Algebra Geom. (P&S) Trig.	3 Algebra 1½ Pl. Geom. 1 Trig. ½	3 Algebra 2
SCIENCE Includes biology, chemistry and physics, with two years lab course	3	3	3	3	3 1 or 2 units of Physics for E.E.	3	3	3	3 Chemistry, Biology and and Physics	3
SOCIAL SCIENCE Includes world history and geography, U.S. history, economics, government and law	3	3	3	3	3	3	3	3	3	3
COMPUTER LITERACY	½	½	½	½	½	½	½	½	½	½
FOREIGN LANGUAGE	0	4[1]	0	0	0	0	4[1]	2	0[2]	1
MINIMUM GRADE POINT AVERAGE REQUIRED	RESIDENT AND NONRESIDENT APPLICANTS MUST HAVE A 2.3 (A = 4.0) GPA OR HIGHER FOR FRESHMAN CLASSIFICATION									
	RESIDENT APPLICANTS MUST HAVE A 2.0 TO 2.29 GPA FOR FRESHMAN ON PROBATION CLASSIFICATION									

[1]Four units of one foreign language satisfies the arts and science degree requirement and assists in satisfying the journalism requirement.
[2]Two units for the geology curricula.

2. Submit a personal statement of educational goals.
3. Provide two letters of recommendation—one from the university director of counseling and testing and the other from the most recent employer.
4. Appear for a personal interview, if requested.

Joint approval of the director of admissions and the appropriate academic dean is required for an applicant to be admitted. Admission is probationary and the regular academic standard regulations apply.

Interested individuals should contact the Office of Admissions and Records for information and the proper forms.

Inadmissible High School Graduate

An applicant who is ineligible for admission upon graduation from high school must complete 15 or more acceptable, baccalaureate-level semester credits with an overall C average or above to qualify. Credits may be earned at the university as a *nondegree* student during regular semesters or summer session, at another regionally accredited educational institution, or through correspondence courses.

General Education Development Test (GED): The GED Test scores are not acceptable toward satisfying admission requirements.

Admission to Advanced Standing

Advanced Standing: Admission with advanced undergraduate standing is granted to a student transferring from another accredited college or university provided the applicant meets two conditions. First, the applicant must be in good standing at the educational institution last attended; and second, official transcripts must be presented from each college or university attended showing an overall C average or above on all acceptable transfer credits. An applicant transferring to the university with less than 15 acceptable transfer credits is required to satisfy both the transfer and high school graduate admission requirements.

Applicants from accredited institutions ordinarily are granted credit for all work completed at the previous institutions, provided such courses are equivalent or comparable to those in the curricula offered at the university. Credit is evaluated by the Office of Admissions and Records and granted in accordance with established university regulations and the following guidelines:

1. The accreditation of the institution and the listing published in the current American Association of Collegiate Registrars and Admissions Officers "Transfer Credit Practices" govern the acceptance of transfer credit.

Regionally Accredited Institutions: Credits earned in institutions that are accredited, or are approved candidates for accreditation, by one of the *six* regional accrediting associations (MSACS, NCACS, NEASC, NWASC, SACS, WASC) recognized by the Council on Postsecondary Accreditation (COPA), are normally transferable provided the courses are comparable to those offered by the university, or other regionally accredited colleges and universities, and the courses are relevant to the student's academic program.

Nationally Accredited Institutions: Credits earned in specialized institutions offering associate, bachelor, or advanced degrees, that are accredited, or approved candidates for accreditation, by one of the *five* national accrediting associations (AABC, AICS, ATS, NATTS, NHSC) recognized by the Council on Postsecondary Accreditation (COPA), are evaluated on an individual course-by-course basis with transfer credit granted for those that are comparable to those offered by the university, or by other regionally accredited colleges and universities, provided the courses are relevant to the student's academic program. Joint approval of the dean of the college concerned, in consultation with the appropriate department chair, and the director of admissions and registrar is required to grant transfer credit from these specialized institutions.

Unaccredited Institutions: Credits earned in U.S. institutions of higher education that are *not* accredited by one of the regional or national accrediting associations recognized by the Council on Postsecondary Accreditation (COPA), are *not* accepted in transfer by the university. The policies permitting advance course placement and the earning of credit for nontraditional learning provide adequate opportunities for the objective evaluation of knowledge acquired through a variety of learning experiences including military service schools.

2. Elective credit may be granted for individual courses which are not offered in the university program, provided the courses are clearly baccalaureate-level. Joint approval of the dean of the college and director of admissions and registrar is required.

3. The specific credit which may be applied toward satisfying degree requirements in the assigned college is determined by the adviser and/or dean of the college.

4. A maximum of 64 semester credits may be accepted in transfer from a regionally accredited two-year educational institution.

5. A maximum of 96 semester credits may be accepted from a regionally accredited four-year educational institution.

6. Credit may be granted for lower-division courses from other institutions which are comparable to university upper-division courses. Such credit may be applied toward satisfying the individual college's upper-division credit or specific course requirements if approved by the dean of the college concerned.

7. Duplication, excessive credit, or repeated credit is not allowed.

8. Graduates from a one-year professional course in an accredited normal school are granted one year's credit of advanced standing in only the colleges of arts and science, business administration, and education.

9. Graduates from the Federal Bureau of Investigation National Academy are granted a maximum of eight semester credits which are applicable toward the criminal justice program. Documentation is required for evaluation by the Office of Admissions and Records.

10. A summary of acceptable advanced-standing credits earned at each previously attended institution, and the transfer admission grade point averages computed relative to the university grading system; are posted to the student's permanent academic record. The credit and grade point totals earned at UNR are posted separately.

Correspondence Study and Continuing Education: A maximum of 60 semester credits earned in acceptable correspondence study courses completed through a regionally accredited correspondence division [including U.S. Armed Forces Institute (USAFI)/Defense Activity for Nontraditional Education Support (DANTES)] and/or in extension or off-campus courses may be applied toward a baccalaureate degree. The maximum that may be applied toward an associate degree is 30 semester credits.

Credit for Nontraditional Learning

University of Nevada Regents' Scholar Program

The policy of granting university credit to students selected as Regents' Scholars was discontinued in 1987.

Examinations

Five types of examinations are approved for earning university-level credit:

1. College Board Advanced Placement Examinations (CBAPE).
2. College-Level Examination Program (CLEP General and Subject).
3. ACT Proficiency Examination Program (PEP).
4. National League for Nursing Placement Examination (NLN), Profile II.
5. Special examinations administered by university departments.

In general, placement and entrance examinations such as the ACT Assessment and the College Board SAT or Achievement Tests are not considered for any award of university credit. An individual who scores in the upper 25 percent on these tests (75 percentile or higher on national college bound norms) is encouraged to consider the advantages of earning credit by examination.

The maximum number of credits that may be earned in any combination of these examinations is 60 semester credits for a bachelor's degree. Credit earned by examination does not apply toward satisfying the university resident credit requirement for graduation.

Each student is responsible for arranging to complete the various examinations and for requesting the official score reports to be sent directly to the university Office of Admissions and Records. Information regarding test dates, costs and registration may be obtained from Testing Services, University of Nevada-Reno, Reno, NV 89557, telephone (702) 784-4638 *or* by writing directly to the respective testing organizations:

1. CBAPE, Box 23060, Oakland, CA 94623-2306

Advanced Placement (AP) examinations are administered each May in the high schools, not at the colleges. High school students must make arrangements by January through their principals or AP coordinators to take the AP examinations.

College Board Advanced Placement Examination (CBAPE)

These examinations are primarily for students who complete advanced courses in high school. Upon receipt of an official score report from the College Board and a satisfactory essay when required, the Office of Admissions and Records grants credit as specified and assigns a grade of S for scores of 3, 4, or 5.

Those who successfully complete CBAPE examinations in French, German, Latin or Spanish satisfy the foreign language requirement in the College of Arts and Science.

An "e" means an essay is required along with the objective test.

Examination	UNR Course Equivalent	Credit Granted
Art		
History	None	3
Studio	ART 100	3
Biology	BIOL 101, 102	4
Chemistry	CHEM 101 or 201	4
Computer Science A	C S 183	3
Computer Science AB	C S 183, 283	6
English (including essay)		
English Language and Composition	ENGL 101, 102	3 or 6e*
English Literature and Composition	ENGL 291, plus 101 with an essay	3 or 6e
Foreign Languages		
French, German, Spanish		
Language	203, 204	6
Literature	204, 295	6
Latin		
Vergil	205, 209, 295	6
Catullus-Horace	205, 209, 295	6
History		
American	HIST 101**	3
European	HIST 106	3
Mathematics		
Calculus A, B	MATH 215	4
Calculus B, C	MATH 216, 310	8
Music		
Listening and Literature	None	3
Theory	None	3
Physics		
B	PHYS 151, 152	6
C (Mechanics)	PHYS 201	3
C (Electricity and Magnetism)	PHYS 202	3
Political Science		
American Government and Politics	P SC 103**	3
Comparative Government and Politics	P SC 211	3

*With an objective test score of 3, 4, or 5 and a satisfactory essay examination, six credits are granted, which satisfies the UNR English requirement.
**Does not satisfy the U.S. or Nevada Constitution requirements.

College-Level Examination Program (CLEP)

Credit may be granted and a grade of S assigned upon receipt in the Office of Admissions and Records of an official score report showing completion of one or more general examinations with a score of 500 or above, or subject examinations with a score of 50 or above, supported by a satisfactory essay where specified.

The general examination(s) should be completed before an individual enrolls at UNR, and must be completed prior to achieving sophomore classification at the university. Subject examinations may be taken at any time.

An "e" means an essay is required along with the objective test.

Examination	UNR Course Equivalent	Credit Granted
General:		
English Composition (including essay)	ENGL 101	3 e*
Humanities	None	6
Mathematics	MATH 105	3
Natural Sciences	None	6
Social Sciences	None	6
Subject:		
Biology		
Biology	BIOL 103	3 e
Microbiology**	BIOL 251	4 e
Business		
Introduction to Business Management	None	3
Introductory Accounting	ACC 201, 202	6
Introductory Business Law	None	3 e
Introductory Marketing	None	3 e
Money and Banking	None	3
Economics		
Introductory Macroeconomics	EC 101	3
Introductory Microeconomics	EC 102	3
Introductory Microeconomics and Macroeconomics	None	6
Chemistry, General	CHEM 101 or 201	4 e
Computer		
Computers and Data Processing	I S 250	3
Elementary Computer Programming-Fortran IV**	I S 252	3
Dentistry		
Dental Materials	None	0
Oral Radiography	None	0
Tooth Morphology and Function	None	0
Education, History of America	None	3
English		
American Literature	ENGL 241	3 e
American Literature I	ENGL 241	3 e
American Literature II	None	3 e
Analysis and Interpretation of Literature	ENGL 291	3 e
College Composition (including essay)	ENGL 101	3 e***
English Literature	ENGL 235 or 236	3 e
Freshman English (including essay)	ENGL 101	3 e***

*General English Examination: Scores earned prior to October 1978 or after April 1986 require a satisfactory essay and a score of 500 to 639 to award three credits, or 640 or higher to award six credits which satisfies the UNR English requirement. Scores earned from October 1978 through April 1986 require a satisfactory essay and a score of 610 to 749 to award three credits, or 750 or higher to award six credits which satisfies the UNR English requirement.

**Examination discontinued in 1986.

***English Subject Examinations: With an objective test score of 64 or higher and a satisfactory essay examination, six credits are granted which satisfies the UNR English requirement.

Foreign Languages		
College French-Levels 1 and 2	None	3
College German-Levels 1 and 2	None	3
College Spanish-Levels 1 and 2	None	3
History		
Afro-American*	None	3 e
American	HIST 101**	3 e
American I: to 1877	HIST 101**	3 e
American II: 1865 to present	HIST 102**	3 e
Western Civilization	HIST 106**	3 e
Western Civilization I: to 1648	HIST 105**	3 e
Western Civilization II: to present	HIST 106**	3 e
Home Economics		
Human Growth and Development	H EC 131	3 e
Mathematics		
Calculus with Elementary Functions	MATH 216	4
College Algebra	None	3
College Algebra-Trigonometry	MATH 115	4
Trigonometry	None	2
Medical Sciences		
Anatomy, Physiology, Microbiology*	None	6
Clinical Chemistry*	None	4
Head, Neck and Oral Anatomy	None	0
Hematology*	None	4
Immunohematology and Blood Banking*	None	3
Nursing		
Behavioral Sciences for Nurses*	None	0
Fundamentals of Nursing*	None	0
Medical-Surgical Nursing*	None	0
Political Science		
American Government	P SC 103**	3 e
Psychology		
Educational Psychology	None	3
General Psychology	PSY 101	3 e
Sociology, Introductory	SOC 101	3 e
Statistics*	MATH 251	3 e
Tests and Measurements	None	0

*Examination discontinued in 1986.
**Does not satisfy U.S. or Nevada Constitution requirements.

ACT Proficiency Examination Program (PEP)

Credit may be granted for selected PEP examinations completed with satisfactory scores. Upon receipt of an official score report, the admissions office grants credit as specified and assigns a grade of S for a standard score of 50 and above, or a letter grade of C or higher. The examinations may be taken at any time.

Examination	UNR Course Equivalent	Credit Granted
Business		
Accounting: Level I	ACC 201-202	6
Accounting: Level II	None	0
Accounting: Level III, Areas I, II, III	None	0
Business Environment and Strategy	None	0
Finance: Level I	None	3
Finance: Levels II, III	None	0
Management of Human Resources: Level I	None	3
Management of Human Resources: Levels II, III	None	0
Marketing: Level I	None	3
Marketing: Levels II, III	None	0
Operations Management: Level I	None	3
Operations Management: Levels II, III	None	0
Statistics	EC 261	3
Criminal Justice (discontinued by ACT in May, 1985)		
Criminal Investigation	None	3
Introduction to Criminal Justice	C J 110	3
English		
Freshman English (including essay)*	ENGL 101, 102	3 or 6e**
Shakespeare*	ENGL 271	3 e
Education		
Corrective and Remedial Instruction in Reading	None	0
Educational Psychology	None	3
History of American Education*	EAHE 101	3 e
Reading Instruction in the Elementary School	None	0
History		
African and Afro-American History	HIST 455	3
Afro-American History***	HIST 455, 456	6
Nursing		
Adult Nursing	None	7
Commonalities in Nursing Care, Areas I and A, II and B	None	0
Differences in Nursing Care, Area I, II, III	None	0
Fundamentals of Nursing	None	1
Health Restoration I	None	0
Health Restoration II	None	4
Health Support, Area I	None	3
Health Support, Area II	None	0
Maternal and Child Nursing, AA Degree	None	0
Maternal and Child Nursing, BS Degree	None	8
Nursing Health Care	None	0
Occupational Strategy/Strategies, Nursing	None	0
Professional Strategies	None	0
Psychiatric/Mental Health Nursing	None	5
Psychology, Abnormal	PSY 441	3
Science		
Anatomy and Physiology	None	6
Earth Science*	None	3 e
Microbiology	None	3
Physical Geology	GEOL 101	3

*Examinations discontinued November 1987

**With an objective test score of 50 or higher (or a grade of C or higher) and a satisfactory essay examination, six credits are granted which satisfies the university English requirement.

***Examination discontinued May 1988

National League for Nursing Placement Examinations (NLN), Profile II

Credit may be granted for NLN Profile II examinations completed with a satisfactory score. Upon receipt of an official score report, the Admissions and Records Office grants credit as specified and assigns a grade of S. The examinations may be taken at any time and scores are accepted for five (5) years from the date of testing.

Examination	UNR Course Equivalent	Credit Granted
Care of the Adult Client	None	12
Care of the Client During Childbearing and Care of the Child	None	10
Care of the Client with Mental Disorders	None	6

2. CLEP, Box 23060, Oakland, CA 94623-2306

College-level examinations (CLEP) are administered by colleges only. Individuals may take these examinations during the third week of each month at any of the 700 test centers in the U.S., one of which is the University of Nevada-Reno. Individuals taking the college-level examinations should note that certain examinations require an essay in addition to the objective section.

3. ACT PEP, Box 168, Iowa City, IA 52240

Military personnel may contact the Base Education Center for test information.

4. NLN Examinations, 10 Columbus Circle, New York, NY 10019

National League for Nursing examinations (Profile II) may be taken at a variety of selected sites. Please contact an adviser in nursing for more information.

The director of testing is responsible for coordinating an annual evaluation of all revised and new national examinations with the departments concerned and reporting the results to ıe director of admissions and registrar for reference and ublication. The evaluation status of any examination may be ıodified when there is adequate justification to change the amount of the credit to be granted.

Special Department Examination

A regular, currently registered student in good standing who has the knowledge and skills taught in a university course may qualify to take an examination for credit subject to these regulations:

1. Credit may not be earned in a course which covers at an elementary level the subject matter of a more advanced course for which the student has already received credit.
2. Credit by special examination may not be attempted in a particular course more than once.
3. Credit by special examination may not be earned in a course the student has failed or audited until one calendar year after issuance of the final grade.

Each department is responsible for determining and identifying the specific course offerings that are appropriate for credit by examination and for providing information to students that is consistent, objective, and fair. Each special examination should be equivalent to the same quality, content and grading standard as applied to the examination administered to students who enroll in the course.

Procedure: A student desiring to earn credit by examination must initiate an application in the Office of Admissions and Records where it is reviewed to determine eligibility. Each authorized applicant must then obtain written approval to take the examination from the adviser, the dean of the college in which the student is registered and the chair of the department offering the course. A $25 per course examination fee is payable to the controller. The completed application is submitted to the faculty member named by the department chair to administer the examination.

Grading is on an S or U basis except that a required course in a student's major or minor may receive a letter grade from A to F upon the advance written approval of the adviser.

The final grade assigned and each completed examination must be filed in the Office of Admissions and Records by the instructor for recording to the student's permanent academic record where it is treated as any other grade. The grade must be filed prior to the last day of instruction for the student to receive credit for that particular semester. Each examination is retained in the Office of Admissions and Records where it may be examined by any faculty member.

If additional information is needed, specific questions regarding credit by examination policies and procedures should be directed to the Office of Admissions and Records.

Noncollegiate Learning Experiences

Credit may be granted and a grade of S assigned for selected courses or programs recommended in the *Guide to the Evaluation of Educational Experiences in the Armed Services* and the *National Guide to Credit Recommendations for Noncollegiate Courses* subject to the approval of the director of admissions in consultation with the dean of the college concerned.

The documentation required for evaluation by the Office of Admissions and Records includes:

1. A copy of the Report of Separation, DD214, or the DD295 for active duty personnel, and
2. An official transcript of the courses or program completed.

USAFI/DANTES courses completed by the group-study method may be accepted in accordance with the advanced standing regulations.

Credit is not granted for USAFI/DANTES courses completed by examination (nonenrolled), Military Occupational Specialties (MOS) training programs, or work experience. Credit for these types of learning experiences may be earned by special department examination.

Graduate Admission Requirements

Any student who wishes to do graduate study must first be admitted to the university in either graduate standing or

graduate special classification. Each applicant is responsible for filing the required credentials with the Office of Admissions and Records at least three weeks prior to the desired registration period to allow sufficient time for processing.

A UNR graduate is eligible to attend as a graduate special without making formal application as stated. Such students may obtain a graduate special certificate from the Office of Admissions and Records prior to the first registration in this classification, if needed.

Early Admission: A student who has completed at least one quarter or semester in the final year preceding graduation with a baccalaureate or higher degree may apply for early admission to graduate standing.

Two final, official transcripts showing graduation must be received in the Office of Admissions and Records directly from the institution awarding the degree for each student granted early admission.

General Requirements: Each applicant must submit the following:

1. A completed Application for Admission, properly dated and signed.
2. A nonreturnable $20 application fee.
3. Graduate standing applicants must request each college or university attended to send *two* official transcripts directly to the Office of Admissions and Records. A University of Nevada-Reno graduate is not required to submit transcripts of the credit earned at UNR.

Graduate special applicants should have *two* official transcripts showing evidence of having received a baccalaureate degree from an accredited four-year college or university sent directly to the Office of Admissions and Records. A Degree Certification form may be completed in lieu of the official transcript requirement if the applicant so desires. Should a graduate special applicant later apply for graduate standing, official transcripts (two copies) are required from *each* school attended.

4. Graduate standing applicants must submit Graduate Record Examination (GRE) scores (aptitude and advanced when required), *or* Graduate Management Admission Test (GMAT) scores for advanced degrees in business administration. GRE scores are required for economics.
5. Individuals claiming eligibility for resident fees are required to submit an Application for Resident Fees along with the other admission credentials.
6. International student applicants must submit satisfactory scores on the Test of English as a Foreign Language (TOEFL) and a recently completed (within six months) medical history and examination signed by a medical doctor.

Test Score Requirements: Each student is responsible for arranging to complete the required examinations and for requesting the official score reports to be sent directly to the university Office of Admissions and Records. Information regarding test dates, costs and registration may be obtained from Testing Services, University of Nevada-Reno, Reno, NV 89577, telephone (702) 784-4638 *or* by writing directly to the respective testing organizations:

1. **Graduate Record Examinations (GRE)**
   Educational Testing Service (ETS)
   C N 6000
   Princeton, NJ 08541-6000
2. **Graduate Management Admission Test (GMAT)**
   Educational Testing Service (ETS)
   C N 6104
   Princeton, NJ 08541-6104
3. **Test of English as a Foreign Language (TOEFL)**
   Test of Written English (TWE)
   Educational Testing Service (ETS)
   Regular Service
   C N 6153
   Princeton, NJ 08541-6153

Students who have tested at an earlier date and did not designate the University of Nevada-Reno to receive their score report(s) must request the proper ETS agency to forward an official score report directly to the UNR Office of Admissions and Records. A score report fee is required by ETS.

Academic Requirements: The academic requirements for admission to graduate study are stated in detail in the Graduate School section of this catalog.

Transfer Graduate Credit: Each graduate standing student who plans to apply graduate credit earned at *another* institution toward an advanced degree at UNR must complete a Graduate Credit Transfer Evaluation Request form available in Admissions and Records. Results of the evaluation are distributed to the student, adviser and graduate dean for reference in program planning.

Admission to Institutions within the University of Nevada System

Each individual who wishes to transfer to another institution within the university system is required to submit an application for admission, fee, and the supporting credentials directly to the appropriate admissions office in accordance with established policy.

Admission of the applicant and the acceptance of transfer credit are governed by the advanced standing regulations of the institution to which the application is submitted.

— ANNOUNCING —

NEW FRESHMEN ADMISSION REQUIREMENTS EFFECTIVE FOR THE 1989 FALL SEMESTER

The *new required high school academic courses* total 13.5 units:

- English (4 units): Emphasis on composition, rhetoric, and American, English, and world literature.
- Mathematics (3 units): Including algebra and geometry.
- Natural Science (3 units): Including biology, chemistry, and physics, with at least two years in the laboratory science.
- Social Studies (3 units): Including world history and geography, U.S. history, economics, government, and law.
- Computer Literacy (½ unit): Understanding computers and their use.

APPROVED ALTERNATIVES THAT SATISFY THE HIGH SCHOOL COURSE REQUIREMENTS

The high school course requirement is waived for an applicant who satisfies *one* of the following:

- Graduation from high school with a GPA of 3.0 (B) or higher in the required academic courses, or
- Graduation from high school with a GPA of 2.5 (C+) or higher in the required academic courses *and* an ACT composite score of 20 or higher (or SAT combined scores of 925 or higher), or.
- Earned ACT or SAT scores for specific high school subject deficiencies which are equivalent to, or higher than, the national average norm.

Subject	ACT	SAT
English	18	420
Mathematics	18	465
Social Science	18	—
Science	21	—
Computer Literacy	A course with a grade of C or higher	

- Transfer applicants with 15 or more acceptable semester credits in transferable general education courses which apply toward satisfying the associate of arts, associate of science, or baccalaureate degree requirements at regionally accredited institutions — with a cumulative GPA of 2.0 (C) or higher.
- Applicants who are admitted through the Special Admissions' Program.

Correcting High School Course Deficiencies for Admission

Applicants who are *not* admitted due to inadequate high school course preparation must successfully complete any deficient units as specified to receive additional consideration for admission.

English: High school graduates with fewer than the *four* required units must complete a university-level freshman English course with a grade equivalent to C or higher.

Mathematics: High school graduates with fewer than *three* required units must complete a course equivalent to intermediate algebra with a grade of C or higher.

Social Studies: High school graduates with fewer than the *three* required units must complete three semester credits in an appropriate social science course with a grade of C or higher.

Science: High school graduates with fewer than the *three* required units must complete three semester credits, or more (including laboratory) in a natural or physical science course with a grade of C or higher.

Computer Science: High school graduates with less than *one-half (.5)* required unit must complete at least one semester credit in computer science or computer information systems with a grade of C or higher.

High school unit deficiencies may be corrected during the university summer session, correspondence study as appropriate, or by enrollment in a regionally accredited institution. UNR enrollment during the fall and spring semesters for nonadmitted students is limited to a maximum of six credits each semester until the admission requirements are satisfied.

Specific inquiries should be directed to the Office of Admissions and Records (702) 784-6865.

Regulations for Determining Residency for Tuition

Regulations for Tuition Charges

The Office of Admissions and Records is responsible for the determination of residence status for tuition purposes for students enrolled at the University of Nevada-Reno. An Application for Resident Fees must be submitted by each student claiming legal residence in Nevada. A recent Nevada high school graduate whose parents' permanent address is listed in Nevada is exempt from this procedure.

Information and application forms are available upon request in the Office of Admissions and Records.

The following regulations are Board of Regents' policy for all institutions in the University of Nevada System:

SECTION 1. Purposes

It is the purpose of these regulations to provide uniform rules throughout the University of Nevada System and all member institutions thereof, in determining whether students shall be classified as in-state students or out-of-state students, for tuition purposes.

SECTION 2. Definitions

1. The word *tuition* means a charge assessed against out-of-state students which is in addition to registration fees or other fees assessed against all students.

2. The term *bona fide resident* designates a person who resides in the state of Nevada with the intent of making it his true, fixed, and permanent home and place of habitation, having clearly abandoned any former residence and having no intent to make any other place outside of Nevada his home. When residence for a particular period is required in these regulations, this shall mean that the person has been physically present and residing in the state during all the period for which residence is claimed.

3. The words *he* and *his* shall apply to the female person as well as the male, unless the context clearly otherwise requires.

4. The word *family* means the father or mother of the student or the legal guardian of the student, if appointed by a court at least six months prior to the date of matriculation and for purposes other than avoidance of tuition.

5. The term *date of matriculation* is the date of the first day of instruction in the semester or term in which enrollment first occurs, except that for a student at the University of Nevada School of Medicine, the *date of matriculation* shall be the date that notice is sent that the student has been admitted to the medical school.

SECTION 3. Tuition Charges

Tuition shall be charged to those persons classified as out-of-state students registering for seven credits or more in a given semester at any member institution of the University of Nevada System; however, that registration in Community College Division community service courses which are not state funded shall not cause tuition to be assessed, nor shall such enrollment be included in *date of matriculation* for evaluation of residency.

SECTION 4. Rules for Determining Status

1. A person who is not classified as an in-state student under these regulations shall be classified as an out-of-state student.

2. All students whose families are bona fide residents of the state of Nevada shall be classified as in-state students.

3. For the purposes of determining tuition, a student who, at the date of matriculation, as defined in Section 2.5 of this chapter, is and has been a bona fide resident of the state of Nevada for at least six (6) months prior thereto, shall be classified as an in-state student.

4. An applicant for admission to the University of Nevada School of Medicine who has been a bona fide resident of the state of Nevada for at least six (6) months prior to the last day for filing an application for admission to the school (November 1 of each year) shall be classified as a Nevada resident for the purposes of being considered for admission to the University of Nevada School of Medicine.

5. A student who is a member of the Armed Forces of the U.S., stationed in Nevada, or whose spouse, parent, or guardian (as defined in the word *family*) is a member of the Armed Forces and stationed in Nevada, shall be entitled to classification as an in-state student.

6. A person who has attended a member institution of the University of Nevada as an in-state student may continue or return in that status without subsequent reclassification because of changed circumstances, unless he has abandoned his Nevada residence and established residence elsewhere.

7. When a student who has been classified as an out-of-state student becomes eligible for classification as an in-state student, such reclassification shall become effective at the next registration period.

8. All public school teachers who are employed full time by the school districts in the state of Nevada are classified as in-state students.

9. All full-time teachers in private schools in the state of Nevada whose curricula meet the requirements of NRS 394.130 shall be classified as in-state students.

10. A student who matriculates as an out-of-state student and thereafter resides in the state while attending the university is presumed to be residing in the state temporarily for the purpose of attending school and not as a bona fide resident. The student may qualify for reclassification as an in-state student only if the presumption is rebutted by clear and convincing evidence that the student has resided continuously in the state of Nevada for a period of at least 12 months as a bona fide resident with the intention of making Nevada his true, fixed, and permanent home, having clearly abandoned his former residence and domicile and having no intention of making any other place outside of Nevada his residence and domicile.

11. A student who registers and enrolls but does not attend classes may, for purposes of these regulations, withdraw from the university and be deemed not to have matriculated. Any determination concerning his residence status will be voided until such time as he shall again apply for admission.

12. An alien student holding a permanent immigrant visa and otherwise meeting the requirements for in-state student status shall be classified as an in-state student. Alien students

holding other types of visas shall not be classified as in-state students except as may be required by federal law upon due consideration of evidence of in-state residence.

13. A student who is attending the University of Nevada-Las Vegas or the University of Nevada-Reno through the National Student Exchange Program shall be entitled to classification as an in-state student for tuition purposes, and for tuition purposes only, during the time of the exchange. Time spent in Nevada while a student is on exchange shall not be counted towards satisfying the residence requirements as described in Section 4.3 above nor shall such enrollment be included in the *date of matriculation* for evaluation of residency.

GUIDELINES FOR DETERMINING CHANGE IN TUITION STATUS.

The following are guidelines to assist the Offices of Admissions and Appellate Boards in making determinations on applications for changes in tuition status under Section 4.10 of the regulations:

Continuous Residence: One year's continuous residence in the state of Nevada is required under Regulation 10. Temporary absences for more than one day should be explained. Ordinarily, the application of a person who is absent from the state for more than a total of ten days during the year will not be approved for a change in tuition status, barring unusual circumstances.

Residence in Nevada While Not Attending University: A person who has resided in the state of Nevada for a period of one year while not attending any division of the university and who has filed an affidavit of intention to become a bona fide resident, will qualify for a change to in-state status.

Residence in Nevada While Attending University: Ordinarily, a student attending the University of Nevada who has matriculated as an out-of-state student will not be eligible for classification as an in-state student based upon residence while attending the university. However, the student may present such clear and convincing evidence of intention to become bona fide resident, independent of mere physical residence while a student, that reclassification may be considered.

The following are examples of some minimal evidence of intention to become a bona fide resident:

a. Registering to vote in Nevada.

b. Obtaining a Nevada driver's license, if the student drives an automobile.

c. Filing a federal income tax return in Nevada.

d. Registering in Nevada any vehicles owned by the student.

Ordinarily, without more evidence, the above would be insufficient independent evidence to establish the requisite intention to become a bona fide resident of the state of Nevada.

The following are examples of proof which would ordinarily be clear and convincing evidence of intention to become a bona fide resident:

a. If a student had taken all the steps above and had worked full-time for the year for which residence is claimed, even though attending the university full- or part-time.

b. If the student had taken all the steps above and owns and resides in a home or holds and resides in a home under a long-term lease extending well beyond the school years.

The university will consider other convincing, independent evidence in addition to that enumerated above, which the student may wish to present to prove intent to become a bona fide resident.

If a student marries a bona fide resident of the state of Nevada, this is also relevant, though not of itself clear and convincing as evidence of the intention of the student to become a bona fide resident.

The following are factors indicating that the student is not a bona fide resident:

a. Dependence upon out-of-state parents for financial support.

b. Any out-of-state driver's license or other licenses.

c. Any owned vehicles registered out of state.

d. Voter's registration out of state.

e. Owning a residence out of state.

f. Having a bank account out of state.

g. Other ties to a former domicile or another state.

h. Career objectives which could not likely be carried out in Nevada.

i. Indeterminate career objectives which evidence a lack of a firm purpose to reside in Nevada after completion of schooling.

The above negative factors are weighed with other evidence in determining the student's intention.

SECTION 5. Application of Regulations

It is the intent of the Board of Regents to apply these regulations effective immediately. The application of these regulations shall not affect the status of any student now classified as an in-state student. Any person who is now classified as an out-of-state student, but who, under these regulations, is eligible for reclassification as an in-state student, shall, upon application, become eligible for such classification at the time of the next registration period. No reclassification under these regulations shall give rise to any claim for refund of tuition already paid to the University of Nevada.

SECTION 6. Determination of Status

Each member institution of the University of Nevada affected shall implement these regulations through the Office of Admissions and Records on each campus, under the direction of the president. The president of each member institution shall establish an appellate procedure, whereby the student may appeal decisions of the admissions office concerning tuition or his status as an in-state or out-of-state student to an appellate board, which will hear evidence and make a final determination. The student may appeal the decision to the appellate board within 30 days from the final determination by the admissions office. In the event the appeal is not taken within that time, the decision of the admissions office shall be final for that school term.

In determining whether a person is a resident of Nevada for tuition purposes, the appellate boards may consider such available evidence as may demonstrate permanent, bona fide residence in the state for purposes other than going to school. A person who leaves home from another state to attend an institution of the University of Nevada System with the intention of doing so as a student and remaining in the state until the student's education is completed does not acquire Nevada

residency. The intention to remain permanently in the state even after the student's education is completed must be demonstrated.

The presentation by a person of one or more items of evidence as indicia of bona fide residence is not conclusive on the issue of residency. Instead, in making determinations on the question of residency, the appellate boards shall consider each such matter on case-by-case basis and shall give the evidence presented as indicia of residence the weight and sufficiency it deserves, after taking all available evidence into consideration.

SECTION 7. Exceptional Cases

In exceptional cases, where the application of these regulations works an injustice to an individual who technically does not qualify as an in-state student, but whose status, either because of the residence of the student or his family is such as to fall within the general intent of these regulations, then the Appellate Board shall have the jurisdiction to recommend that such students be classified as in-state students. If the recommendation is approved by the president, the student shall be so classified. The intent of this provision applies only in the infrequent, exceptional cases where a strict application of these regulations results in an obvious injustice.

Regulations for Reduced Nonresident Tuition

On January 26, 1988 the University of Nevada Board of Regents approved the following policy to be effective for the 1988 fall semester:

Good Neighbor Nonresident Tuition Policy: A graduate of a specifically designated high school or community college, in a state bordering on Nevada, may be charged reduced nonresident tuition when enrolling at the University of Nevada-Reno, Northern Nevada Community College, Truckee Meadows Community College or Western Nevada Community College. Furthermore, an individual who resides in a county in which a designated high school or community college is located, and who has maintained a legal bona fide resident status for a period of at least 12 consecutive months prior to the first day of the semester in which enrollment is sought, may also be charged reduced nonresident tuition.

The reduced nonresident tuition for approved applicants is $200.00 per semester. The policy is effective for each qualified student who is approved for admission and enrollment effective for the 1988 fall semester. Students approved under this new policy are ineligible for any claim for refund of nonresident tuition already paid to the University of Nevada-Reno.

The list of approved high schools and counties include:

Alpine County, California: includes residents of the designated high school or community college districts in El Dorado or Mono Counties.

El Dorado County, California: Mt. Tallac High School, Lake Tahoe Community College, and South Tahoe High School.

Inyo County, California: Big Pine High School, Bishop High School, and Palisade High School.

Lassen County, California: Credence High School, Herlong High School, Lassen College, Lassen High School, and Render High School.

Modoc County, California: Modoc High School, Surprise Valley High School, and Warner High School.

Mono County, California: Coleville High School, Lee Vining High School, and Mammoth High School.

Nevada County, California: Tahoe-Truckee Jr.-Sr. High School.

Placer County, California: North Tahoe High School and Sierra High School.

Plumas County, California: Almanor High School, Beckworth High School, Chester Jr.-Sr. High School, Feather River Community College, Greenville Jr.-Sr. High School, Indian Valley High School, Portola Jr.-Sr. High School, Quincy Jr.-Sr. High School, and Sierra High School.

Sierra County, California: Downieville Jr.-Sr. High School and Loyalton High School.

Application forms are available upon request from the Office of Admissions and Records, Lower Floor, Clark Administration Building, or by calling UNR Information (702) 784-INFO.

Registration and Records

Period of Registration

Instructions and the specific dates for registration are published in the class schedule which is available in the Office of Admissions and Records prior to the beginning of each semester. *The late registration period closes at the end of the seventh day of classes. Registration is not complete until all fees are paid and all registration materials are filed with the Office of Admissions and Records.*

Returning Students: Students returning to the university after an absence of one or more semesters are required to submit a registration application by July 1 for the fall semester or January 2 for the spring semester so that proper registration forms may be prepared.

Each individual who attends another educational institution since last enrolling at the university must submit official transcripts from each school attended whether credit was earned or not.

An ineligible student who is approved for registration on the basis of incomplete or fraudulent credentials or misrepresentations in the written application for registration, will have his or her:

- registration cancelled without refund of any fees paid; and
- credits rescinded that have been earned following such readmission; and
- future registration at the university prohibited.

The director of admissions and registrar is responsible for the verification of documents and credentials. If it is determined the student sought registration on the basis of incomplete or fraudulent credentials or misrepresentations in the written application for registration, the student is notified in writing of the director's intention to take the above action. The student has ten days thereafter to reply in writing. The director then makes a determination and takes appropriate action, notifying the student in writing. The student may file a written appeal to the president within ten days. The decision of the president is final.

Penalty for Late Registration: A regular student enrolling for seven credits or more (or equivalent) after instruction begins is charged a late fee and is subject to a reduction in the total credit load allowed.

Clearance of Accounts: A student whose record indicates a delinquent indebtedness to the university is not permitted to register, continue registration, or receive a transcript of record or diploma.

Advisement for University Course Requirements

Planning and Scheduling Classes: Prior to registration, each student should study the requirements of the college as outlined in this catalog. Many programs require specific courses for specialized training, while others allow the student a considerable choice of subjects. The assigned faculty adviser provides valuable assistance in planning the desired program. Together, the student and the adviser establish a program of courses which is in accord with the student's interests and the requirements of the college or curriculum. Each student is responsible for enrollment in the courses required for the degree sought.

Courses numbered 1-99 are associate degree or non-baccalaureate level courses; therefore the credits and grade points earned in these courses are not applicable to baccalaureate degree programs.

In general, each semester's registration should constitute approximately one-eighth of the total credits required for the selected degree.

Required Courses: Each student must complete specific university course requirements in constitution, English, mathematics, natural science, and social science or humanities to graduate with a bachelor's degree. Credits earned by examination are applicable, except for the constitution requirement, which must be satisfied by an appropriate course. Excluding United States and Nevada Constitution, a single course may satisfy only one university course requirement in English, mathematics, natural science, and social science or humanities.

Constitution: Nevada state law provides that no student may receive a diploma of graduation or a teacher's certificate without having passed a satisfactory examination upon the Constitution of the United States and the Constitution of Nevada. For graduation purposes, the constitution requirements may be satisfied by the following courses:

United States Constitution: HIST 101, 401, 402, 601, 602; P SC 409, 609. Previously offered courses include HIST 1, 341, 701; and P SC 79, 101, 201, 207, 302, 303, 410, 602, 603, 709, 710.

Nevada Constitution: HIST 102, 217; P SC C100, 208. Previously offered courses include HIST 2, 317, 331; and P SC 80, 102, and 202.

United States and Nevada Constitutions: HIST 111; P SC 103. Previously offered course, P SC 203.

English: Each student must demonstrate proficiency in written composition by successfully completing courses in ENGL 1, 101-102, (113, 114 for international students) unless the requirement is satisfied by authorized exemption. Students whose native language is not English who have ACT English scores of 18 or less must register in ENGL 111-112.

Initial placement is based upon standardized test scores:

English Course	ACT English	SAT Verbal	SAT TSWE
ENGL 1	1-16	200-399	37 or less
ENGL 101	17-24	400-599	38-56
ENGL 102, 102H*	25-36	600-800	57 or more

Proper placement is verified by performance in a written composition during the first week in class. Students with ACT English scores of 25 or above (or SAT verbal scores of 600 or above) are encouraged to enroll in the honors sections of ENGL 102.

*Honors level.

Authorized exemptions:

1. An ACT English standard score of 25 or above (or SAT verbal scores of 600 or above), verified by a satisfactory written composition administered and evaluated by English department personnel, qualifies a student for exemption from ENGL 101 and placement in 102. Credit is not awarded for ENGL 101 as a result of this advanced placement.

2. The English requirement may also be satisfied by: (1) a CBAPE examination in English with a score of 3, 4, or 5, (2) a CLEP general examination in English composition with a score at the 92nd percentile or higher, (3) a CLEP subject examination in college composition or freshman English with a score of 64 (92nd percentile) or higher, (4) an ACT PEP examination in freshman English with a score of 50 or higher, or a grade of C or higher, (5) satisfactory completion of a special department examination, or by (6) acceptable transfer credit equivalent to ENGL 102. *Each examination must be supported by a satisfactory written essay.*

Each student is expected to complete the university English requirement during the freshman year so that the knowledge acquired can be applied to the remaining courses in the degree program.

English as a Second Language (ESL): All undergraduate students for whom English is not the native language are required to complete the Test of English as a Foreign Language (TOEFL) for placement within the ENGL 111, 112, 113, 114 course sequence. A TOEFL score of 500 or higher is required for placement in ENGL 111; a score of 550 or higher is required for placement in ENGL 113. Initial placement in courses is noted on the admissions evaluation form. A demonstrated proficiency in English by the satisfactory completion of ENGL 114 or the equivalent is the university requirement for graduation.

International undergraduate students must register in the proper English course each semester until the ENGL 114 requirement is satisfied. Withdrawals from English during any semester are not permitted without the prior written approval of the director of admissions and registrar.

International graduate students being considered for fellowships involving classroom teaching must be certified as proficient in English *prior to* undertaking teaching duties.

Mathematics: Each student must complete three credits of 100-200 level (UNR) mathematics at the 105 course level or higher to satisfy the requirement for graduation. Courses excluded are MATH 173, 174, 210, and 480.

The mathematics requirement may also be satisfied by earning three credits in the examinations offered by (1) CBAPE, (2) CLEP, general and subject, (3) special department examinations, or (4) by receiving equivalent transfer credit in comparable mathematics courses.

Initial placement in university courses is based upon these standardized test scores:

Math Course	ACT Math Score	SAT
MATH 101	18 or below	449 or below
MATH 105, 115	19 to 27	450 to 579
MATH 211, 213, 215 or C S 183	28 or above	580 or above

NOTE: MATH 101 will not be offered for credit to apply toward a bachelor's degree after the 1989 spring semester. MATH 1, a new nonbaccalaureate course, will be offered for students who need additional preparation.

Natural Science, Social Science or Humanities: Three credits of a natural science 100-200 level course, and three credits of a social science or humanities 100-200 level course, are required for graduation. These specific courses are determined by the individual colleges and schools which offer the major and degree sought. United States and Nevada Constitution credits do not apply toward satisfying either of these three credit requirements.

Precedence of Certain Courses

Required Courses: All students are expected to give precedence to required courses in regular sequence and should not register in an elective course to the exclusion of a required course. Under exceptional circumstances, the dean of the college may permit a student to defer a required course or to withdraw from it. In no case should a required course be deferred for more than one year.

Failed Courses: Any required course in which a student has failed takes precedence over all others in the arrangement of the program of study. Such a failed course should be repeated in class the next time it is offered in the university program. In exceptional cases, a required course which has been failed may be taken at another accredited institution. In these cases, prior written approval by the chair of the department, the adviser, and the dean of the student's college must be filed in the Office of Admissions and Records.

Credit Load: The maximum number of credits a student may take per semester with the approval of the assigned faculty adviser is 21 undergraduate or 16 graduate. Noncredit courses are considered as credit equivalents. Any exception requires the advance written approval of the dean of the student's college. A graduate student must obtain the approval of the graduate dean.

Registration

Registration forms are distributed by the Office of Admissions and Records prior to the beginning of each semester. Computer advance registration is provided for those who wish to register early by mail and a centralized Walk-Thru registration period is provided for those who wish to register in person. Registration fees must be paid and forms filed in the Office of Admissions and Records for enrollment to be officially complete.

Addition of Courses: A student may add courses or change sections up to the close of the registration period. Exceptions may be made after this date by the dean of the college for individual cases involving illness, accident, or similar emergencies.

Procedure: Each student must obtain an Add-Drop-Change form from the Office of Admissions and Records, secure the proper signatures, pay the required fee, and file the completed form in admissions and records for the *add* to be official.

Audit to Credit: An auditor changing to a credit basis must complete the change of registration form prior to the close of registration.

Dropping a Course: A student may drop a course during the first *six* weeks of the semester without a grade or teacher approval. Drops which occur during the seventh and eighth weeks require the teacher to determine if the student is passing or failing. If the student is passing, the teacher must sign, date, and mark *passing* on the drop form. If the student is failing,

the teacher does *not* sign the drop form. The failing grade is reported on the final class list.

The dropping of courses during the ninth week through the end of the semester is not permitted. Severe hardship cases, including illness, accident, or similar emergency, may be appealed through the student's adviser and dean of the college. Approved appeals require each teacher to indicate if the student is passing.

Procedure: Each student must obtain an Add-Drop-Change form from admissions and records, secure the proper signatures, and file the completed form in admissions and records for the *drop* to be official.

Credit to Audit: A student may change from credit to audit during the first six weeks of the semester. During the seventh and eighth weeks, the student must be passing to file a change. Changes are not acceptable after the end of the eighth week.

Withdrawal from the University: A student wishing to withdraw from the university should obtain the proper form from admissions and records and contact the Office of Student Services for an exit interview. A withdrawal which occurs after the first *six* weeks of the semester requires each teacher to determine if the student is passing or failing. When the student obtains the required signatures and files the completed form in admissions and records, the withdrawal is official. *A student who leaves the university without officially withdrawing receives a failing grade in all courses.*

Change of College, Major, or Adviser: A student may change college, major, or adviser by obtaining a change card from admissions and records (or the dean of the college) and securing the required signatures. The completed change card must be filed in admissions and records before it becomes official.

Each student must satisfy the course requirements of the college or major to which transfer is made.

Removal from a Major: A student may be removed from a major at any time if found in violation of university conduct regulations or of the ethical standards of a professional program in which the person is majoring. This action must be approved in writing by the dean of the college concerned upon recommendation of the department faculty and filed with the registrar.

Change of Name: A student may change name by completing a change of name form in admissions and records and submitting a copy of the supporting document.

Cancellation of Courses: The university reserves the right to cancel any course where the enrollment is insufficient to warrant offering the course.

Satisfactory/Unsatisfactory: A baccalaureate student may earn a maximum of 30 semester credits in courses graded on an S/U basis, subject to the approval of each individual college.

1. A transfer student may earn a maximum of one-fourth of the remaining credits at UNR on an S/U basis providing the total does not exceed university policy.
2. A transfer student with more S/U credits than allowed by university policy is ineligible for additional S/U registration, except for required courses offered on an S/U basis only.
3. Each course that is taken to satisfy a university requirement must be completed with a regular letter grade.
4. Each college is responsible for determining the total number of credits earned with grades of S, P, or Cr and the specific courses (transfer, elective, or required) which are acceptable toward a degree in that college within the limits of the university maximum.
5. Each course that is approved for S/U grading *only* is so designated in the university catalog for reference.
6. Credits and grades recorded in accordance with the satisfactory/unsatisfactory policy are applicable toward meeting graduation requirements but are excluded when calculating the grade point average.

Procedure: Each student is responsible for indicating the S/U grading option at the time of registration for each course approved by the adviser.

Changes between S/U and the regular grading system may be made *only* during the late registration and add period.

The instructor assigns an S or U grade to each student so registered.

Categories of Students

Regular: An individual who is officially admitted to a degree program is defined as a *regular* student and is classified according to the total number of semester credits completed.

A *regular* student may enroll either full-time or part-time for any given semester.

Nondegree: An individual who is not officially admitted to the university is defined as a *nondegree* student. Anyone who is 18 years of age or over, or who can present evidence of high school graduation, may register nondegree. With the approval of the department offering the course, a nondegree student may register in a maximum of six semester credits (or equivalent) in classroom instruction in one semester. This includes students in noncredit courses and those registered as auditors. Although there is no limit to the number of credits that may be earned as a nondegree, a maximum of 32 semester credits is acceptable toward an associate or baccalaureate degree.

All *nondegree* students are governed by university regulations, including suspension and disqualification, and are encouraged to seek official admission at the earliest possible date.

Nondegree students may also register in courses offered through Continuing Education and Correspondence Study.

Auditor: A student who wishes to enroll for no credit may register as an *auditor* with the approval of the department offering the course. While no credit or grade may be earned, auditors may, at the discretion of the teacher, have the same class privileges as other students.

An auditor whose performance in class is considered unsatisfactory may be dropped by filing in the Office of Admissions and Records a written authorization signed by the instructor, department chair, and dean.

Classification of Students

Undergraduate: Regular students are classified by the Office of Admissions and Records based upon the number of semester credits completed:

Freshman or first year	29 credits or less
Sophomore or second year	30-59 credits
Junior	60-89 credits
Senior	90 credits or more

Junior or senior classification is usually required for a student to register in courses numbered 300 through 499.

Graduate: Regular students are classified at the time of official admission as either graduate special (for those not seeking a degree) or graduate standing (for those in graduate degree programs).

Full-Time and Part-Time Students

Undergraduate: Regular students who register for 12 credits or more in a given semester are defined as full-time. Those registering for 11 credits or less are defined as part-time.

Graduate: Regular students registered for nine credits or more are defined as full-time. Those enrolled in eight credits or less are part-time.

Nondegree: Nonadmitted students are limited to a maximum of six credits or equivalent of classroom instruction per semester.

FTE: The number of full-time-equivalent students is computed by dividing the total undergraduate credits offered each semester by 15 and the total number of graduate credits offered each semester by eight.

Grades and Examinations

Grades and Marks

A, the highest grade, is given for work of exceptional quality. Each credit earned with a grade of A carries four grade points.

B is awarded for better than average work. Each credit earned with a grade of B carries three grade points.

C represents average work. Each credit earned with a grade of C carries two grade points.

D is the lowest passing grade for which credit is allowed — one grade point for each credit earned.

F means failure and receives no credit or grade points. Failed courses count as credits attempted.

S and U indicate satisfactory or unsatisfactory performance in courses offered with this grading option, noncredit courses, and completed graduate courses involving thesis or dissertation. An S indicates achievement equivalent to an A, B, or C for undergraduate courses; U represents D or F performance. For graduate courses, an "S" indicates achievement equivalent to an A or B; U represents C, D, or F performance. Neither S nor U is assigned a grade point value.

AD indicates audit and is given when a student registers in a course for no credit.

W signifies the dropping of a course, or withdrawal from the university, with passing grades and is not included in the grade point average. After the first eight weeks of the semester, an F is given to each student who is failing at the time of dropping a course or withdrawing from the university.

I is a neutral mark and means INCOMPLETE. An I is given when a student is performing satisfactory work, but for some uncontrollable reason is unable to complete the course requirements during the instructional period. Each student is responsible for providing the instructor with adequate evidence for consideration prior to the assignment of the final grade. An I is excluded from grade point average computation.

Each instructor is required to provide the reasons for giving each I, the work required to complete the course, the approximate grade of the student at the time the I is given, and the approval of the department chair. This information is required on the back of the final grade class list prior to filing in admissions and records. Acceptable reasons include illness or accident. Nonattendance, poor performance or requirements to repeat the course are not acceptable.

An I that is not made up in one calendar year from the date of issuance remains an I indefinitely. Credit may then be earned only by reregistration and the satisfactory completion of the course.

The director of admissions and registrar is authorized to grant a waiver for hardship cases involving incompletes received prior to June 1967. In such cases, the recommendation of the instructor, department chair, and dean of the college is required.

An incomplete is made up if the student completes and submits the outstanding course requirements to the instructor within one calendar year. The instructor is responsible for obtaining the Grade Report for Incomplete form from admissions and records for reporting the final grade and acquiring the approval of the department chair and dean for filing in admissions and records within the calendar year provided.

Repeat: A passed course at the university may be repeated to gain additional grade points provided proper registration occurs. These courses are marked *repeat,* the number of credits are added to those attempted, but no additional credit is earned.

Grades and Grade Point Average

Examinations: Each instructor is responsible for the proper evaluation of each enrolled student throughout the instructional period.

Final Grades: Each instructor is responsible for determining and submitting final grades to the chair of the department concerned who, in turn, files them in the proper manner and time in admissions and records where they become a part of the official records of the university. The final grades shown on the student's grade report are considered final unless the student notifies the registrar within six months of the date of issuance that an error has occurred.

Grade Point Average: The grade point average (GPA) is determined by dividing the sum of the grade points earned by the total number of credits attempted for a regular letter grade. I, AD, W, S, and U are excluded in the computation of the GPA.

Grade Changes and Appeals

Changing a Final Grade: After the final grades are filed in admissions and records, a grade may normally be changed only to correct a clerical error. For these changes, the instructor must file in admissions and records a completed Change of Grade form approved by the chair of the department and the dean of the college.

Appealing a Final Grade: A student may appeal a final grade in a course by filing an Intent to Appeal a Grade form with the chair of the department concerned within 20 days of issuance of official grades by the registrar. Failure to file the proper forms within the specified deadlines results in the student forfeiting the right to appeal that grade. Appeal forms and specific regulations are available upon request in admissions and records.

Appealing Grades Received for Improper Withdrawal: Under certain circumstances, a student who does not withdraw from the university in accordance with official procedures may appeal the grades received for that semester. The appeal procedure applies *only* to emergency or hardship situations defined as follows:

1. Personal illness or accident involving extended hospitalization, or
2. Sudden and unexpected departure from the area involving the inability to return to the university, e.g., death in the immediate family, induction to military service.

The appeal must be made for all of the course work in the semester in question and must be made within six months of the issuance of final grades unless the student can demonstrate incapacity beyond that date.

It is the student's responsibility to support the appeal with written, documented evidence, such as an official hospital record, to substantiate the hardship claimed. In addition, if the date of departure from the university came after the free drop period, the student must also provide documented evidence from each instructor that he/she was passing each course listed on the record for that semester.

A student who meets the specified criteria and elects to file an appeal must submit a written statement and the supporting documentation to the director of admissions and registrar for consideration by an appeals board appointed by the president. The board considers each student's appeal and makes a final decision based upon the evidence submitted.

Academic Recognition

Semester Honor Roll: An academic honor roll, which includes those members of the undergraduate student body who have completed at least 15 credits in regular graded courses with a GPA of 3.5 or higher is determined at the close of each semester by the Office of Admissions and Records.

Distinction at Graduation: Each student who graduates with a GPA of 3.75 or higher receives the bachelor's degree with High Distinction, or with Distinction if the GPA is between 3.5 and 3.74, provided these additional requirements are satisfied:

- Ninety-six (96) semester credits or more are earned in courses graded A through F.
- Sixty-four (64) semester credits or more are earned in residence at UNR.
- Transfer students must satisfy the GPA requirement at UNR and have a combined (transfer and UNR) GPA of 3.75 or higher for High Distinction, or 3.5 to 3.74 for Distinction.
- Associate degree students who satisfy comparable requirements also graduate with High Distinction or Distinction.

This revised policy was approved effective for all students graduating in August 1985 and thereafter.

Honors at Graduation: Effective the Fall Semester 1980, a new Honors Program was implemented for those who complete the specific requirements upon graduation:

With Honors: Awarded to an associate degree student graduating with a GPA of 3.5 or higher (both in the major and overall) who earns nine or more honor points to include six or more in the major during the second year of study.

Cum laude, magna cum laude, or *summa cum laude* is awarded to a graduating baccalaureate degree student who completes the honors program and all university, college and major requirements, with the specified GPA (both in the major and overall), based upon at least 96 credits in courses graded A through F: *cum laude:* GPA of 3.5 to 3.69; *magna cum laude:* GPA of 3.7 to 3.89 with grade of A on senior honor thesis; *summa cum laude:* GPA of 3.9 or above with grade of A on senior honors thesis.

A minimum of 64 semester credits or more must be earned in residence at the university in courses graded A through F. Each transfer student must satisfy the UNR requirements and have a combined transfer-university GPA that satisfies the minimums specified.

Completion of the honors program requires earning 18 or more honors points with at least nine being in major courses numbered 300 and above. For additional information, refer to the Honors Study Program in the Interdisciplinary and Special Program section of this publication.

The Gold Medal: Awarded annually at Commencement, the Gold Medal for scholarship is given to the graduating senior who has achieved the highest undergraduate GPA while completing 120 semester credits or more in regularly graded (A, B, C, D, F) courses involving classroom instruction at the university.

Undergraduate Academic Standards

Class Conduct: A student may be dropped from class at any time for negligence or misconduct upon recommendation of the instructor and with the approval of the dean.

Grade Point Deficiency: An undergraduate student is deficient when less than 2 grade points are earned for each credit registered excluding those completed with grades of I, AD, W, S, or U. Deficiency in grade points endangers academic standing and leads to the penalties described in the following sections on probation, suspension, and disqualification.

A baccalaureate degree student may not earn credits or grade points in university two-digit courses to apply toward a four-year degree or to remove a negative grade point deficiency.

Probation

Conditions: An undergraduate student is placed on academic probation at any time the following occur:

1. The cumulative GPA is below 2.0.
2. The GPA for each of two consecutive semesters is below 2.0 even though the cumulative average is 2.0 or above.
3. The GPA for any semester is below 1.0.

Restriction: The credit load of a student on probation is determined in consultation with the assigned faculty adviser and, when necessary, the dean of the school or college.

Release from Probation: An undergraduate student who has reduced the deficiency to a 2.0 GPA on the cumulative record is no longer on probation. A student who had an overall 2.0 GPA or above at the time probation occurred is off probation at the end of the semester in which a 2.0 average or above is obtained.

Suspension

Conditions: An undergraduate student deficient 15 or more

cumulative grade points at the end of any semester is suspended from the university. If the class preparation, attendance, or progress of a student toward a degree is deemed unsatisfactory, the student may be suspended from the university at any time.

Penalty: A suspended student may not register *during the fall or spring semester in any university course which involves classroom instruction* for credit. Noncredit or audit enrollment is permitted.

Requirements for Readmission: To qualify for readmission, an undergraduate student must earn a minimum of six or more acceptable semester credits if on first suspension, or 12 or more acceptable semester credits if on second suspension, with a 2.5 GPA or above. These credits may be earned in correspondence study, university summer session, or at another regionally accredited educational institution. Courses which are not acceptable as a basis for readmission are those (1) in which credit has already been earned, (2) failed previously, (3) completed for audit, (4) which are nonbaccalaureate and nontransferable. The university suspension and disqualification regulations do not apply to a suspended student until official readmission occurs.

A student seeking readmission following first suspension from UNR who has not attended UNR for a period of five (5) years or more and who does not meet the stated readmission requirements, may be considered on the individual merit of each case by the director of admissions and registrar. Readmission under this procedure requires the joint approval of the appropriate academic dean.

A student who is readmitted after suspension is on probation. Second suspension occurs whenever the GPA at the end of any semester is less than 2.0 and the total grade point deficiency is 15 or more.

When the grade point deficiency is reduced to minus 14 or less, the regular probation and suspension rules apply.

Readmission Procedures: A student under academic suspension may apply for readmission whenever the credit and grade requirements are satisfied as stated. An application for readmission must be submitted to the director of admissions and registrar by July 1 to be considered for the fall semester or January 2 for the spring semester.

If the student has attended other educational institutions after being suspended from the university, official transcripts must be submitted for evaluation.

Applications for readmission are available upon request from the Office of Admissions and Records in Clark Administration Building.

Disqualification

Conditions: A student readmitted after a second academic suspension is on probation. Disqualification occurs whenever the undergraduate GPA at the end of any semester is less than 2.0 and the total grade point deficiency is 15 or more. When the grade point deficiency is reduced to minus 14 or less, the regular probation and disqualification rules apply.

Penalty: A disqualified student may register only as an auditor or in a noncredit course. After a period of two years from the date of disqualification, the student may apply for readmission by filing a letter of appeal in admissions and records. Each case is considered on its own merits, and no individual case is considered as establishing a precedent.

If the student's appeal is upheld, registration for credit is authorized in Summer Session, or correspondence study, at the university. Upon completion of 12 or more acceptable semester credits with an overall GPA of 2.5 or above, the student qualifies for readmission on probation.

Graduate Academic Standards

Each graduate student is subject to the academic standard regulations published in the Graduate School section of this publication.

Graduate special students who are suspended because of graduate credit grade point deficiencies may register in *undergraduate courses only.*

Requirements for Graduation

Catalog: A student may elect to graduate under the degree requirements of the year of admission and registration or the year of graduation, but not a combination of these. In the case of reentry after an extended leave of absence of more than five years, a student may use the requirements of the year of reentry or graduation only. When course offerings or prerequisites within the academic major have changed, the major department shall determine acceptable alternatives.

UNS community college students may use the catalog in effect the year of admission to the community college — provided admission to UNR is within a five-year period of time from initial enrollment in a baccalaureate-level program at the community college.

Regardless of the year of the catalog selected by the student and designated on the application for graduation, each applicant who graduates from UNR in August 1990, and thereafter, must satisfy the university mathematics requirement as specified in the section on Advisement for University Course Requirements.

Degrees, diplomas, or certificates may not be granted unless all requirements are fulfilled. A degree, diploma or certificate that is awarded in error, or upon fraudulent claims, will be withdrawn immediately and the student record corrected accordingly.

Academic Requirements: To be graduated, each student must average at least 2 grade points for each semester credit attempted for a regular letter grade at the university. This includes all courses repeated and excludes those courses resulting in marks of AD, I, S, U, and W (Audit, Incomplete, Satisfactory, Unsatisfactory, Withdrawal). Additional academic requirements may be established by the dean of an individual college.

Course Requirements: In addition to the courses specified by each school or college, university course requirements in constitution (United States and Nevada), English, mathematics, natural science, and social science or humanities must be satisfied by each candidate for a degree. Specific course information is listed in the section on Advisement for University Course Requirements.

The three credit natural science course, and the three credit social science or humanities course, are determined by the individual college from which the student is graduating.

Credits earned by examination are applicable, except for the United States and Nevada Constitution requirement, which must be satisfied by the completion of an appropriate course.

A single course may satisfy only one university requirement in English, mathematics, natural science, and social science or humanities.

Any course offered for credit by the university may be used to fulfill degree requirements, provided the course is the proper level and is acceptable by the dean of the college concerned as a part of the student's approved program of study. Mere accumulation of credits does not assure fulfillment of requirements for a degree.

Resident Credit Requirements: A candidate for a bachelor's degree must complete the last 32 semester credits in uninterrupted resident credit, special examination or correspondence credits excepted, *on the campus as a regular student in the college or school* from which the degree is expected.

Authorized exceptions to this rule are:

1. Preprofessional students who complete three years or more of approved resident credit at the university may transfer a maximum of 32 semester credits of satisfactory work from an accredited professional school to apply toward a bachelor's degree in their designated major, *provided* all department, college, and university requirements for graduation are satisfied.

A prephysical therapy student who completes the required 96 credits of prephysical therapy curriculum, with the last 40 credits in approved residence at the university, may complete the remaining 32 credits by the satisfactory completion of a 12-to 24-month certification course from an approved school of physical therapy.

2. A student who has earned a minimum of three-fourths of the total acceptable credits of a specified degree requirement in resident credit may earn a maximum of 8 acceptable transfer credits during the senior year, which may be applied toward the degree.

Any course which is satisfactorily completed at the university for credit, except credit earned by special examination or correspondence study, is considered resident credit of the campus sponsoring the course. (Off-campus courses do not satisfy the on-campus resident credit requirement.) Credit earned by correspondence study, special examination, or enrollment in another institution within the University of Nevada System does not constitute an interruption of resident credit; *however, the 8 transfer credit maximum during the senior year for eligible students applies to all schools, including other UNS institutions.*

Credit earned as an approved part of a degree program through the Institute of European Studies (IES), the National Student Exchange (NSE), and the University Studies in the Basque Country Consortium (USBCC), is exempt from the resident credit regulations.

Application for Graduation: During the registration period *two* semesters before the expected date of graduation, each candidate for an associate or baccalaureate degree is required to submit a completed Application for Graduation in triplicate to the assigned faculty adviser for approval and forwarding to the dean of the college. The dean of the college retains the application for reference until the beginning of the final semester and then forwards the approved application to admissions and records within the ten-day filing period.

An undergraduate or graduate application which is submitted to the adviser after the first ten days of the final semester is assessed a late application fee. The $5 late fee is in effect until February 15, June 15, or October 15 in the respective filing period in which graduation is planned. An application filed after these dates is *not* acceptable for that graduation period.

A candidate who does not graduate on the expected date must *resubmit an updated application during the appropriate filing period.*

Bachelor's Degrees and Credit Requirements

A minimum of 124 semester credits are required to graduate with a bachelor's degree from the University of Nevada-Reno. The individual schools and colleges may require additional credits as specified in the listing Bachelor's Degrees Offered and Credits Required.

Second Undergraduate Degrees

A student may earn a second bachelor's degree provided all specified requirements are satisfied.

A candidate for a second degree must earn a minimum of 32 additional credits in residence after receiving the first degree and must satisfy the specific course requirements prescribed by the school or college concerned.

Under certain circumstances, a student may be approved to pursue two different bachelor's degrees simultaneously subject to the same requirements specified for a second degree *provided* the dual or second degree has a different name. Refer to the name listing of the different degrees offered. Each student must complete and file a dual or second degree declaration form in admissions and records supported by a copy of the additional degree program as approved by the department adviser and dean of college concerned.

The regular application for graduation and fee payment procedures apply for each degree sought.

Dual Undergraduate Majors

A student may elect to complete two majors within the requirements of one bachelor's degree program. The request to plan a second major must be made to the assigned faculty adviser prior to the student's junior year so the second major program can be properly approved and planned in consultation with the appropriate department and dean. Upon approval, each student must complete a dual major declaration form and file in admissions and records along with a copy of the approved second major program. Upon completion of all requirements, the two majors are listed on the application for graduation for approval by the adviser and dean prior to filing in admissions and records.

Undergraduate Minors

Each department offering an approved major, or any university interdisciplinary committee or board, may propose a minor for official program approval. A minor requires a minimum of 18 credits including nine or more upper division.

The program requirements for each approved minor are specified in the college and department sections. A student completing the requirements must list the minor on the application for graduation for approval by the adviser and dean prior to filing in admissions and records. The minor is recorded when all graduation requirements are satisfied.

BACHELOR'S DEGREES OFFERED AND CREDITS REQUIRED

	Credits Required
Agriculture—	
Bachelor of Science (B.S.)	128
Bachelor of Science in Veterinary Science (B.S. in Vet. Sc.)	128
Arts and Science—	
Bachelor of Arts (B.A.)	128
Bachelor of Arts in Criminal Justice (B.A. in C.J.)	128
Bachelor of Fine Arts (B.F.A.)	128
Bachelor of Music (B.M.)	128
Bachelor of Science (B.S.)	128
Bachelor of Science in Chemistry (B.S. in Chem.)	128
Bachelor of Science in Geography (B.S. in Geog.)	128
Business Administration—	
Bachelor of Arts (B.A.)	128
Bachelor of Science in Business Administration (B.S. in Bus. Ad.)	128
Education—	
Bachelor of Arts in Education (B.A. in Ed.)	128
Bachelor of Science in Education (B.S. in Ed.)	128
Engineering—	
Bachelor of Science in Civil Engineering (B.S. in C.E.)	130
Bachelor of Science in Computer Science (B.S. in C.S.)	130
Bachelor of Science in Electrical Engineering (B.S. in E.E.)	132
Bachelor of Science in Mechanical Engineering (B.S. in M.E.)	129
Bachelor of Science in Engineering Physics (B.S. in E.P.)	132
Home Economics—	
Bachelor of Science in Home Economics (B.S. in H.Ec.)	128
Journalism—	
Bachelor of Arts (B.A.)	128
Medicine—	
Bachelor of Science (B.S.)	128
Bachelor of Science in Medical Sciences (B.S. in Med. Scs.)	128
Mines—	
Bachelor of Science in Chemical Engineering (B.S. in Chem. E.)	134
Bachelor of Science in Geology (B.S. in Geol.)	128
Bachelor of Science in Geological Engineering (B.S. in Geol. E.)	138
Bachelor of Science in Geophysics (B.S. in Geophys.)	130
Bachelor of Science in Metallurgical Engineering (B.S. in Met. E.)	134
Bachelor of Science in Mining Engineering (B.S. in Min. E.)	134
Nursing—	
Bachelor of Science in Nursing (B.S. in Nurs.)	128
Interdisciplinary—	
Bachelor of General Studies (B.G.S)	124

Undergraduate Thesis

Whenever a thesis is required for an undergraduate degree in any department, school, or college of the university, and such thesis is to be filed in the university library, the format of the thesis must conform to the requirements for the master's thesis.

Advanced Degrees

For professional and graduate degrees, see the Graduate School section in this catalog.

Transcript of Record

Upon the written request of eligible students and the payment of the proper fees, the Office of Admissions and Records issues official transcripts of the permanent records. (See Fees and Expenses section of this catalog for transcript fee and statement of payment of accounts.)

Transcripts of record do not show grades or credit earned on work in progress until the official close of the respective semester or registration period. Transcript orders must be placed in advance of the date needed to provide adequate time for processing.

Regulations for Student Records

Confidentiality and Release of Information

The confidentiality and security of student educational records are of primary importance to the university.

As amended, the Family Educational Rights and Privacy Act of 1974 insures that eligible students have the right to inspect and review educational records, files, and other data; to waive the right of inspection and review of confidential letters and statements of recommendation filed since January 1, 1975; to challenge the content of educational records to insure that it is not misleading or inaccurate; to preclude any or all directory information from being released. Student access is not permitted to the financial statements of parents; confidential statements and recommendations filed prior to January 1, 1975; records which the student has waived the right to inspect; records of instructional, supervisory, and administrative personnel; records of the law enforcement unit of the university, which are kept separate from educational records, maintained solely for law enforcement purposes and available only to law enforcement officials of the same jurisdiction; records which are created and maintained by a physician, psychiatrist, psychologist, or other recognized professionals or paraprofessionals acting or assisting in a professional or paraprofessional capacity; or records of the university which contain only information relating to a person after that person is no longer a student. Requests for review of educational records are processed within 45 days of submittal.

The university does not allow access to, or the release of, educational records or other personally identifiable information without the written consent of the student except that the university must disclose information to students requesting review of their own records and to authorized governmental officials or agencies for audit and evaluation of state and federally ıpported programs. The university may disclose, without a udent's written consent, educational records or other perıally identifiable information to full-time university nployees having authorized access; to the director of admisons and registrar and/or appropriate officials of another chool or school system in which the student intends to enroll; to persons or organizations providing student financial aid; to accrediting agencies engaged in accrediting functions; to parents of a student whose status as a dependent has been established according to Internal Revenue Code of 1954, Section 152; in compliance with a judicial order or lawfully issued subpoena; to authorized officials in connection with an emergency, if knowledge of the information is necessary to protect the health or safety of a student or other persons. The written consent must be signed, dated, and include the birth date of the student. The written consent must specify the educational records to be disclosed, the purpose or purposes of the disclosure, and the party or parties to whom the disclosure may be made.

Directory information is considered public and may be released without written consent unless specifically prohibited by the student concerned. Data defined as directory information include student's name, address (refers to either local or permanent), telephone number, date and place of birth, major field of study, participation in officially recognized activities and athletics, weight and height of athletic team members, dates of attendance, degrees and awards received, and the most recent previously attended educational agency or institution. In general, directory information is *not* available until after the end of each registration period.

A student may restrict the publication of information which appears in the fall semester campus directory, and the release of directory information, by completing the proper section on the registration form, or by notifying the Office of Student Relations, located in Jot Travis Union, Room 104, immediately following registration each semester.

Each office in which the educational records of students are located maintains a record of requests and releases of personally identifiable information.

Student educational records, maintained by and accessible to authorized university personnel, are located in the following offices.

Admissions and Records

Includes the application for admission, transcripts of previous academic achievement, correspondence, application for resident fees and change in tuition status, registration documents, the permanent academic record, and records of disclosure. The director of admissions and registrar, located in Clark Administration Building, is responsible for the maintenance of these records.

Controller

Includes student fee and payroll records. The controller, located in Ross Hall, is responsible for the maintenance of these records.

Deans and Faculty Advisers

Admission evaluation including test scores, registration data, final grade reports, graduation information, and miscellaneous advisement data.

Student Services

All offices are located in Thompson Student Services Center, except for the Student Health Service, located in Juniper Hall, Career Planning and Placement, located in the Jones Visitor Center, and the Office of Student Relations, located in the Jot Travis Student Union. Responsibility for student files is delegated by the Vice President of Student Services to the directors concerned.

Advisement Center: Certificates of admission, test scores, registration data, final grade reports, and miscellaneous advisement data.

Director of Enrollment Planning and New Student Programs: Admission evaluations, test scores, registration data, honors, awards, student discipline files, and other supplementary data.

Career Planning and Placement: Placement files and other supplementary data.

Testing Office: Test scores and supplementary data.

Financial Aid and Veterans Affairs: Financial aid applications, applications for veterans' benefits, and other supplementary data.

International Student Adviser: Immigration records for each student attending the university on a visa status.

Special Programs: Faculty evaluation of student performance, financial statements, counseling and tutorial records, and other supplementary data.

Student Health Service: Medical history, examination, and record of treatment.

Retention and Disposition

The maintenance, retention, and disposition of documents relative to student educational records are governed by institutional policy.

A listing of documents and disposition schedules by specific office includes:

Admissions and Records

1. The permanent academic records of students are retained indefinitely.
2. Applications for admission and/or readmission, transcripts issued by other institutions, applications for resident fees, military service documents, undergraduate admission evaluations, advanced standing admission evaluation, including CBAPE, CLEP and ACT-PEP, changes of college, major or adviser and pertinent correspondence are retained until graduation or five years after the last date of attendance.
3. Final class (grade) lists including special (departmental) examinations, Continuing Education final grade reports, and registration source documents are retained five years.
4. The admission files of students who do not register, are disapproved or are incomplete, student data cards, changes of registration, withdrawal forms, transcript requests, and disciplinary action notices are retained for one year.

The fee for document reproduction is $2 per copy. Policy prohibits reproduction of transcripts and similar documents issued by other educational institutions.

Student Services

Director of Enrollment Planning and New Student Programs: Honors, awards and other supplementary data are retained for two years after the end of the semester in which they occur. Admissions evaluations and registration data are retained for one year after the date of initial registration.

Student discipline files are retained for established periods of time depending upon the action involved.

Advisement Center: Certificates of Admission, test scores, registration data, final grade reports, and miscellaneous advisement data are retained for five years after last date of attendance.

Career Planning and Placement: Placement files are retained for ten years after last date registration fees are paid.

Testing Office: Test scores are retained indefinitely.

Financial Aid and Veterans Affairs: Financial aid applications are retained indefinitely.

Applications for veterans' benefits and their associated files are retained for three years.

International Student Adviser: Immigration records are retained for five years after the last date of attendance.

Special Programs: Faculty evaluations of student performance, financial statements, counseling and tutorial records, and other supplementary data are retained for five years after a student leaves the program.

Student Health Service: Medical histories, examinations, and records of treatment, are retained for five years after the last date of treatment.

Fees and Expenses

All fees assessed are subject to change by the Board of Regents. Every effort is made to keep the fees as low as possible and still provide the desired level of service.

Payment of Accounts

A student or former student having a delinquent account with the university is not permitted to register or to receive a transcript of record or a diploma.

Application Fee

Persons making application for admission to the university are charged a fee of $20, which is not refundable nor applicable to any other fee.

Registration Fees

The registration fee for undergraduate-level courses (001-499) is $40 per credit. Graduate-level courses (500-799) are $50 per credit. Exceptions to this are medical school students and persons 62 years of age and older. Summer fees are published in the summer school publications. Continuing education fees vary by course and program. Specific charges are available upon request from the continuing education office.

Tuition for Nonresidents

Tuition of $1,100 per semester is charged undergraduate and graduate students (excluding four-year medical students) registered for seven or more credits who are nonresidents of Nevada. This is in conformity with Sections 10.020 and 396.540, Nevada Revised Statutes. Each student is responsible or providing documentary proof of Nevada residence on the pplication provided through the Office of Admissions and ecords. This fee is in addition to the per credit registration fee.

Four-Year Medical Program

The registration fee for medical students is $2,530 per semester. Nonresident students are charged tuition of $5,995 per semester in addition to the registration fee.

Fees for Senior Citizens

Individuals 62 years of age or older are permitted to register for credit or as auditors in any course without fee except as noted below. Lab fees and special instruction fees, however, are not waived. Such registration does not entitle a person to any privileges usually associated with registration, e.g., student association membership, health service, or intercollegiate athletic tickets.

Enrollment in Summer Session or off-campus credit courses (independent study by correspondence and field study programs excepted) and in noncredit continuing education courses is permitted for one-half the regular registration fee. Reduced fee benefits are always subject to programs being otherwise self-sustaining.

Nondegree students who are native speakers of a foreign language may be permitted to register without fee for credit or as auditor in literature courses in that language.

Late Registration Fee

Students are expected to complete registration during the designated period and are assessed a fee if late. The fee is $5 for each day to a maximum of $25 for the fifth day or later. The late registration fee is applicable only to undergraduate and graduate students registered for seven credits or more during the fall and spring semesters.

In the event the university does not provide adequate time for registration, the registrar may defer the assessment of this fee one day. This decision is made during the final hours of the scheduled registration period.

Student Associations

All students registered for seven or more credits are members of Associated Students of the University of Nevada (ASUN) as undergraduates and Graduate Student Association as graduate students.

Student Health Service

All students may pay an optional fee of $40 per semester and be entitled to the services offered by the Student Health Service. A $10 late fee applies to those who pay the optional fee after the end of the late registration period. Only those who pay the optional Student Health Service fee are eligible to purchase the supplemental accident and health insurance coverage.

Accident and Health Insurance

An accident and health insurance plan is available to all students who pay the health service fee. Coverage can be purchased at registration for that semester only. If coverage is desired for more than one semester or for dependents the carrier should be contacted. A representative of the carrier is normally available during the first two days of registration. Additional information may be obtained by contacting the Health Service.

Admission to Intercollegiate Athletic Events

All undergraduate students registered for seven or more credits are entitled to admission to intercollegiate athletic events pursuant to regulations established by the ASUN and the Athletic Department.

Refund of Fees

Registration Fees

1. 100 percent of registration fees are refunded for net credit

load reductions made on or before the last day of registration. No refund of registration fees is granted for courses dropped after the last day of late registration.

2. 100 percent of registration fees are refunded for withdrawal from the university completed by the last day of registration. For withdrawals after the last day of late registration and prior to the sixth calendar week of instruction, a 50 percent refund of fees is granted. No refund is granted thereafter.

Nonresident Tuition

1. 100 percent of nonresident tuition is refunded for net credit reduction to six credits or less or total withdrawal from the university on or before the last day of late registration.

2. No refund of nonresident tuition is granted for courses dropped after the last day of late registration.

3. A 50 percent refund of nonresident tuition is granted for total withdrawals from the university completed after the last day of late registration and prior to the end of the sixth calendar week of instruction. No refund is granted thereafter.

Dates of Refunds

Refunds of registration fees and nonresident tuition are issued near the end of the first six weeks of instruction.

Insurance and Special Fees

1. The optional hospital and accident insurance premium is nonrefundable but remains in force for the duration of the policy.

2. Refund of course related special fees are prorated on the basis of actual usage. Authorization for a refund of special fees must be originated by the department chair.

Refunds for Exceptional Circumstances

Upon presentation of documentation and approval of the dean of students, a full refund of the registration fee and nonresident tuition is given upon official withdrawal at any time during the first eight weeks of the semester in the following instances:

1. Induction of the student into the U.S. Armed Forces.

2. An incapacitating illness or injury which prevents the student from returning to school for the remainder of the semester.

3. Death of student.

4. Death of spouse, child, parent, or legal guardian of the student.

No refund is made if withdrawal is after the eighth week, regardless of circumstances.

Grant-In-Aid and Accounts Receivable

Each student is expected to pay all assessed fees during registration unless the student is entitled to a grant-in-aid, elects the deferred payment plan, or makes arrangements, prior to registration day, with the Controller's Office for an accounts receivable procedure.

Deferred Payment Option

Deferred payment is available to students whose fees are $250 or more. Special course fees, the health service fee, and accident and health insurance are not deferrable. A part of the residential hall and food service fees may also be deferred. Approximately one-half (½) of the total due is payable upon registration. The balance is due and payable not later than Friday of the sixth week of instruction. This option is available during the fall and spring semesters only. Any unpaid balance on a deferred fee payment becomes a student accounts receivable on the due date and is treated as an official fee hold for future registration and transcript privileges. A penalty fee of $10 per $100 (or fraction thereof) is charged on the deferred balance not paid by the due date.

Payment by Personal Checks

Personal checks are accepted in payment of fees or bills due the university. The university does not furnish counter checks and checks altered in any way are not accepted. A $15 collection fee is assessed for any check returned unpaid by the bank. Such checks must be made good within ten calendar days after notification or suspension procedures are instituted.

Payment by Credit Cards

MasterCard or VISA are accepted in payment of registration and housing fees only. Payment must be made in person.

Special Instruction Fees

The fees assessed for specialized instruction depend entirely upon current costs and are required for:

1. Courses requiring equipment, facilities, or materials not available on the university campus; for example, bowling, golf, or certain field courses.

2. Private instruction in music and similar arts.

3. Noncredit courses, conferences, workshops, postgraduate professional seminars, and similar educational offerings.

4. Personal expenses of students incurred in connection with field trips or laboratories.

Graduation Fee

Each student who graduates with a bachelor's, master's, professional, or doctor's degree, or receives an education specialist certificate, is required to pay a $15 graduation fee.

Transcript of Record Fee

A fee of $2 must be paid in advance for each transcript of record.

Other Fees

American College Testing Program (ACT) examination, $25 if taken at a time other than national test dates; special examination fee, $25 per course; New Student Orientation pro-

grams, summer ($15), fall and spring mini-sessions ($10 or $5); Placement Office registration fee, $5; Placement Office fee for reactivation and updating credentials, $5; late application for graduation, $5.

Housing and Food Service Fees

The housing and food service fees for the academic year (fall and spring semesters) are listed for information. The 1988-89 fees are pending approval.

Housing

Double occupancy, all halls except Juniper Hall — $1,250 per person for two semesters.

Double occupancy, Juniper Hall — $1,100 per person for two semesters.

A limited number of single and private rooms are available at a higher rate.

Food Service

Four meal plans are available. All freshmen who live in the residence halls are required to purchase one of the four plans. The following rates were in effect for the 1987-88 academic year. These rates are expected to increase in 1988-89.

7 meals per week — $ 934
10 meals per week — $ 985
15 meals per week — $1,062
20 meals per week — $1,163

Fifty-five percent of the two-semester rate for housing and food service is payable in the fall semester and 45 percent is payable in the spring semester. For the spring semester only, the rate is 50 percent of the total.

Deferred Payment Option

Students are eligible to defer $300 of their room cost and $300 of their meals. The balance is due and payable not later than the Friday of the sixth week of instruction. Students who do not pay by the established due date are ineligible for further services until fees are paid in full. There is no reduction of the total fee owed. Any unpaid balance becomes a student accounts receivable on the due date, and is treated as an official fee hold for future registration and transcript privileges. A penalty fee of $10 per $100 (or fraction thereof) is charged on the deferred balance not paid by the due date.

Cancellations and Refunds

Housing: After 10 a.m. on the opening date of the residence halls, refunds are made only to those persons who withdraw from the university. Students who do not cancel their contracts prior to the opening date of the halls are obligated to pay the housing fees for the entire year. For those who withdraw from the university, refunds are made at the rate of 75 percent during the first and second weeks of the semester, 50 percent during the third through the sixth weeks, and 25 percent during the seventh and eighth weeks. For cancellations prior to the annual opening date of the halls, all fees except a $50 per space administrative charge are refunded.

Food Services: Students who purchase a meal ticket must retain one of the four meal plans for the entire semester. Students who withdraw from school receive 80 percent of the unused balance through the twelfth week of the semester. Refunds are not made after the twelfth week.

Student Services and Activities

The Office of Student Services provides a wide range of services to meet the needs of students and sponsors special programs designed to supplement the formal academic program and to promote the development of the individual.

Prospective students and their parents are invited to visit Thompson Student Services Center or Jones Visitor Center for general information regarding the university. An orientation program is scheduled prior to the beginning of each semester to acquaint new students with university procedures and to provide information needed during the first few weeks of the semester. During this time students have an opportunity to consult with their faculty advisers who will assist with the planning of a class schedule.

The Office of Student Services is administered and coordinated by the vice president of student services. Major program areas are administered by the director of new student programs; director of advising, counseling and retention programs; director of student financial services; director of student organizations and activities; director of the student health service; director of residential life and housing; director of the campus food service; and the coordinator of campus standards.

Campus Tours and Visitations

The Office of Outreach Services encourages prospective students and their families to visit the UNR campus. Tours are offered by Student Ambassadors (a volunteer organization) who provide a student's perspective of the university. Tours are offered weekdays at 10:00 a.m. and 2:00 p.m. Special tours, (i.e., weekends, holidays, large groups, etc.) require at least a one-week advance notice and may be arranged by calling (702) 784-4865. High school and community college faculty and counselors are encouraged to use the Office of Outreach Services to assist their students in the educational planning process. This includes services such as school visitations, campus visits, tours, printed materials and special events programs.

New Student Orientation

Orientation programs are designed to provide information, academic advisement, class scheduling opportunities, and social activities for new students of all ages and from all walks of life. All programs are voluntary and selected programs require a fee in order for new students to participate.

The *Kaleidoscope*, the UNR orientation newsletter, is sent to all newly-admitted students in June, August, and January each year. It contains timely, important information for new students as well as schedules of workshops, programs and activities designed to help the student get off to a good start. New students also receive assistance and guidance from members of the student orientation staff (SOS) and the prime time network (for older students). Members of SOS and PTN are trained to conduct information sessions and answer questions about UNR.

New students and parents/spouses are encouraged to contact the New Student Programs Office in Thompson Student Services Center, Room 103, (702) 784-6116, for more information.

Academic Advisement Center

The Academic Advisement Center provides official advising for students in the College of Arts and Science who have not declared a major. The primary function of the center is to help undecided students define their academic goals and select a major field of study in accordance with their interests and abilities. Nondegree students, and students who have questions about the university's academic programs, are encouraged to visit the center. The Academic Advisement Center is located in the Jones Visitor Center, (702) 784-1537.

Health Career Advisement

In addition to seeking advice from their academic advisers, students planning a career in any of the health professions should consult with the coordinator, Health Career Advisement. The office is administered by Student Services as a centralized resource for all UNR students interested in health careers. The coordinator can assist students with information on the many career options and the health-related degree programs at UNR. The office has information about professional school admissions requirements and applications for national admission tests. This service is available in Business Building, Room 523, 784-4939.

Minority Student Affairs

The Minority Student Affairs Office is dedicated to the advancement, recruitment and retention of minority students at UNR. The office provides career counseling, information on scholarships, grants, and fellowships directed to minorities, academic advisement, personal guidance, and Graduate School information. MSA also offers job referral services, and for the students' professional growth, MSA hosts numerous free workshops covering such topics as resume writing, interviewing techniques, self-esteem and success. MSA is located in Mackay Science Building, Room 205, (702) 784-4936.

Counseling Center

Professional Counseling

The Counseling Center is the primary counseling office for students at the University of Nevada-Reno. The center offers both individual and group counseling services. The staff members are professionally trained counselors and counseling psychologists with expertise in helping students with a variety of concerns. Personal problems and career and educational objectives are discussed. Typical concerns include adjustment problems, resolution of conflicts, interpersonal relationships, career development and learning more about oneself. All sessions are confidential and any counseling records are open only to the student and the counselor. The counseling center is not connected with, nor does it report to, any academic or disciplinary agency on campus.

Throughout the year the Counseling Center offers a variety of opportunities for students to participate in group sessions which explore interpersonal and communication issues. These sessions consider issues such as personal growth, anxiety reduction, sex roles and sexuality, and women's concerns.

Appointments may be made by calling at the Counseling Center in Thompson Student Services Center, Room 209, (702) 784-4648.

Testing Services

This office schedules and administers national and institutional tests (ACT, GRE, GMAT, LSAT, MCAT, NTE, TOEFL) which are required for admission to undergraduate and graduate programs and professional schools. CLEP, NLN, and PEP tests are also scheduled for students who wish to qualify for advanced placement or credit by examination. Information pertaining to dates, registration, costs, etc., and free test bulletins offering sample tests and answers to many test questions are available in Thompson Student Services Center, Room 105, (702) 784-4638.

International Students

This office assists international students at UNR by providing a variety of services including campus and community orientation, relations with consulates and sponsoring agencies, personal, academic and financial counseling, and assistance with regulations governing their status at the university and in the United States.

Matters related to the admission of international students are handled by the Office of Admissions and Records. All initial inquiries, applications, and supporting credentials should be addressed to that office.

The international student office maintains records on international students as required by the U.S. Immigration Service. Few international students must report to the international student office prior to registration and observe the following regulations:

1. They must register on a full-time basis each semester.
2. Financial obligations must be paid on time.
3. They must enroll in the UNR Student Health Service and insurance plans.
4. Employment off campus is prohibited unless properly authorized.

Exceptions to these policies must be requested through the international student office located in Thompson Student Services Center, Room 104, (702) 784-6874.

Student Information Services

Students and student groups have frequent occasion to avail themselves of the guidance services provided by the Office of Student Activities and Organizations. This office serves as a university clearing house for information, particularly with reference to extracurricular activities. Students who seek any kind of information or have problems of a social or extracurricular nature may obtain assistance from the personnel in this office or may be referred to the appropriate agency if a specialized problem exists.

Alcohol and Drug Education Programs

The coordinator is responsible for developing and sponsoring a variety of programs designed to positively resolve the concerns about substance abuse. Included are prevention, education, awareness, and rehabilitation services. Workshops, in-service trainings, conferences and consultation services are available for students. Educational programs are sponsored in conjunction with recognized living groups, ASUN and campus organizations. All information and services are confidential and without cost to the university community. For more information, visit Thompson Student Services Center, Room 209, or call (702) 784-4648.

Upward Bound Program

The Upward Bound Program, funded by the U.S. Department of Education, is designed to identify and assist 65 high school students who have the potential to succeed in post-secondary education programs. These students must also meet eligibility requirements which include a limited family income and/or first-generation college status. Assessments, counseling, tutoring, cultural events and career planning activities are provided during the academic year. A six-week instructional program is offered on the UNR campus during the summer for credit. Program graduates attend the UNR summer session for university credit. For more information or to make a referral, visit Thompson Student Services Center, Room 107, or call 784-4978.

General Information

Absences

There are no official absences from any university class. It is the personal responsibility of the student to consult with the professor regarding absence from a class. In the event that a student misses a class because of an official university function, or because of serious personal considerations, members of the New Student Programs' staff may, at their discretion, send an explanation to the instructor involved at the student's request. The instructor makes the final determination on whether the missed work can be completed at a time other than during the regularly scheduled class period. Contact Thompson Student Services Center, Room 103, 784-6116, for assistance.

Change of Address

Changes of address must be reported immediately to the Office of Admissions and Records.

Housing Information

The university makes every effort to provide students with suitable living conditions, food, and housing. The core of the housing program is provided by the university residence halls which supply complete living facilities for approximately 1,000 men and women. In addition, a number of national fraternities and sororities maintain chapter houses near the campus.

General Policy

All regular, full-time students are eligible to live in university residence halls. Undergraduate student residents are expected to be enrolled in at least 12 credits per semester. On-campus living is available to part-time (7 credits or more) students on a space available basis; however, priority is given to full-time students.

Students are encouraged to request housing information immediately after they have been officially admitted to the university since the demand for on-campus housing usually exceeds the space available.

Residence Halls

The University of Nevada-Reno maintains five residence halls which are supervised by the Office of Student Services.

Coed Residence Halls: Men and women are assigned to different areas in Nye, White Pine, and Juniper Halls. While the traditional personality of men's or women's floors is maintained, the student government and some social, recreational, and cultural activities are coeducational in nature.

Nye Hall is a high-rise hall accommodating 560 students with two students assigned to each room. There are lounges on each floor with a larger reception and lounging area in the main floor lobby. A weight-training room is located on the lower level.

White Pine Hall accommodates 160 students in an innovative suite style. Each suite consists of four bedrooms, a living room, and bathroom facilities. There are no hallways or corridors, as all suites open directly to the outside. The spacious study lounge has a fireplace for special events and laundry facilities are available on the ground floor.

Juniper Hall, which houses 141 students, also offers a suite format, which includes two bedrooms and a common foyer/dressing area. As with Nye Hall, all public areas are carpeted and laundry facilities are available.

Residence Halls for Men and Women: Manzanita Hall has a long tradition as the women's residence hall. A study lounge and comfortable living room help create a home-like environment shared by 100 women. Lincoln Hall is the only all-male residence hall. Individuality in rooms and a large fireplace and recreation room serve the 78 men residents of this tradition-filled campus hall.

Application for Residence Halls: Each new student requesting university housing receives an application after official admission to the university. Both new and renewal license forms should be returned as soon as possible to the Residential Life and Housing Office.

Rooms are assigned in the order in which contracts are received, and usually all space is assigned several weeks before the fall semester begins.

For additional information write to Residential Life and Housing Office, P.O. Box 8034, Reno, Nevada 89507 or phone (702) 784-6107.

Married Student Housing

The university maintains a limited number of one-bedroom, unfurnished apartments at reasonable cost. There are 40 one-bedroom apartments which share central laundry facilities. Applications for married student housing may be requested from the Residential Life and Housing Office.

Additional married student housing is available at the Stead facility. See *Stead Apartments* under Off-Campus Housing.

Off-Campus Housing

The Office of Student Services maintains a listing service for the university community. The listings include off-campus privately managed apartment and house rentals, as well as listings of rooms in private homes and students seeking roommates.

While the university endeavors to assist students in locating suitable housing in the Reno area, it does not inspect or approve such off-campus facilities. Therefore, all rental arrangements are made between the parties involved, and the university does not assume any responsibility in this area.

Landlords utilizing the services of the Residential Life and Housing Office are required to abide by the university's policy on nondiscrimination. All reported acts of discrimination are subject to investigation and referral to the Nevada Commission on Equal Rights of Citizens. Those found guilty are denied listing privileges and are subject to legal action initiated by the injured party and/or the state.

Stead Apartments: One and two bedroom unfurnished apartments are available at Stead for married students who are enrolled full-time and married staff. Students with children are given preference. These apartments are managed by the Stead Facilities administrator, telephone 972-0781.

Food Services

The university dining commons and snack bar are located in Jot Travis Student Union.

Dining commons regulations for students are:

1. Four meal plans are available — 7, 10, 15 or 20 meals per week. Students who purchase a meal ticket must retain one of the four meal plans for the entire semester. Freshmen who live in the residence halls are required to select one of the meal plans.
2. If the contract meal option is selected, students are expected to forward funds for housing and food service along with their new student or renewal housing contract. If the deferred payment option is selected, the signed deferred payment form should also be returned with the contract and funds.
3. The first meal served each academic semester is breakfast on the first day of registration and the last meal served is dinner on the last day of final examinations. No meals are served during official university recesses or on holidays.
4. Students living off campus who wish to eat in the dining commons may pay cash or purchase a meal ticket from the dining commons.
5. Students who officially withdraw receive a refund in accordance with the refund schedule (see Fees and Expenses section).

Jot Travis Student Union

Jot Travis Student Union is the social and recreational center of the university.

The union provides lounges, games room, snack bar, dining commons, faculty-staff dining room, space for banquets and luncheons, two auditoriums (Pine and Alumni) for programs

and discussion groups, meeting rooms for campus and off-campus groups, gallery arrangements for exhibitions of paintings, sculptures and prints, ticket sales, check cashing, notary service, foreign travel information and international student I.D. cards, campus-wide lost and found, student, faculty, and staff university I.D. cards and the scheduling for all student activities and events.

The university bookstore and the associated student offices are located in Jot Travis Student Union.

University Health Service

The health service is located on the ground floor of Juniper Hall which is on Virginia Street just south of the Jot Travis Student Union. General outpatient medical care is provided by two full-time physicians, a certified physician assistant and clinic nurses. In addition, part-time consultants hold weekly clinics in the fields of dermatology and mental health. Nutritional counseling is provided by senior students majoring in food and nutrition. Clinic hours are 8 a.m. to 5 p.m., Monday through Friday, during the regular semester and 8 a.m. to 4:30 p.m. during the summer sessions.

The health service is funded by an optional fee of $40 per semester, payable at registration. After the end of the late registration period, the health service fee is $50. Those who are eligible for health care upon payment of the optional fee include:

- All UNR, TMCC, and WNCC students registered for one or more credits during a regular semester.
- Postdoctoral fellows.
- The spouses of registered, eligible students.

A clinical laboratory and X-ray service are available at the ıealth service. Commonly prescribed generic medications are lispensed for treatment of acute illness and injury. All services ›rovided are free of charge except for special laboratory tests ent to outside medical laboratories. Additionally, students requiring a physical examination for personal needs such as life nsurance applications, preenrollment physicals, etc., may have their physicals done at the health service for a modest fee.

Appointments are recommended to decrease patient waiting time. Emergencies are seen immediately. Patients without appointments are generally seen in the order of arrival.

The health service provides services during the semester eaks for those students who paid the health service fee for the eceding semester. Students enrolled for any number of :dits during the summer session are automatically eligible for re. Students not enrolled during the summer may, upon ·yments of a special fee, become eligible for summer health e.

Students enrolling for the first time or reenrolling after an sence of a year or more are requested to complete a health estionnaire. The staff at the health service observes a high ıical code concerning confidentiality. Information regarding ı individual's medical record can be released only after writn permission is given by the patient.

Accident and Health Insurance: The university provides an ptional health insurance program with a national health inurance company. This insurance provides for benefits to apply against expenses incurred for hospitalization, consultation and for services not available at the health service. Coverage is in effect during the entire semester, whether at school or away. Additional coverage for non student spouse and/or children is available.

All students who pay the health service fee may elect to purchase this supplemental accident and health insurance. Students must sign up for this insurance during a limited enrollment period at the beginning of each semester. Insurance may be purchased for a single semester or for the entire year. It is strongly recommended that students avail themselves of this supplemental insurance plan to cover the situations where the needed care cannot be provided at the health service.

Special Programs and Academic Skills Center

The Office of Special Programs and Academic Skills Center provides assistance to undergraduate students who require academic support services and special advisement services to help them succeed in the academic environment. The office provides the following services: the Educational Opportunity Program awards, workshops for GRE preparation, Bureau of Indian Affairs grants, individual advisement, readers for blind students, interpreters for the deaf, notary services, individual and group tutoring in a wide variety of courses, counseling for handicapped students, assistance in basic English and writing. There is also a typing lab which is open to all students Monday-Friday 8:00 a.m. to 5:00 p.m., and Monday-Thursday, 6:00 p.m. to 8:00 p.m. in Thompson Student Services Center, Room 107-G. Tutoring is also available to undergraduate students during these same hours. These services are designed to help students overcome the four major obstacles to higher education: financial, communication, cultural, and physical barriers. Additional information may be obtained in Thompson Student Services Center, Room 107, or by calling (702) 784-6801.

Handicapped Students: A handicapped student is defined as one with a physical, sensory, learning, or emotional impairment which substantially limits the person from participating in and/or securing the benefits of a postsecondary education. The handicapped condition may be temporary or permanent. Handicapped students who need temporary parking permits, assistance in scheduling classes or special academic support services should call at Thompson Student Services Center, Room 107, (702) 784-6801.

Women's Center

The UNR Women's Center helps identify and address the needs of women and men in a changing society. Resource and referral information, meeting space and study areas, scholarship information and a small gender studies library, including periodicals and article files are available. The staff facilitates on-going support groups, discussion groups, noon brown-bag film and speaker series, and periodically sponsors special educational and cultural events. They also provide services and information to students of all ages, and sponsor programs of community and campus interest. The Women's Center is located across the street from the Jot Travis Student Union and regular hours are maintained during the school year. For more information call (702) 784-4611.

Financial Aid[1]

The university administers an extensive financial aid program so that qualified students will not be denied an education because of financial need. Aids such as scholarships, fellowships, assistantships, awards, grants, loans, student employment, and deferred payment are granted in order to encourage continued academic success and to assist needy, capable students in financing their college educations.

Financial aid is offered to qualified students who hold promise or have demonstrated their ability to engage successfully in the pursuit of higher education and who have need of assistance in meeting educational expenses. This need may be overcome through a single financial aid or a combination of aids available.

Because of the emphasis placed upon a college education and the increasing costs to the student and his parents, the university will continue to enlarge upon and refine its program of financial aid to students. It is with assistance from interested individuals, groups, business firms, governmental agencies, and alumni that the university can continue to meet these ever-increasing responsibilities.

The majority of university financial aids for students are administered by the director of student financial services located in the Thompson Student Services Center.

Qualifications

Financial aid is predicated upon the applicant maintaining at least a 2.0 (C) average (undergraduate) or at least a 3.0 (B) average (graduate) and being regularly enrolled as at least a half-time student (six or more semester credits for undergraduates, five or more graduate credits for graduate students). Except for the Guaranteed Student Loan Program, students receiving financial aid must be admitted into a degree program. Students enrolled for half time or more are eligible for all federal financial aid contingent upon their need and the availability of federal funds.

Further, students receiving financial aid must maintain satisfactory progress toward completion of their respective degree or certificate in order to remain eligible for student aid funds. Satisfactory progress, as defined by university policy, means that each student must complete and receive credit for at least the *minimum* number of credits in each category for which they were funded each semester.[2] These are listed below.

Full:	Undergraduate — 12 or more credits
	Graduate — 9 or more graduate credits
¾ time:	Undergraduate — 9 through 11 credits
	Graduate — 7 through 8 graduate credits
½ time:	Undergraduate — 6 through 8 credits
	Graduate — 5 through 6 graduate credits

Students who do not complete the required number of credits are ineligible to receive federal financial aid until the deficit is made up. Appeals concerning UNR's *satisfactory progress* requirements may be made to the Student Financial Services Appeals Committee.

Time Limitations: Students receiving federal financial aid are expected to complete their educational objectives within a reasonable length of time. These times are: *Undergraduate:* A maximum of five[3] years of assistance. *Graduate:* A maximum of two[3] years of assistance for students seeking a master's degree; a maximum of three[3] years for students seeking a doctoral degree (beyond a master's degree).

Financial aid eligibility is prorated for transfer students or students who have completed credits at UNR.

The use of financial need as a major factor in determining eligibility of a student for assistance is an effort to offer more equitable distribution of the limited funds available to qualified students.

Financial aid is considered as a supplement to the funds provided by the student and family. The university evaluates all outside sources of income which are available and expects the student to utilize them completely. The director of student financial services attempts to make available the assistance necessary to provide for the balance of the student's legitimate educational expenses.

Applicants for the Perkins Loan, Nursing Student Loan, Health Professions Student Loan, Exceptional Financial Need Scholarship for Freshman Medical Students, Disadvantaged Health Professional Scholarship, Supplemental Educational Opportunity Grant, Nevada Student Incentive Grant, College Work-Study Program, and the College Work-Study Graduate Assistantship Program are required to complete and submit the ACT Family Financial Statement (ACT-FFS), the UNR Student Aid Form and Financial Aid transcripts. Entering freshmen may secure the ACT-FFS from their local high school counselor. All other students may obtain the FFS from the university Office of Student Financial Services.

Loans

Three main types of loans are available to qualified university students from funds provided by interested donors. They include the following:

1. Emergency loans involving small amounts of money for short periods of time, readily available to qualified students for emergencies.

2. University loans, normally payable within a year, are available to qualified students who have completed at least one semester at any University of Nevada System campus for educationally connected expenses while they are enrolled as at least half-time students.

3. Long-term loans on a low-interest basis are available through the university for qualified students under these programs:

(a) Perkins Loans.

(b) Guaranteed Student Loans (including USA or federally guaranteed *bank loans* from other states).

(c) Nursing Student or Health Professions Loans.

(d) Health Educational Assistance Loans.

(e) Supplemental Loans for Students.

In the event of the death of a student, the vice president of student services may, if circumstances warrant, authorize the cancellation of any or all financial obligations due the university. This policy does not supersede existing federal regulations governing Perkins Loans, nursing, or other federal aids already having cancellation provisions.

Further information on loans may be obtained by contacting the Office of Student Financial Services.

[1]Refer to the Financial Aids Calendar at the end of this section for deadline dates.

[2]Courses numbered 1-99 may not be used for minimum number of credits since they do not apply toward a baccalaureate degree.

[3]Exceptions to these time limitations may be considered on an individual basis, if extenuating circumstances warrant such consideration. Questions should be directed to a financial aid counselor, Thompson Student Services Center, Room 200.

Student Loan Funds: Specific loan funds are assigned by the Office of Student Financial Services to those students who qualify.

Henry Albert and Edith W. Albert Trust Fund (1969)
Maximum loan is $1,500 per academic year with an additional $500 available for the preceding or succeeding summer session. Interest is at 4 percent simple per annum. Repayment maximum of five years from termination of student status.

Anonymous Loan Fund (1942)
Varies at a rate of 4 percent simple interest. Repayment: up to one year.

Block "N" Loan Fund (1938)
Varies at a rate of 6 percent simple interest. Repayment: up to one year.

Ira G. Blundell Loan Fund (1974)
Varies at a rate of 4 percent simple interest. Repayment up to one year. For undergraduate students.

J.S. Buchanan Memorial Loan Fund (1956)
Repayment: up to one year.

Louella Rhodes Garvey Loan Fund (1934)
Maximum loan is $200 at no interest. Repayment: normally less than six months

William Goodfellow Loan Fund (1944)
Maximum loan is $500 at 4 percent simple interest. Repayment up to one year.

Goodfellow Emergency Loan Fund (1982)
For any regularly enrolled student with a bona fide emergency who is not on probation. Maximum loan is $100 with nominal service charge. Repayment: 30 to 60 days.

Daniel and Elizabeth M. Grant Memorial Loan Fund (1969)
Maximum loan of $200 with 1½ percent simple interest per annum. Repayment: within four years of date of loan.

Charles Haseman Memorial Loan Fund (1940)
For qualified students who have finished calculus. Maximum loan is $100 at 1½ percent interest. Apply to director of financial aid with recommendation of chair, mathematics department. Repayment: within four years of date of loan.

Health Professions Loan Program (1971)
For regularly enrolled full-time students who are pursuing a course of study leading to a degree of Doctor of Medicine. Citizenship or permanent residency in the U.S. as well as financial need for the loan to pursue the course of study are also required. Maximum loan: $2,000 plus cost of tuition and fees per academic year. Nine percent simple interest rate. Repayment: up to 10 years after graduation or termination of full-time student status in the prescribed course of study.

Daniel C. Jackling Student Loan Fund (1959)
For a qualified student in Mackay School of Mines. Loan varies (geared to normal costs of college). Apply to director of Financial Aid with recommendation of dean, Mackay School of Mines. Repayment: within one year after graduation or termination.

Douglas J. Jackson Memorial Loan Fund (1977)
Maximum loan amount varies at 4 percent simple interest. Repayment: up to one year.

Perkins Loan (formerly National Direct Student Loans) (1959)
For regularly enrolled students who are at least half time and meet specific academic and need requirements. Maximum loan: undergraduates, up to $6,000; graduate students, up to $12,000. Five percent simple interest. Repayment up to 10 years after graduation or termination of half-time status.

Nevada Federation of Women's Clubs, Emergency Loan (1961)
For any regularly enrolled student with a bona fide emergency who is not on probation. Maximum loan is $100 with nominal service charge. Repayment: 30 to 60 days.

Nursing Student Loan Program (1964)
For regularly enrolled full-time students seeking bachelor's or associate degrees in nursing, or an equivalent degree or diploma in nursing, who meet specific academic and need requirements. Maximum loan is $2,500 per year at 6 percent simple interest. Repayment: up to 10 years after graduation or termination of full-time status.

Donald W. Reynolds Foundation in Journalism (1957)
Preference given to qualified students preparing for a career in a communications medium. Maximum loan is $500 per year up to $2,000 at 2 percent simple interest.

David Russell Loan Fund (1908)
Maximum loan is $300 at 4 percent simple interest. Repayment up to one year.

J.M. Slattery School of Medical Sciences Loan Fund (1973)
For medical students pursuing the medical doctor program. Maximum loan is $1,000—normally up to $500 in any school year at 4 percent simple interest. Up to one year normal repayment period.

Wesley E. Travis Loan Fund (1953)
Maximum loan is $500. Repayment: up to one year.

United States Aid Funds (1962) and *Nevada Guaranteed Student Loans* (1969)
For qualified undergraduate or graduate students who are attending the University of Nevada-Reno on at least a half-time basis. Maximum loan per year of $2,500 for undergraduate dependent student, and $5,000 for graduate students. Total amount borrowed under this program may not exceed $12,500 for undergraduates and $25,000 for graduates. Interest does not exceed 9 percent simple per year. The federal government pays all interest while applicant is at least a half-time student and also during the six or nine month grace period after graduation or termination. Repayment may extend up to 10 years after graduation or termination.

Ed and Mary Von Tobel Memorial Loan Fund (1968)
For engineering and mining students. Maximum loan of $500 with interest at 4 percent simple per annum. Repayment to begin not later than one year after terminating student status and paid in full within four years.

Olin W. Ward Bequest (1915)
For any qualified male student of "good moral character" in financial need. Maximum loan is $300 at no interest. Repayment: up to seven years after date of loan.

Donald R. Warren Loan Fund (1945)
Maximum loan is $100. Repayment: up to one year.

Opal Wilson Loan Fund (1970)
For a qualified student at the University of Nevada-Reno who is majoring in music.

Grants

Grants such as the Pell Grant, Health Professions-Exceptional Financial Need Scholarship Program, Disadvantaged Health Professional Scholarship, Nevada Student Incentive Grant, and the Supplemental Educational Opportunity Grant are outright gifts to help students defray educational expenses. Grants are awarded primarily on the basis of need and are utilized in conjunction with other financial aid resources. For further information, contact the director of student financial services.

Student Employment

Regular student employment referral service for all campus part-time jobs and numerous off-campus positions is available to qualified students. This service is for those students who are enrolled on at least a half-time basis in a degree program and are making satisfactory academic progress. The student employment officer and staff fill hundreds of part-time jobs each semester with qualified students. Full-time summer internship program opportunities exist through Student Employment Office contact with employers.

The coordinator of job location and development has the responsibility for developing additional jobs, particularly those that are career oriented.

Students who are entering the university for the first time are advised not to seek employment until they have their class schedules finalized. Further information may be obtained from the Student Employment Office in Thompson Student Services Center.

The Work-Study Program is available to those entering or returning students who are enrolled on at least a half-time basis who can qualify on the basis of financial need. Under this program students may obtain work in their major areas which relates to their educational or vocational objectives. Graduate students qualifying for financial aid may apply for the College Work-Study-Graduate Assistantship Program (CWS-GAP). Graduate assistants receive a monthly salary and a partial fee waiver if accepted in the program.

The university makes all decisions regarding recruitment, hiring, and all other terms and conditions of employment without discrimination on the basis of race, color, creed, sex, national origin, physical or mental handicap, or other factors which are not a lawful basis for employment decisions.

A financial aid consumer information brochure is available upon request from the Office of Student Financial Services.

Scholarships and Prizes

All communications concerning scholarships should be addressed to the Office of Student Financial Services, Thompson

Student Services Center, Room 200. All applications are due on or before March 1.

Students should understand that scholarships are awarded primarily on the basis of scholastic proficiency, with factors of need, character, service, and certain specialized talents also bearing upon selection. Scholarship applications are available in January and due by March 1 of the year preceding the academic year for which the awards are sought. Recipients of scholarships are notified by letter at approximately the time of commencement each year. *Each recipient must be officially admitted and register full time at UNR to receive the award.*

Scholarship stipends are divided into two equal parts with one-half made available to the student on registration day of the fall semester. The second half of the award is released to the student on registration day of the spring semester, provided the recipient has maintained scholarship proficiency during the fall semester.

Scholarships are offered to students for the purpose of encouraging continued academic excellence and to promote higher achievement. Recipients must be regularly enrolled, full-time students at the university during the academic year when they receive their awards.

Applicants for regular undergraduate scholarships must be students who have a minimum 3.0 grade point average (on a four-point scale) for all college credit with at least 12 credits completed at UNR. Annual scholarship awards are routinely divided in half with the first stipend released on fall registration day and the second on spring registration. Students are eligible for spring scholarship stipends provided they complete 12 or more credits in the fall semester and remain in good academic standing. Applicants for regular freshman scholarships must have completed high school in Nevada with a B or better average in the academic course work attempted and must score sufficiently high in the American College Testing Program.

There are three types of scholarships available to students at the university, as follows:

Amounts of Awards

Most scholarships range from $350 to $1,000.00

Type I Awards: These awards are made to students from any division of the university, usually without respect to class level or academic interest.

AAUW Scholarship (Helen Atkinson Memorial)
Jewett W. Adams Memorial Scholarship
Alumni Association Scholarship
ASUN Scholarship
Capt. Terry Cryder Brannon Memorial Scholarship
Camillo Barengo Memorial Scholarship
Mabel and Helene Barjer Memorial Scholarship
Josephine Beam Memorial Scholarships
The Jim Beaver Memorial Fund Scholarship
Arvin E. Boerlin Memorial Scholarship
Cleo Seaton Bowman Memorial Scholarship
Dr. Art Broten (Dance Scholarship)
Bently Nevada Engineering Scholarship
Capitol Chapter Scholarship
Ronald J. Chadek Memorial Scholarship
Perer and Antonia Cladianos Memorial Scholarship
Charles Francis Cutts Memorial Scholarship
Daughters of Union Vererans of the Civil War Scholarship
Bob Davis Memorial Scholarships
Lino and Estelle Del Grande Scholarship
Maude F. Dimmick Memorial Scholarship
Max C. Fleischmann Freshman Scholarships
Max C. Fleischmann General Scholarships
Mary Florentz Scholarship
Grand Army of the Republic Scholarship
The Greater Reno Italian Golf Association Scholarship
Melvin Grevich Memorial Scholarship
William H. Haberstadt Memorial Scholarship
Roy H. and Julia Higgins Memorial Scholarship
Harry F. Holmshaw Memorial Scholarship
Virginia M. Johnson Memorial Scholarship
Alan Ladd Johnston Scholarships
Willard J. Larson Scholarship
Jake Lawlor Memorial Scholarship
Dr. Sven Loevgren Art Scholarship
Fred Mackenzie Memorial Scholarship
Doug Magowan Memorial Scholarship
Rose Sigler Mathews Scholarship
Jessie Patricia McCarthy Memorial Scholarship
Murdock McLeod Memorial Scholarship
Pearl Mesta Memorial Scholarship
Elaine Mobley Scholarship
Lloyd & Martha Mount Memorial Scholarship
National Student Association Scholarship (George M. Williams, President)
Leon Nightingale Family Scholarships
Bill Phillips Memorial Scholarship
E.J. Questa Scholarships for 4-H Participants Scholarship
Reno Business and Professional Women's Club Scholarship
Tracy Saulisberry Memorial Scholarship
Terry D. Scott Scholarship
Scottish Rites Masonic Bodies of Nevada
Soroptimist Club of Reno Scholarships
Soroptimist International of Carson City
Frederick Stadtmuller Memorial Scholarships
Frederick and Anna Stadtmuller Memorial Scholarships
Bettie Stufflebeam Memorial Scholarship
Jerry Tyson Memorial Scholarship
U.S.S. Reno Memorial Scholarship
Robert O. Weede Memorial Scholarship
Glen E. Whiddett Memorial Scholarship
Charles and Faye Zanay Scholarship

Type II Awards: Type II awards are scholarships granted to students pursuing work in a particular college or department who, in addition to meeting general scholarship criteria, have the endorsement of the faculty scholarship representative in the college or department concerned. Students interested in receiving a Type II award are encouraged to make this interest known to the chair or head of the particular university division concerned.

Max C. Fleischmann College of Agriculture
Agriculture Foundation Scholarship
Chester A. Brennan Memorial Scholarship
John C. Brown Memorial Scholarship
Mary E. Dalton Memorial Scholarship
Ted S. and Ruth Ede Scholarship
Adam Fife Memorial Scholarship
Fleischmann Agriculture Scholarship
Friends of the College Scholarship
Robert L. Helms Scholarship
William Kelly Golden Memorial Scholarship
Goldschmidt Scholarship
Robert A. Hanson Memorial Scholarship
Leo P. Herndon Memorial Scholarship
KCBN Agriculture Scholarship
Dick Kleberg Agricultural Scholarship
Laxague Feed and Supply Scholarship
Harvey and Thelma Reynolds Scholarship
Robertson-Fleming Range Management Scholarship
James Rolph III Memorial Scholarship
Scholars in Agriculrure Scholarship
Dr. Charles Seufferle Memorial Scholarship
Joe Stein Memorial Scholarship
Tractor Driving Scholarship (FFA and 4-H)
Donald York Memorial Scholarship

College of Arts and Science
Arts and Theatre Scholarship
G.B. and Shirley Avansino Music Scholarship
John Bagby Memorial Scholarship
George and Harrier Basta Men's Intercollegiare Scholarship
Guy Everett Benham Memorial Music Scholarship
Guy E. Behnam Memorial Scientific Research in Mathemarics Scholarship
Vivian K. Billick Memorial Scholarship
Marye Williams Burler Memorial Mathematics Scholarship
Robert H. Case Memorial Premedical Scholarship
Azro E. Cheney Memorial English Scholarship
Coach Cook Track Scholarship
Royna Craig Memorial Mature Woman Scholarship

James R. Crane Memorial Art Scholarship
D.B.S. Incorporated Scholarship
Delta Zeta Sorority Speech and Hearing Scholarship
Jessie Dewar Art Scholarship
Foreign Student (Chinese) Scholarship
Frances S. Gignoux Memorial Scholarship in Liberal Arts
Alleta Gray Memorial Music Scholarship
R.G. Griffen History Scholarship
Houghton Foundation Scholarships in Art and Music
Betty Klaich Memorial Scholarship
David L. Koch Biology Scholarship
Jake Lawlor Athletic Scholarship
Carrie B. Layman Memorial Scholarship in History and Political Science
Hedvig and Sigmund W. Leifson Scholarship in Physics
Guy Leonard Memorial Scholarship in English and Philosophy
Adele Mayne Liddell Memorial Music Scholarship
Karen Loehr Graduate Student Fund Scholarship
James H. MacMillan English Scholarship
O'Hara and Martin Scholarships in History and Political Science
Theresa Laxalt Scholarship
Jim and Loretta McCormick Art Scholarship
Howard F. McKissick Jr. and Sr., Memorial Scholarships
Agnes Momand Memorial Scholarships
Joe E. Moose Research Award in Biology and Physics
Nevada Public Health Association Scholarship
Nevada State Golf Association Scholarship
Elaine Newton Memorial Scholarship
Paul R. Pinching Memorial Scholarship
Phi Kappa Phi Scholarship
Professor Theodore (Ted) Post Memorial Music Scholarship
Paul J. Quinlan Memorial
Reno Advertising Club Graduate Fellowship
Reno Advertising Club Undergraduate Fellowship
Katherine Riegelhuth Memorial Scholarship in Nursing and Biology
Riley-McMaster Art Scholarship
John-Douglas Robb Memorial Scholarship
Dr. Peter Rowe Memorial Ski Scholarship
Wally Rusk Memorial Boxing Scholarship
Savitt Family Scholarships
John and Louise Semenza Memorial Scholarship in Social Services
Craig Sheppard Memorial Art Scholarship
Sierra Pain Institute Scholarship Fund
Robert A. Simpson Memorial Music Scholarship
Speidel Newspapers Charitable Foundation Journalism Scholarship
Jack Stevenson Memorial Scholarship
Mary Elizabeth Talbot Memorial Mathematics Scholarships
Theatre Scholarship Fund
Reuben C. Thompson Memorial Philosophy Scholarship
J.T. Thurston Chemistry Scholarship
Joseph W. Weihe Memorial Mathematics Scholarship
Linda Westlund Memorial Scholarship
Jerry and Betty Wilson Memorial Scholarship
Fuji Woon Scholarship in French
Frederick H. Williams, Jr., Sundowner Scholarship
Kenneth W. Yeates Psychology Scholarship
Loni Dee Yopp Memorial Music Scholarship
United Airlines Wolf Pack Scholarship
Young Nevada Journalist Scholarship

College of Business Administration
College of Business Administration Scholarship
American Society of Women Accountants Scholarship
Bill Archer Scholarship of the Data Processing Management Association
O.G. Bates Memorial Scholarship
Colombian Business Scholarship
Elmer Fox, Westheimer and Company CPA's Scholarship
H.J. "Chick" Gazin Memorial Scholarship in Marketing
Grant/Thornton Scholarship
Heppner, Ballard, Nickel and Crofoot Scholarship
Kafoury-Armstrong and Company Scholarship
J.C. "Cliff" Kumle Memorial Scholarship in Accounting
William and Helen Kunce Memorial Scholarship
McGladrey-Hendrickson and Company Scholarship
National Association of Accountants Scholarship
Nevada CPA Foundation for Education and Research
Nevada National Bank/Trainee Program
Nevada Society of CPAs Scholarship
Joe Nolan Memorial Scholarship
Pannell, Kerr, Forster Scholarship
Aileen R. Shewalter Memorial Scholarship
Society of Real Estate Appraisers Scholarship
Levi Strauss Scholarship

College of Education
John A. Bailey Professional Expectancy Award in Counseling
Bullis Teacher Scholarship
Education Estate Tax Scholarship
William J. and Helen G. Norton Scholarship
Mary Sartor Memorial Scholarship
Rita Hope Winer Scholarship

College of Engineering
Frank O. Broili Memorial Scholarship in Electrical Engineering
Charles E. Clough Memorial Scholarship
Engineering Alumni Association Scholarship
Dr. Everett W. Harris Scholarship
Royal D. Hartung Industrial Education Scholarship
Richard Hellmann Memorial Scholarship
Robert L. Helms Civil Engineering Scholarship
Mrs. Carl Otto Herz Scholarship in Electrical Engineering
Andrea Pelter Scholarship
Andrea Raddatz Engineering Scholarship
Kevin Glenn Smith Memorial Scholarship
Women in Construction Scholarship

Sarah Hamilton Fleischmann School of Home Economics
Nevada School Food Service Association Scholarship
Nora and James Ryan Memorial Scholarship
Northern Nevada School Food Service Scholarship
Nora and James Ryan Memorial Scholarship
Washoe County Extension Homemakers' Scholarship

Donald W. Reynolds School of Journalism
Kate L. Bartholomew Memorial Scholarship
Gannett Newspaper Foundation Scholarship
Joseph and Leola McDonald Scholarship
Nevada State Press Scholarship
Reno Advertising Club Scholarship
Reno Newspapers Scholarship
Donald W. Reynolds Foundation Scholarship
Scripps-Howard Foundation Scholarship
Thor M. Smith Memorial Scholarship
Adrienne "Binkie" Spina Memorial Award
C.H. Stout Scholarship
Streeter Science Writing Award

Mackay School of Mines
AMAX Foundation, Inc. Scholarship
American Borate Company Scholarship
Amselco Scholarship
Anaconda Company Scholarship
ASARCO Foundation Scholarship
Vivian Billick Memorial Scholarship
Enfield B. Bell Memorial Geology Scholarship
John N. Butler Memorial Scholarship
Chevron Resources Company Scholarship
Chevron Scholarship in Economic Geology
The Cleveland-Cliffs Foundation Scholarship
Consolidation Coal Company Scholarship
Viola Vestal Coulter Foundation Scholarship (junior or senior)
Viola Vestal Coulter Graduate Scholarship
Continental Oil Company Scholarship in Geology
Claude Dukes Memorial Scholarship
Kirk Duncan Memorial Scholarship
Duval Corporation Scholarship
Getty Oil Company Scholarship
Gignoux Family Memorial Scholarship in Mining
Gulf Graduate Fellowship
Royal D. Hartung Industrial Education Scholarship
Kennecott Copper Corporation Scholarship
Parker Liddell Memorial Scholarship
George Burke Maxey Memorial Scholarship
John N. Butler Memorial Scholarship
Mineral Industries Educational Foundation Scholarships
Newmont Mining Corporation Scholarship
Larry Noble Memorial Scholarship
Warren V. Richardson Memorial Scholarship
Rosario Resources Corp. Scholarship
James E. Skinner Scholarship
Edward Tittman Memorial Scholarship
Utah International, Inc. Scholarships

School of Medicine
Dr. Fred M. Anderson Scholarship
Richard R. Blurton Award for Overall Excellence in Psychiatry and Behavior Sciences Scholarship
Clark County Medical Society Auxiliary Scholarship
Laura M. Cummings Memorial Scholarship
Dr. Francis R. Dean Memorial Scholarship
Carl and Eleonora Esping Memorial Scholarship
Dr. Mary Hill Fulstone Scholarship
Greg Gardner Memorial Scholarship
Hartman-Kanning Trust Scholarship
H. Hamer Holloway Memorial Scholarship
John G. Houghton Memorial Scholarship
Dr. George R. Magee Memorial Scholarship

Manville Memorial Fund Scholarship
H.E. Manville, Jr., Scholarship
Hubert E. McCoskey Memorial Scholarship
Medical School Achievement Scholarship
Don Mello Annual Award
Lillian Orchow Psychiatry Prize
Shonnard Medical Scholarship
Reno South Rotary Medical Scholarship
Ruth E. Saviers Memorial Scholarship
Dr. Claibourne Shonnard Memorial Scholarship
Dr. George Steinmiller Memorial Scholarship
Richard Sugden Scholarship
Joe Taylor Memorial Scholarship
Twentieth Century Club Scholarship
Dr. Thomas W. White Scholarship

Orvis School of Nursing
Allstate Foundation Scholarship
American Legion, Dept. of Nevada Scholarship
Florence Belz Nursing Scholarship
Dean's Award in Nursing Scholarship
Raymond Howard Memorial Scholarship
Nora S. Kawamura Memorial (Nursing) Scholarship
Nevada Lung Association Scholarship
Nevada State Nurses Association (District #1) Scholatship
Jean Peavy Nursing Scholarship
Maida J. Pringle, R.N. Scholarship
Quota Club of Reno Scholarship
Jackie Rea Memorial Scholarship
Katherine Riegelhuth Memorial Scholarships in Nursing and Biology
Rosalie Rosenberg Memorial Scholarship
Ruth E. Saviers Memorial Scholarship
Storrs Student Nurse Award

Intercollegiate Athletics
George and Harriet Basta Men's Intercollegiate Scholarship
Mel Grevich Memorial Scholarship
Reno South Rotary Ski Scholarship
Reno South Rotary Women's Athletic Scholarship
Wally Rusk Memorial Boxing Scholarship
John Sala Memorial Scholarship
John Leland Starratt Ski Scholarship

Department of Military Science
American Legion ROTC Scholarship
AUSA General Westmoreland Chapter Scholarship
Colonel's Coeds Scholarship
National Council of Juvenile Court Judges Scholarship
Nevada State Medical Association Scholarship
Retired Officers Association, Sierra Nevada Chapter Scholarship
ROTC Continuing Studies Scholarship
Paul Charles Rudy Memorial Scholarship
Veterans of Foreign Wars Scholarship
Lt. George M. Wisham, Jr. Memorial Scholarship

Type III Awards: Type III awards are presented to students by individuals or organizations independent of the university. Funds associated with them are held in trust by the university and administered by the Scholarships and Prizes Board.

A.A.R.P. Walker Lake Chapter #657 Scholarship
Greg A. Adams and Friends Scholarship
Buck and Randy Aiazzi Memorial Scholarship
Aid Association of Lutherans Scholarship
Alpha au Omega Scholarship
Alpha Delta Kappa-Eta Scholarship
American Association of University Women Scholarship
American Association of University Women, Boulder City Branch Scholarship
American Baptist Student Aid Program Scholarship
American Business Women's Association Scholarship
A.B.W.A. Sierra Chapter of Reno Scholarship
A.B.W.A. Truckee Meadows Chapter Scholarship
America's Junior Miss Scholarship
American Legion Auxiliary, Dept. of Nevada Scholarship
American Legion Auxiliary, Hawthorne Scholarship
John Ascuaga Scholarships
Battle Mountain High School Scholarship
Barbara Bennett Scholarship
Bently Nevada Scholarship
William Broadhead Memorial Scholarships
Howard E. Browne Scholarships
Stephen Bufton Memorial Educational Foundation
Scott Campbell Memorial Scholarship
Cannon K-Mart Scholarship
Carson City Builders Association Scholarship
Carson City Chapter, A.B.W.A. Scholarship
Carson City Business and Professional Women's Club Scholarship
Carson City Rotary Club Scholarship
Carson City Council-Beta Sigma Phi Scholarship
Carson-Douglas Medical Auxiliary Scholarship
Carson High School Scholarships
Carson Valley Art Association Scholarship
Carson Valley Sertoma Scholarship
The Christian Foundation Scholarship
Churchill County High School Scholarship
The Clark Foundation Scholarship
Contel Service Corp. Scholarship
Continental Association of Resolute Employers Scholarship (C.A.R.E.)
Continental Telephone Service Company Scholarship
George C. Coverston Scholarship
The Davey Foundation Scholarship
Delta Sigma Pi Scholarship
Mae Denevi Scholarship
DiLoreto Construction Scholarship
Thomas E. Dixon Memorial Scholarship
Doctors' Wives of Washoe County Scholarships
Donrey Inc. Scholarship
Douglas County High School Scholarship
Doyon, Limited Scholarship
Elks Club Scholarship (Carson City)
Elks National Foundation Scholarship
Elks Reno Lodge #597 Scholarship
Elko High School Scholarship
Elko Lions Club Scholarship
Sadie L. and James T. Elliott Memorial Scholarship
Ely Lodge #1469 B.P.O. Elks Scholarship
Emblem Club Scholarship (California State Association)
Emblem Club of Reno #372 Scholarship
Supreme Emblem Club of the United States Scholarship
Emblem Club of Carson City #507 Scholarship
Enlisred Wives' Club — Nellis AFB Scholarship
Faculty Wives' Club — UNR Scholarship
Federal Highway Administration Scholarship
Irene L. Fritschi Memorial Scholarship
4th Infantry Division Scholarship
Freeport McMoRan Inc. Scholarship
Gabbs P.T.A. Scholarship
Gamma Phi Beta Sorority Scholarship
Frank Gannett Newspaper Carriers Inc. Scholarship
Gannett Newspaper Foundation Scholarship
Gemco Scholarships
Glennbrook/Nahas Scholarship
Grand Lodge I.O.O.F. Scholarship
Grand Temple, Pythian Sisters Scholarship
Tom Haggai and Associates Foundation Scholarship
E.C. Hallbeck Memorial (American Postal Workers Union) Scholarship
Haskell Scholarship Award
Hawthorne Kiwanis Club Scholarship
Hawthorne Lions Club Scholarship
Helen and O.C. Hing Memorial Scholarship
William Randolph Hearst Foundation, U.S. Senate Youth Program
Betsy Herhst Memorial Youth Fund
Homestake Mining Company Scholarship
Housing Authority of the City of Las Vegas Scholarship
The Procror R. Hug High School Scholarship
The Independent Order of Foresters Scholarship
Indian Health Employees Fund, Inc. Scholarship
Indian Springs High School Scholarship
Institute of Nuclear Power Operations Scholarship
International Brotherhood of Electrical Workers, Local Union #357 Scholarship
International Order of Joh's Daughters Scholarship
Jeld-Wen, Inc. Scholarships
E.M. Johnson (Gerlach High School) Scholarship
Jones-West Ford Scholarships
Junior Achievement of Western Nevada, Inc. Scholarship
Jean A. Kelly Memorial Scholarship
Kerak Temple Scholarship
Bernice A.D. Keyes Trust
Kiwanis Club of Carson City Scholarship
Kiwanis Club of Reno Scholarship
Ladies Auxiliary of the Fleet Reserve Association Scholarship
Lahontan Basin Medical Auxiliary Scholarship
Las Vegas Numismatic Society Scholarship
Levi Strauss Foundation Scholarship
Bill Linn Scholarship
Albert Lowry High School Scholarship
Lyon County 4-H Leaders Council Scholarship
Lyon County Unit Retired Teachers Assn. Scholarship
Maine Indian Scholarship Fund
Peter Marich Golf Scholarship
Frank McCleary Medical Scholarship (Daughters of the American Revolution)
Richard E. Meier Foundation, Inc. Scholarship

Maurice K. Meister Scholarship
Minden Fortnightly Club Scholarship
Minden Rotary Club Scholarship
Miss Elko County Scholarship (Elko Lions Club)
Miss Nevada Pageant Scholarship
Miss North Lake Tahoe Pageant Scholarship
Miss Reno Scholarship
Miss Washoe County Scholarship
Rollan Melton Scholarship
Philip Morris Scholarship
Dave Myers Memorial Fund, Inc. Scholarship
National Assn. of Negro Business and Professional Women's Club Scholarship
National Assn. of Secondary School Principals Scholarship
Navy Officers Wives' Club Scholarship
Negro Business and Professional Women's Club Scholarship
Nellis Officers Wives' Club Scholarship
Nevada National Bank/Trainee Program Scholarship
Nevada National Guard Association Scholarship
Nevada Press Women (Journalism) Scholarship
Nevada State Medical Association Scholarship
Nevada Telephone-Telegraph Company Scholarship
Chauncey Oakley Mathematics Scholarship
Oppio Memorial Scholarship
Organization of Spanish Speaking People Scholarship
Paradise Valley Bulldog Boosters Scholarship
Pahranagat Valley High School Scholarship
Pennwalt Foundation Scholarship
P.E.O. Sisterhood, Chapter X Scholarship
People to People Scholarship
Phi Delta Theta Education Foundation Scholarship
Rainbow Girls of Reno Scholarships
Ralston Purina Scholarship
Edward C. Reed High School Scholarships
Reno Eye Clinic Scholarship
Reno High School Scholarships
Dorothy and Walter Ross Memorial Scholarship
Rotary Club of Reno Scholarships
San Lorenzo District Scholarship
St. John's Episcopal Women's Guild Scholarship
Savitt Family Scholarships
Jack Selbig Track Scholarship
Sierra Pacific Foundation Scholarship
Sigma Nu Alumni Club Scholarship
Teresa Simmonds Memorial Scholarship
J.R. Simplot Company Scholarship
W.F. and Anna Smith Foundation Scholarship
Sons of Italy Scholarship
Soroptimist Club of Lovelock Scholarship
Soroptimist Club of North Lake Tahoe Scholarship
Soroptimist Club of South Lake Tahoe Scholarship
Soroprimist Club of Yerington Scholarship
Soroprimist International of Hawthorne Scholarship
Sparks High School Scholarships
State of Nevada Employees Association Scholarship
Supreme Council of UPEC Scholarship
Lillie Stock Testimonial Fund Scholarship (Nevada State Children's Home)
Tahoe Douglas Rotary Scholarship
Theta Rho Assembly, Rebekah Assy and I.O.O.F.
Tonopah Lodge #1062 B.P.O.E. Scholarship
Tonopah Memorial Scholarship
United States Ecology Scholarship
University Women's Club of Carson Valley Scholarship
Union Pacific System Scholarship
Valley Bank of Nevada, Tonopah Scholarship
Valley Hospital Auxiliary, Inc. Scholarship
Vegas Lodge #32, F. & A.M. Scholarship (Kiwisar Trust Fund)
Veterans of Foreign Wars, Department of Nevada Scholarship (Ladies Auxiliary)
Virginia City Alumni Association Scholarship
Washoe Zephyrs Chapter, A.B.W.A. Scholarship
Wells Business and Professional Women's Club Scholarship
Western High School, Las Vegas Scholarship
Western Nevada Peace Officers Association Scholarship
Westerners 'Ev Harris' Memorial
White Pine County High School Scholarship
White Pine County School Employees Federal Credit Union Scholarship
George Whittell High School Scholarship
Wolf Club Scholarship
Wildwest Scholarship (Albert Lowry High School)
Winnemucca Volunteer Fire Department Scholarship
Women's Cross Country Scholarship
World Wings International Foundation Scholarship
The Woman's Auxiliary to the American Institute of Mining, Metallurgical and Petroleum Engineers, Inc., Scholarship
Women's Auxiliary National Association of Plumbing, Heating, Cooling Contractors Scholarship
Women's Auxiliary to the Northern California Medical, Dental and Pharmaceutical Association Scholarship
Women's Club of North Tahoe Scholarship
Women in Construction Scholarship
Women in Mining Scholarship
Wooster High School Scholarships
Xebec Scholarship

Special Prizes and Awards

Each year the university gives a number of prizes and awards to students who have made unique and outstanding achievements. Recipients are selected on the basis of these achievements and not through application. A list of current prizes follows:

Henry Albert Senior Public Service Awards
American Association of University Women Award (one year's membership)
Delta Sigma Pi Business Fraternity Scholarship Key
Female Athlete of the Year Award
French Medal
German Prize
R. Herz & Brother Jewelry Awards (a gold watch is presented to the male and female sophomore students with the highest scholastic records)
Male Athlete of the Year Award
Nevada Congress of Parents and Teachers Award
Nevada Society of Certified Public Accountants Awards
Old Timer's Club Award
Outstanding Senior Award
Outstanding Student Teacher Award
Thornton Peace Prize
Robert Petrini Award in Journalism, Silver Loving Cup
Phi Delta Kappa Expectation of Excellence Award
Phi Kappa Phi Award
Dean Scheid Trophy
Spanish Prizes
University Scholarship Foundation Art Award
C.F. and Frank Wittenberg Award in Agriculture
Herz Gold Medal Award (presented to the graduating senior with the highest four-year scholastic record)
Outsranding Teaching (faculty) Award
Research Recognirion (faculty) Award

ROTC Medals

Association of the United States Army Award
Association of the United States Army Medal
City of Reno Civic Government Fellowship
City of Reno Trophy
Daughters of Founders and Patriots of America Medal
Daughters of the American Revolution Medal
Governor's Medal
Kerak Temple Medals and Plaque
President's Medal
Reserve Officers Association Medal and Plaque
ROTC Detachment Trophies
Society of American Military Engineer Award
Sons of the American Revolution Medal
Superior Cadet Awards
Veterans of Foreign Wars Trophy

Registration Fee Grants-in-Aid

1. Each semester the university awards a number of registration fee grants-in-aid equal to approximately three percent of the university's enrollment. Recipients of these grants-in-aid must be residents of Nevada. Those selected are not required to pay the basic registration fee for that semester during which they receive the award.

2. Twenty registration fee grants-in-aid may be awarded each semester to American Indian students who are residents of the state of Nevada and certified as Indians by the Bureau of Indian Affairs.

3. Widows of Nevada servicemen killed in action on or after January 1, 1961, may receive registration fee grants-in-aid for a period up to eight semesters.

In general, the granting of these grants-in-aid is based upon sound scholastic achievement, financial need, and the rendering of special service to the university. Application forms may

Financial Aid Calendar

Type	*Deadline date*
Scholarship applications must be returned to the Office of Student Financial Services by	March 1
Departmental scholarships	Check deadline with college or department concerned
Regents Grants-in-Aid (tuition and fee waiver applications)	
Fall semester	June 1
Spring semester	January 5
Federally Funded Financial Aid (Loans, Grants, Work)	
Fall, spring semesters and summer terms	February 15*
Guaranteed State Loans (GSL)	Three months prior to time needed.
Emergency loans	During semester in which emergency occurs
University loans	One week minimum to process.
Deferred-payment of fees, tuition, board and room	Before last day of registration.
Student employment	When class schedule is established and you are available.

*Note: The ACT Family Financial Statement application should be completed and mailed to ACT by this date to allow sufficient processing time so that all forms are received in the Office of Student Financial Services by the April 1 priority funding deadline.

be obtained from the coordinator of scholarships, University of Nevada-Reno. Each award is made for one semester and is renewable only following submission of a new application. Applications for fall semester must be received not later than June 1. Recipients must have an overall GPA of 2.0 or higher at the time of award and must complete 12 or more credits with a GPA of 2.0 or higher each semester to be considered for successive awards. Applications for the spring semester must be received not later than January 5.

Out-of-State Tuition Grants-in-Aid

Each semester the university awards a number of out-of-state tuition grants-in-aid. These grants-in-aid are available to undergraduate students only; they are not available for graduate student applicants. Recipients of these grants-in-aid are not required to pay the nonresident tuition charge. Applications should be directed to the coordinator of scholarships. Each award is made for one semester and is renewable only following submission of a new application. Awards are based upon scholarship proficiency, as well as the rendering of special service to the university. A proportion of these awards is also set aside for students from foreign countries. Applications for the fall semester must be received not later than June 1. Recipients must have an overall GPA of 2.0 or higher at the time of award and must complete 12 or more credits with a GPA of 2.0 or higher each semester to be considered for successive awards. Applications for the spring semester must be received not later than January 5.

Graduate Teaching and Research Awards

To be eligible for a graduate assistantship an individual must first be admitted to the Graduate School and be classified as a graduate standing student in the department or college of study. Application should be made to the dean of the college concerned or the department chair.

1. Graduate Assistant—includes the subcategories of teaching and research assistant, contractual positions for teaching or research services. Stipends may be accompanied by fee and tuition grants-in-aid. The availability of grant-in-aid is clarified with issuance of the contract. A full-time graduate assistantship is based on a 20-hour work week; however, appointments may be offered for less time with salary and grant-in-aid proportional to the commitment of time.

A teaching assistant on appropriated monies is allowed to be on contract for a maximum of three years while pursuing a master's degree and five years while pursuing a doctorate. Maximum time for a teaching assistant is six years for a student obtaining both a master's and doctoral degree at UNR.

To insure satisfactory progress toward the degree, graduate teaching assistants are required to pass at least 10 graduate credits per year to maintain eligibility for the assistantship.

International students must score 550 or above on the TOEFL examination, or its equivalent, to be eligible for a teaching assistantship.

Graduate assistant stipends vary among the disciplines and are competitive with other universities in the same fields.

2. Graduate Fellow—designates individuals receiving a stipend that would be treated as a scholarship.

Veterans Service—Benefits

Veterans services are administered by the Veterans Office staff located in student financial services on the second floor of Thompson Student Services Center. They are available to assist each veteran in achieving his or her academic goal. Advisement services (pertaining to curricula, admission, and other administrative procedures) are available, as well as information on housing, career counseling, and financial aid. The Veterans Office serves in a liaison capacity with the Reno Veterans Administration Regional Office.

The University of Nevada-Reno is fully accredited by the Veterans Administration for educational benefits to qualified veterans under existing applicable public laws. Discharged veterans, or those currently in service, who plan to attend the university must make application for veterans' educational benefits at the time registration fees are paid.

The university is also accredited for War Orphans and Widows under Chapter 35, Title 38, U.S.C. (a program of financial assistance for the education of men and women whose parents or spouses are deceased or completely disabled as a result of injuries or diseases received during their military service).

Every individual receiving benefits under any of the public laws is required personally to complete the Veterans Educational Benefits Application immediately after payment of fees for each semester, summer session, or other instructional period. This can be done in the registration area or at 203 Thompson Student Services Center. Failure to present the Advance Registration Schedule Fee form when completing the application may delay receipt of educational benefits from six to eight weeks.

It is the beneficiary's responsibility to notify Veterans Office personnel immediately if he/she drops or adds a course, withdraws from the university for any reason, or stops attending any or all classes. Failure to do so will delay monthly checks and subject the student veteran to financial liability for an overpayment or incorrect payment made. If changes in the student's program affect his status (from full- to half- or three-fourths time, etc.), the effective date will be registration day unless mitigating circumstances are accepted by the Regional Veterans Administration.

Student veterans are subject to the university's normal academic standards and are required to maintain *satisfactory progress* toward the VA certified degree objective to continue receiving Veterans Educational Benefits.

The amount of monthly educational subsistence is determined (except for Vocational Rehabilitation Benefits) by: (1) the number of registered credits as certified by the Veterans Office to the Veterans Administration and, (2) the number of dependents the student veteran claims. Only courses leading to the certified degree objective apply and those courses repeated or audited are not applicable.

All teaching or graduate assistants must obtain a statement from the Academic Personnel Office verifying their precise status as an assistant before seeking certification if they are registering for less than nine graduate credits and desire full-time subsistence.

Tutorial benefits for qualified veterans (Chapter 31, 34 and 35) are administered through the Veterans Office for up to $76 per month for a maximum of nine months.

Additional information on veterans services and benefits may be obtained by contacting the campus Veterans Office.

Career Planning and Placement

The Career Planning and Placement Center serves as a centralized link between the student and the professional community, giving students an opportunity to find placement in jobs where they can best utilize their talents. The Career Planning and Placement staff provide individualized career counseling and job search workshops. Students who have not declared a major are encouraged to seek career counseling.

A career library is maintained in the Career Planning and Placement Center so that students may familiarize themselves with corporations and institutions in which they may wish to seek employment. Potential employers may place information and advertising for their organizations in the office. Job vacancies may also be posted for student use. Also, career planning and placement services are available to alumni, who provide an additional source of experienced employees to campus recruiters.

The university encourages students to establish placement files, containing personal information and references, which are supplied to interested employers upon request. Completion of registration forms and payment of a $5 registration fee establishes the confidential or nonconfidential placement file which remains active throughout the placement year (September 1-August 31).

Reactivation of this file for any subsequent placement year requires payment of an additional $5 registration fee. Recruitment schedules on campus begin the middle of September and extend through the middle of May. It is important that seniors and graduate students complete their placement registration forms early to allow time for letters of reference to be placed in their files. Placement files which have been inactive for a period of 10 years are destroyed.

This service is available in the Jones Visitor Center, 784-4678.

Student Government and Organizations

GSA

For further information see Graduate School Section.

ASUN

Student government on the University of Nevada-Reno campus is a strong student voice with delegated authority to assume a responsible leadership role within the university community.

The undergraduate student body of the university is organized into a unified, self-governing body known as the Associated Students of the University of Nevada—the ASUN. This body, an integral part of the university community, recognized by the president and the board of regents, functions under the ASUN Constitution, copies of which are available to all members of the student body at the ASUN office. The ASUN offices are located upstairs in the Jot Travis Student Union.

The areas of responsibility and jurisdiction of ASUN are as follows:

ASUN President: The ASUN president is the chief executive officer, serving as the chairman of the executive council and the program and budget committee. The president is also a member of all ASUN committees and a member of many university committees and boards.

Vice President of Finance and Publications: The vice president of finance and publications serves as chairman of the finance control board and the publications board. The finance control board consists of one-third of the members of the ASUN senate, as selected by the executive council, the ASUN president (nonvoting), and nonvoting advisers. The finance control board is responsible for the allocation of ASUN operating expenses and budgeting for ASUN recognized organizations.

The publications board is composed of one-third of the members of the ASUN senate, as selected by the executive council, the editors of the three major publications, the ASUN president (nonvoting), the publications advertising manager (nonvoting), and nonvoting advisers. The board acts as the legal publisher for three publications, the *Sagebrush* (campus newspaper), the *Artemisia* (campus yearbook), and the *Brushfire* (literary magazine) and allocates the funds for each publication. Student publications provide opportunities for students to develop writing and other skills and provide information services to the university community.

Vice President of Activities: The vice president of activities acts as the chairman of the activities board. The board consists of one-third of the members of the senate, as selected by the executive council, the ASUN president, and nonvoting advisers. The board establishes policies and procedures which affect student activities; and plans ASUN movies, concerts, lectures, and other activities. All activities, including groups and organizations, are to be coordinated through the vice president

of activities. *All* student organizations are required to reserve space through the university activities office, located in the student union.

Program and Budget Committee: This committee consists of two members from each of the three boards (activities, finance control, and publications), the ASUN president (chairman), the vice president of activities, the vice president of finance and publications, and nonvoting advisers. This committee is responsible for all control of ASUN funds and the initial allocation at the beginning of the fall semester to each of the three ASUN boards.

ASUN Senate: The ASUN Senate is the final authority of the ASUN. The senate consists of 20 senators elected from each of the ten colleges. All actions taken by the three boards and the program and budget committee must be reviewed and approved by the senate. The senate also reviews and approves groups for ASUN recognition.

Student Judicial Council: The Student Judicial Council is composed of a chief justice, an associate chief justice, and three associate justices. A nonvoting member of the university faculty serves as adviser.

The primary purpose of the council is to provide students with a greater voice and responsibility in maintaining high standards of conduct. Its major function is to hear all cases referred to its jurisdiction—to investigate, adjudicate, and assess sanctions for violations of the Student Conduct Code and the *Rules and Disciplinary Procedures for Members of the University Community.*

ASUN also has a legal services director who guides students to the appropriate legal help when it is needed. Information may be obtained through the ASUN offices in the Jot Travis Student Union, (702) 784-6589.

Student Organizations

Students have an opportunity to participate in or apply for membership in over 100 organizations. These include religious, social, scholastic, honorary, service, and recreational organizations, as well as clubs for students in specific fields of study.

Any student organization which wishes to establish an activities program or use on-campus facilities must petition for ASUN recognition. Information regarding this procedure is available in the ASUN Office. Lists of organizations and information regarding these organizations are available in the ASUN Office. All organizations are required to have a faculty or staff adviser. Membership in student organizations is based upon scholarship, college, class, skills, and interests of the individual student, or on any other basis consistent with the aims of the university. Any practice excluding individuals from membership in groups on the basis of race, creed, color, national origin, age, handicap, or sex is inconsistent with university and ASUN policies.

ASUN is located in the Jot Travis Student Union, (702) 784-6589.

Fraternities and Sororities: There are ten social fraternities and five social sororities at the university.

Social fraternities	*Date founded locally*
Sigma Nu	1914
Sigma Alpha Epsilon	1917
Alpha Tau Omega	1921
Lambda Chi Alpha	1929
Phi Delta Theta	1972
Omega Xi	1978
Tau Kappa Epsilon	1981
Sigma Pi	1983
Pi Kappa Alpha	1986
Kappa Alpha Psi	1987

Social sororities	*Date founded locally*
Delta Delta Delta	1913
Pi Beta Phi	1915
Gamma Phi Beta	1921
Kappa Alpha Theta	1922
Alpha Chi Omega	1971

The Interfraternity Council and the Panhellenic Council coordinate the activities of their respective groups. Information regarding fraternities and sororities and rushing procedures is available from the Greek adviser, Thompson Student Services Center, Room 103, 784-6116.

Student Conduct

Enrollment in the university carries with it obligations regarding conduct. Not only within but outside the classroom, students are expected to conduct themselves in such a manner as to be a credit both to themselves and to the university. They are accountable to the laws governing the community as well as to the policies and regulations of the university and directions of university officials, and they are expected to observe the standards of conduct approved by the university.

The administration of student conduct follows the procedures outlined in the *Rules and Disciplinary Procedures for Members of the University Community.* Copies of the procedures are available in Thompson Student Services Center, Room 103. The procedures are summarized in the *Student Handbook.*

University Policies

I. **Academic Standards**

The maintenance of academic standards is a joint responsibility of the students and faculty at UNR. Freedom to teach and freedom to learn are dependent upon individual and collective conduct to permit the pursuit and exchange of knowledge and opinion. Faculty have the responsibility to create an atmosphere in which students may display their knowledge. This atmosphere includes an orderly testing room and sufficient safeguards to inhibit dishonesty. Students have the responsibility to rely upon their own knowledge and resources in the evaluation process. The trust developed in the maintenance of academic standards is necessary to the fair evaluation of all students.

A. Academic dishonesty is defined as cheating, plagiarism or otherwise obtaining grades under false pretenses.

B. Plagiarism is defined as submitting the language, ideas, thoughts or work of another author as one's original work; or allowing one's work to be used in this fashion.

C. Cheating is defined as:

1. Obtaining or providing unauthorized information during an examination verbally, visually, or by unauthorized notes, books and other materials.
2. Obtaining or providing information concerning an examination, all or in part, in advance of that examination.
3. Taking an examination for another student, or arranging to have someone else take an examination for you.

4. Altering or changing:
   a. test answers after that test has been submitted for grading,
   b. grades after the grades have been awarded, or
   c. other academic records after those records have become official.

II. Alcoholic Beverages

The storage and use of alcoholic beverages is permitted for students 21 years of age or over living in approved UNR housing, subject to the following conditions:

A. Students over 21 years of age may elect in each living unit to be clustered so as to facilitate enforcement of all state and local laws relative to drinking. Their being permitted to do so would result from a majority decision in which all members of that living unit participate.

B. Students who elect to cluster to enjoy the privilege of drinking have the responsibility of obeying the law (as do minor students).

C. The privilege of clustered students to drink may be revoked by the majority vote of others living in the living unit.

Any student who exhibits offensive behavior on university-owned or supervised property while under the influence of alcoholic beverages is subject to disciplinary action.

The office of the president has the authority to designate the time and place for special events where alcoholic beverages may be served on the university campus.

Except as provided above, the storage, possession or use of alcoholic beverages is not permitted on university-owned or supervised property.

III. Firearms — Fireworks

A. Carrying or using firearms on university-owned or controlled property is prohibited, except as required for (1) educational programs, (2) use in established rifle and pistol ranges and (3) for police and military purposes.

B. Possession and use of fireworks or pyrotechnics in university buildings, on university grounds, or fraternity and sorority houses are prohibited.

C. Students who bring firearms and ammunition must make provision for proper safeguards.

D. Students living in residence halls may be permitted to store guns and ammunition in designated areas within residence halls subject to approval by the university police.

E. Occupants of university housing, which includes fraternities and sororities, are within the city of Reno and are subject to city ordinances governing the use of firearms within the city limits.

F. Failure to abide by these rules may result in confiscation of firearms, ammunition and pyrotechnics, and appropriate disciplinary action.

IV. Search and Seizure

A. The university reserves the right for maintenance personnel or authorized university personnel to make entry and inspection of university premises occupied by students for purposes of health, safety, maintenance or repair. Such entry is normally limited to a visual room inspection of the premises. Entry for reasons other than health, safety, maintenance or repair must conform with Section B of this general policy.

B. The vice president of student services may authorize an actual search of university premises occupied by students. Such search is normally limited to instances where reliable information is submitted to the dean of student services from which it is reasonable to believe that a designated university facility is being used for an unlawful purpose or in violation of university regulations. Searches without prior authorization must conform with Section 3 of the Search and Seizure Policy Guidelines, available in the office of the dean of student services.

V. Use of University Facilities

University facilities, including campus grounds, are provided primarily for the support of the regular educational functions of the university and the activities necessary for the support of these functions. The university's functions take precedence over any other activities in the use of university facilities.

Freedom to speak and to hear is maintained for students, faculty and staff and university policies and procedures are used to provide a full and frank exchange of ideas. An effort is made to allow a balanced program of speakers and ideas.

An invitation to speak at the university does not imply that the university endorses the philosophy or ideas presented by the speaker.

University facilities may not be used for the purpose of raising monies to aid projects not related to some authorized activity of the university or of university groups, and no efforts at conversion and solicitation by uninvited non-campus groups or individuals is permitted on campus.

Regulations concerning the use and scheduling of university facilities are available in the University Activities Office and the scheduling office.

VI. Sexual Harassment

It is the policy of the University of Nevada-Reno that the sexual harassment of students, employees and users of university facilities is unacceptable and prohibited. This stance is consistent with the university's effort to maintain equal employment opportunity, equal educational opportunity, non-discrimination in programs, services, and use of facilities and the affirmative action program.

Sexual harassment is the introduction of sexual activities or comments into the work or learning situation. Often sexual harassment involves relationships of unequal power and contains elements of coercion — as when compliance with requests for sexual favors becomes a criterion for granting work, study or grading benefits. However, sexual harassment may also involve relationships among equals, as when repeated sexual advances or demeaning verbal behavior have a harmful effect on a person's ability to study or work.

For general policy purposes, sexual harassment may be described as sexual advances, requests for sexual favors, and other physical conduct and expressive behavior of a sexual nature where: (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education; (2) submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or (3) such conduct has the purpose or ef-

fect of interfering with an individual's academic or professional performance or creating an intimidating, hostile or demeaning employment or educational environment.

In keeping with this policy, the University of Nevada-Reno is undertaking a plan of action to protect employees, students and users of university facilities from sexual harassment and to rid the university of such conduct.

Anyone subjected to suspected sexual harassment should contact the Affirmative Action Office at UNR. Contacts are confidential. Formal complaints are handled as a disciplinary matter as outlined in the UNS Code (UNS Code, Chapter 6).

Anyone with other questions or wishing further information about this area should also contact the Affirmative Action Office, Clark Administration Building, 784-1547 or 784-4300.

Proscribed Conduct

1. Rules and Disciplinary Procedures for Members of the University Community

The following forms of conduct, being incompatible with the purposes of an academic community, are prohibited for all members of that community, including but not limited to the faculty and students, and lead to sanctions and procedures as described.

(1) Acts of physical force or disruptive acts which interfere with University of Nevada-Reno activities, freedom of movement on the campuses or freedom for students to pursue their studies, and acts which in effect deny freedom of speech, freedom to be heard and freedom to pursue research.

(2) The use of, or threat to use, force or violence against any member or guest of the system community, except when lawfully permissible.

(3) Interference by force, threat or duress with the lawful freedom of movement of persons or vehicles on the premises of the system.

(4) The intentional disruption or unauthorized interruption of functions of the system, including but not limited to classes, convocations, lectures, meetings, recruiting interviews and social events, on or off premises of the system.

(5) Willful damage, destruction, defacement, theft or misappropriation of equipment or property belonging to, in the possession of or on premises occupied by, the system.

(6) Knowing possession on any premises of the system of any firearms, explosives, dangerous chemicals or other instruments of destruction, or other dangerous weapons as defined by the laws of the state of Nevada, without the written authorization of the president of any system institution or the president's authorized agent, unless such possession reasonably relates to duly recognized system functions by appropriate members of the faculty, other employees or students.

(7) Continued occupation of buildings, structures, grounds or premises belonging to, or occupied by, the system after having been ordered to leave by the president of a system institution or the president's designee.

(8) Forgery, alteration, falsification or destruction of system documents or furnishing false information in documents submitted to the University of Nevada System.

(9) Making an accusation which is intentionally false or is made with reckless disregard for the truth against any member of the system community by filing a complaint or charges under this *Code* or under any applicable established grievance procedures in the system.

(10) The repeated use of obscene or abusive language in a classroom or public meeting of the system where such usage is beyond the bounds of generally accepted good taste and which, if occurring in a class, is not significantly related to the teaching of the subject matter.

(11) Willful incitement of persons to commit any of the acts herein prohibited.

(12) Disorderly, lewd or indecent conduct occurring on system premises or at a system sponsored function on or off such premises.

(13) Any act prohibited by local, state or federal law which occurs on system premises or at a system sponsored function on or off such premises.

(14) The use of threats of violence against a faculty member or the faculty member's family in order to secure preferential treatment for grades, loans, employment or other service or privilege accorded by the system.

(15) Any act of unlawful discrimination based on race, creed, color, sex, age, handicap or national origin.

(16) Any act of sexual harrassment when submission to a request or demand of a sexual nature is either an explicit or implicit term or condition of employment or of academic grading, or where verbal or physical conduct of a sexual nature has the effect of creating an intimidating, offensive or hostile work or classroom environment.

(17) Acts of academic dishonesty, including but not limited to cheating, plagiarism, falsifying research data or results, or assisting others to do the same.

(18) Willfully destroying, damaging, tampering, altering, stealing, misappropriating, or using without permission any system, program or file of the University of Nevada System.

(19) Any other conduct which violates applicable stated prohibitions, policies, procedures, rules, regulations or bylaws of a system institution.

2. Other University Regulations

The following are subject to disciplinary action:

(1) Conduct which endangers the health or safety of any member or guest of the university community.

(2) Illegal possession of keys or unauthorized entry into or use of university facilities, including buildings and grounds.

(3) Violation of university policies and regulations governing residence in university-owned or controlled property, including responsibility for the conduct of invited guests.

(4) Storage, possession, use, distribution, sale, barter, manufacture, exchange, or giving away of stimulant, depressant, narcotic, or hallucinogenic drugs, or other dangerous drugs such as marijuana, LSD (lysergic acid diethylamide), amphetamines, or barbiturates on university-owned or controlled property, except as expressly permitted by law.

(5) Failure to comply with the directions of university officials acting in the performance of their duties.

(6) Failure to comply with directions of university police acting in performance of their duties and to identify one's self to these officials when requested to do so.

Interdisciplinary and Special Programs

Interdisciplinary and special programs are offered to provide the student with enriched educational opportunities that extend beyond the traditional offerings. Some programs enable students to integrate academic disciplines to study a particular area more directly and effectively. Other programs provide study opportunities in different geographic regions within the U.S. as well as in other countries. Most of the programs are coordinated by faculty advisory boards. The individual designated for each program may be contacted for further information.

Campus Programs

Basque Studies

Minor: An undergraduate minor in Basque studies is offered through the College of Arts and Science in cooperation with the Basque Studies Program of the University Library. UNR provides the only Basque Studies Program in the U.S. and has a record of offering Basque courses in the past. The present minor provides the student with an introduction and exposure to one of the unique ethnic heritages of the American West. Requirements include a four semester (14 credit) course sequence in elementary and intermediate Basque (may also be utilized to satisfy the college foreign language requirement), and nine additional credits in the upper-division courses listed below.

	Credits
BASQ 101-102—Elementary Basque	8
BASQ 203-204—Second-year Basque	6
BASQ 351—Introduction to Basque Literature	3
ANTH/BASQ 366, 566—Old World Basque Culture	3
HIST 428, 628—Basque History	3
BASQ 455, 655—Introduction to Basque Linguistics	3

Doctor of Philosophy: An interdisciplinary tutorial Ph.D. program with a major in Basque studies is offered through the coordinated efforts of anthropology, foreign languages and history. The tutorial nature of the program requires the student to complete a plan of study under the direction of a mentor and with the approval of a standing admissions and policy board, a dissertation committee, and the faculty of the academic department concerned. Each student must complete a minimum of one year in residence at UNR and a second year at another American or European university working under the direction of a recognized Basque studies specialist.

Applicants must have completed an M.A. in a relevant academic discipline and satisfy the preapplication screening requirements of the admissions and policy board. The filing date for preapplication screening information to be submitted to the coordinator is February 1 annually. Applicants approved by the screening board must file an official application for admission and supporting documents in admissions and records by April 1. Applicants will be notified by May 15 annually.

A limited number of graduate fellowships may be available.

For further information, contact Dr. William A. Douglass, Coordinator, Basque Studies Program, Getchell Library, Room 274, 784-4854.

Cellular and Molecular Biology

Cellular and molecular biology is an interdisciplinary program offered by the faculty in the School of Medicine and the Colleges of Agriculture and Arts and Science. It is a highly interactive program which draws together a wide range of areas of study that fall under the purview of contemporary cellular and molecular biology. Programs of study are offered that lead to the master of science and doctor of philosophy degrees. Additionally, medical students may earn a M.D./Ph.D. degree through the program. Students who are admitted to the program are expected to have completed the following courses: calculus, four credits; organic chemistry, eight credits; physics, six credits; biology, eight credits. If a student is admitted with a deficiency in these courses, the deficiency must be corrected within the first year of Graduate School.

Candidates for the master of science degree must satisfy all general requirements of the Graduate School and complete a curriculum consisting of 30 credits which include the following: 16 credits of core curriculum, six credits of research and thesis, and eight credits of approved electives. Any substitutions of the core curriculum requirements must be approved by the director of the cellular and molecular biology program. A list of approved electives can be obtained from the program office at room 146 in the Howard Research Building.

Master of science core curriculum:	*Credits*
B CH—Macromolecules	
B CH—Metabolism	4
B CH—Molecular Genetics	4
MICRO 790—Graduate Seminar	1
MICRO 701, 702—Methods in Molecular Biology	6
MICRO 794—Colloquium	1

Candidates for the doctor of philosophy degree must satisfy all general requirements established by the Graduate School and complete a minimum of 72 credits which include the following: 26 credits of core curriculum, 24 credits of research and dissertation and 22 credits of approved electives. Substitutions in the core curriculum requirements must be approved by the director of the cellular and molecular biology program. All students must have their curricular programs approved by the director of the program, or when appointed, by an advisory committee. A list of approved electives can be obtained from the program office at room 208 in the Howard Research Building.

Doctor of philosophy core curriculum:	*Credits*
B CH 613—Macromolecules	4
B CH 617—Metabolism	4
B CH 705—Molecular Genetics	4
BIOL 710—Cellular Physiology OR	4
PHAR 730—Molecular Pharmacology	4
MICR 790—Graduate Seminar	1
MICR 701, 702—Methods in Molecular Biology	6
B CH/MICR/PHAR 794—Colloquim	3

Additional Program Requirements

All doctoral students must pass a comprehensive examination in which the student independently proposes a research project in the form of a written research grant proposal. Following acceptance of the proposal by an examining committee, the proposal must be defended orally before the examining committee. A reading knowledge of one foreign langauge or an approved substitute is required. A list of approved substitutes is available in the Cellular and Molecular Biology Office. All doctoral candidates must present a public seminar of their thesis research and pass an oral defense of the dissertation.

Candidates for the M.D./Ph.D. degree follow the requirements as outlined in the M.D./Ph.D. program.

Graduate fellowships are available on a competitive basis. Additional information concerning the program is available by request from Dr. Stephen St. Jeor, director of cellular and molecular biology, 784-6161, Room 146, Howard Building.

Computer Science

Baccalaureate Programs in Computer Science: These programs are jointly sponsored by the Department of Mathematics and the Department of Electrical Engineering and Computer Science. Two degrees are offered: (1) a *Bachelor of Science in Computer Science* in the College of Engineering, and (2) a *Bachelor of Science* with a major in computer science in the College of Arts and Science.

Students wishing to major in computer science are designated *pre-computer science* upon admission to the University. Upon satisfactory completion of their first two years of studies, students are granted full acceptance into the computer science major.

The program requires 130 credits for graduation. Of these credits, 69 are common to both degrees while the remaining 61 are specific to the college. The common credits are grouped into three areas:

Computer Science Core	*Credits*
C S 183—Introduction to Computer Science I	4
C S 283—Introduction to Computer Science II	3
C S 285—Introduction to Computer Systems	3
C S 333—Computer Logic Design	3
C S 386—Computer Programming Languages	3
C S 387—Introduction to the Theory of Computation	3
C S 485—Computer Data Structures	3
C S 486—Principles of Computer Operating Systems	3
Subtotal	25

Science and Mathematics Core	*Credits*
CHEM 101—General Chemistry	4
MATH 215—Calculus I	4
MATH 216—Calculus II	4
MATH 217—Calculus III	4
MATH 251—Probability and Statistics	3
MATH 330—Linear Algegra I	3
MATH 381—Discrete Mathematics	3
PHYS 201—Physics for Scientists and Engineers I	3
PHYS 202—Physics for Scientists and Engineers II	3
PHYS 203—Physics for Scientists and Engineers III	3
PHYS 204—Physics for Scientists and Engineers Lab I	1
PHYS 205—Physics for Scientists and Engineers Lab II	1
PHYS 206—Physics for Scienrists and Engineers Lab III	1
Subtotal	37

General University Requirements	*Credits*
ENGL 101—Composition I	3
ENGL 102—Composition II	3
Nevada and United States Constitution requirements	3
Subtotal	9
TOTAL	71

For the program requirements specific to the College, see the computer science headings in the sections of this catalog under Department of Mathematics and Department of Electrical Engineering and Computer Science.

Minor: The computer science minor consists of a core of at least six courses comprising at least 19 credits including 9 or more upper-division credits of a computer science nature taught in the departments of electrical engineering, mathematics, philosophy, computer information systems, or physics. This core covers areas of computer science recognized as fundamental by professional organizations in computing, engineering, and business. Students completing the core have a strong technical foundation upon which to build further expertise in computer science in the directions of either electrical engineering (hardware design and interfacing), mathematics (theoretical computer science, software), or computer information systems (software applications in business). Other disciplines might also be profitably related to computer science.

Minor Curriculum

Required core computer science courses:	*Credits*
C S 183—Introduction to Computer Science I	4
C S 283—Introduction to Computer Science II	3
C S 285—Introduction to Computer Systems	3
C S 333—Computer Logic Design	3
C S 386—Computer Programming Languages	3

Electives: Select at least three credits from the following:	*Credits*
C S 387—Introduction to the Theory of Computation	3
C S 435—Microprocessors	3
C S 437—Computer Graphics	3
C S 485—Computer Data Structures	3
C S 486—Principles of Computer Operating Systems	3
C S 487—Computer Database Management Systems	3
C S 488—Topics in Artificial Intelligence	3
C S 489—Topics in Computer Science	1 to 3
CIS 484—Information Systems Analysis and Design	3
CIS 485—Database Management and Operating Systems	3
CIS 488—Special Topics in Information Systems	3
E E 431—Digital Computer Design	3
E E 439—Advanced Microprocessors	3
MATH 307 (PHIL 326)—Symbolic Logic	3
MATH 381—Discrete Mathematics	3
MATH 481—Introduction to Nonprocedural Programming Techniques	3
PHYS 466—Introduction to Microcomputer Interfacing	3

The computer science minor is administered by an interdepartmental faculty committee. Students pursuing this minor must have an adviser from this committee in addition to their regular adviser. Further information can be obtained by contacting Dr. Edward F. Wishart, Department of Mathematics.

Master's Program in Computer Science: The purpose of the program is to provide an integrated course of study and research leading to the degree of Master of Science with a major in computer science. Members of the program, drawn from the Departments of Electrical Engineering and Computer Science, and Mathematics, share a primary research interest in this field.

The program is concerned with investigation into the fundamental properties of digital information processing systems. Emphasis is placed on algorithms and their implementation by digital computers and also on the design of computer systems, both hardware and software. Current interests of the program faculty include: image processing, computability and complexity, computer aided design and simulation, programming languages, flexible automation, numerical analysis, computer networks, discrete mathematics, computerized algebra, nonprocedural programming, cybernetics, and artificial intelligence.

Normally, a student accepted into the program is expected to have met requirements for a bachelor's degree in engineering, mathematics, or science. It is not necessary that this degree be in computer science. Previous courses and/or experience should include the equivalent of: C S 285—Introduction to Computer Systems, C S 386—Computer Programming Languages, and C S 333—Computer Logic Design. Admission to the program is not granted until these prerequisites are met.

Additional information may be obtained by contacting Dr. Carl Looney, Department of Electrical Engineering and Com-

puter Science, or Dr. Edward Wishart, Department of Mathematics.

Early Childhood Special Education

The early childhood special education option is an interdisciplinary program offered jointly through the College of Education, School of Home Economics, School of Medicine, and School of Nursing. It is intended for students interested in working with handicapped infants and children under the age of five and their families.

A student enrolled in a baccalaureate program and completing requirements is eligible to apply for endorsement in early childhood special education through the Nevada State Department of Education. This endorsement is open to anyone who has earned a bachelor's degree in special education, education for early childhood, child development, or a related field such as psychology, elementary education, speech pathology, nursing or social work, and who has completed coursework in a specified group of subjects.

Students enrolled in the interdisciplinary early childhood special education program must complete 33 credits, as listed below. Students majoring in elementary/special education within the College of Education, child and family studies in the School of Home Economcis, speech pathology in the School of Medicine, or nursing will meet portions of these requirements within their own majors. Other requirements of their respective majors must also be met, as prescribed by their individual departments.

Required Courses:	*Credits*
Normal Development: C I 270 or H EC 131 or PSY 233 and SPA 310	6 or 7
Atypical Development: C I 310 and 312	4
Family Involvement: C I 413 or 483 and H EC 434 or 435	2
Program Implementation: C I 418 and H EC 233 and 432	10
Assessment: C I 471 or 483 and NURS 302 and SPA 359	3
Student Teaching: C I 453 or H EC 470	8

This program is administered under the direction of the Early Childhood Special Education Board. Further information may be obtained by contacting Dr. Eva L. Essa of the School of Home Economics or the chairman of other participating departments.

Environmental Studies

The university offers a minor in environmental studies under the direction of the Environmental Studies Board. The board is authorized to develop a curriculum of special courses, listed in course offerings under environment, and related courses in various departments. In addition, the board encourages environmentally oriented graduate research based upon any of the conventional disciplines in the academic and professional departments of the university.

The environmental studies minor addresses problems of the environment and of natural resource and energy use, many of which overlap or affect several disciplines. The minor requires 24 credits, of which at least nine must be in upper-division (300-400) courses.

Core Courses

The following courses are required of all students taking minors in environmental studies:

	Credits
ENV 101	3
One of these: ENV 292 (GEOG 292), GEOG 335 (RWF 335), or RWF 490 (GEOG 431)	3

Additional Environmental Courses

Students taking minors must select at least two courses from each of the following areas of concentration:

Ecological and Physical Principles: BIOL 210, 212, 294, 410; CHEM 100, 101; GEOL 480; PHYS 101; AGRO 222 or equivalent courses in the biological, earth or physical sciences or in engineering.

Economic and Social Principles: AGEC 202, 368; ANTH 470; EC 101, 459; HIST 316; ENV 294 (H EC 294), ENV 494 (H EC 494), or equivalent courses in economic or social sciences.

Environmental Planning and Policy: ENV 292 (GEOG 292) if not taken as a core course; ENV 457 (P SC 457); P SC 336, 458; RWF 420, 490 (GEOG 431) if not taken as a core course, ENV 494 (GEOG 434) or equivalent courses concerned with environmental and resource planning and policy.

Students are responsible for any prerequisites that are required for any of the above.

A maximum of three credits in ENV 301 and three credits in ENV 401 may be used toward the minor program. Each of these may be substituted for one course in each of two different areas of concentration as listed above.

The specific courses taken are selected with the approval of the Environmental Studies Board and the student's major department; a board adviser works with the student in designing an appropriate program. In keeping with the interdisciplinary goals of the minor, no student minoring in environmental studies may include more than six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements for the major.

Additional information may be obtained by contacting Dr. Richard Rust, Biology Department.

Ethnic Studies

The ethnic studies program offers an opportunity for students to gain an awareness of the varied cultures, experiences, and contributions of black Americans, Spanish-speaking (Chicano, Latino) Americans, and native Americans by providing a series of interdisciplinary focal points within the six humanities and social sciences. In addition to the core course (E S 307), courses in ethnic studies are offered in the subject areas of anthropology, English, foreign languages and literatures, geography, history, political science, psychology, and sociology. Such courses are open to any student regardless of major, and are invaluable to an understanding of the American past and present, or to an assessment of the future.

Ethnic studies also offers minor programs in three areas of specialization: black American, Spanish-speaking American, and native American. Students who choose one of these minor programs must complete nine credits of required courses and nine credits of elective courses in one ethnic specialization. Nine of these credits must be upper division. No student minoring in an ethnic studies area may include more than six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements for the major.

Black American

Required Courses: E S 307; HIST 455, 456.
Elective Courses: ANTH 205, 365; ENGL 345; HIST 447, 448, 449; H EC 438; P SC 205, 453; SHR 372; SOC 205, 379.

Spanish-speaking American (Chicano, Latino)

Required Courses: E S 307; SPAN 222, 441.
Elective Courses: ANTH 205, 425; HIST 343, 344, 345, 346; H EC 438; P SC 205, 415, 453; SHR 372; SOC 205, 379.

Native American

Required Courses: ANTH 362; E S 307; P SC 453.
Elective Courses: ANTH 205, 345, 360, 363, 420, 423; ENGL 345; H EC 438; P SC 205; SHR 372; SOC 205, 379.

The Ethnic Studies Board also sponsors special courses in various departments when possible. These courses may be used as elective courses in the specialty areas. Additional information is available upon request from Diane Hatton, Orvis School of Nursing, Room 206, 784-6841.

General Studies

The university's bachelor of general studies (BGS) degree program provides interdisciplinary study across the academic disciplines and professional fields. It is designed for nontraditional students whose age, place of residence, academic interest or career objectives dictate the need for an individualized university degree. There is no on-campus resident credit requirement. Degree candidates are assigned an academic adviser to assist in the design of an appropriate course of study. Students who intend to pursue graduate education should contact their adviser regarding the degree's applicability to that goal.

The objectives of the program are:

1. to meet UNR's mission as a land-grant university to better serve the general educational needs of the state's citizens;
2. to provide nontraditional students an opportunity to earn a bachelor's degree while maintaining their family and/or employment responsibilities;
3. to provide an opportunity for a degree which encompasses and unites several disciplinary and professional areas; and
4. to provide students an opportunity to build upon the associate of arts and the associate in general studies degrees offered by two-year colleges.

Entrance Requirements

Must be admitted as a regular student.

Program Completion Requirements

1. A minimum of 124 credits must be earned with 40 or more credits in courses numbered 300 or above. A minimum of 45 credits must be completed in UNR courses (on-campus, off-campus, teleconference or correspondence). Sixty of the 124 total credits must be earned at four-year colleges and universities. A maximum of four credits applicable to the BGS may be earned in RPED activity courses (courses numbered 100-199).
2. A 2.0 GPA or higher for all courses attempted at UNR and an overall 2.0 GPA or higher must be earned.
3. Courses in United States and Nevada Constitutions must be satisfactorily completed.
4. The ENGL 102 requirement must be completed.
5. Three credits of mathematics at the 100-200 level must be completed
6. Sixty credits must be taken and distributed in the following manner:

Humanities and Fine Arts: (12 credits) ART 116, 117, 214, 257 (three credits only); ENGL 131, 235, 236, 241, 244, 253, 261, 281, 291, 292, 293; FR 221, 223; GER 221, 223; ITAL 221, 223; SPAN 221, 222, 223; HIST 105, 106; MUS 121, 201-202; PHIL 100, 110, 125, 130, 211, 213; THTR 100.

Natural Sciences: (12 credits) ANTH 102; BIOL 100, 101, 103, 201, 202, 204, 206, 210, 212; CHEM 100, 101, 102, 103, 104; ENGR 204; ENV 101; GEOG 103; GEOL 101, 102, 160; HIST 282; MATH 110, 140, 201, 213, 215, 265; PHYS 101, 106, 108, 109, 110, 117, 151-152.

Social Sciences: (12 credits) ANTH 101, 201, 205; C J 110, 120; EC 101, 102; GEOG 106; HIST 101, 102, 111, 281; JOUR 101; P SC 103, 104, 205, 210, 211, 231; PSY 101; SHR 220; SOC 101, 202, 205; SPCM 210; W S 101.

Communication and English Composition: (12 credits) ENGL 101, 102, 321; SPCM 113; CIS 250, 251, 253, 261; C S 183, 283, 285, 386; foreign languages through the intermediate level (205-209).

Colleges other than Arts and Science: (12 credits) Use of upper-division courses to fulfill these requirements must be approved by a student's adviser.

Degree to be Granted

Successful candidates are awarded a bachelor of general studies degree. Program information is available from the office of the dean, Division of Continuing Education, Room 335, College Inn.

Gerontology

The College of Arts and Science, School of Home Economics, School of Medicine, and School of Nursing are cooperating to establish an interdisciplinary program at the undergraduate level. This program provides students with a basic knowledge in several areas of gerontology. The courses are open to all persons eligible to take classes at UNR.

For a list of the courses suggested for persons interested in gerontology and additional information on the program, contact Betty Dodson of the Geriatric and Gerontology Center, 784-1689.

Historic Preservation

An historic preservation program is offered through the College of Arts and Science. Historic preservation is a rapidly expanding field devoted to the understanding, recording, preservation, restoration or adaptive reuse of significant objects, buildings, sites, neighborhoods, districts or engineering works which reflect or exemplify a portion of the nation's historic and prehistoric cultural heritage. Particular emphasis is placed on the heritage of Nevada and the American West.

Training focuses upon the principles of historic preservation, the structure and purposes of private, municipal, state and federal programs and agencies, historic preservation laws, guidelines and codes, field research projects and internships with local, state and federal historic preservation agencies. Depending upon the student's major program and interests in a particular subfield of historic preservation, related courses taught in other departments and colleges are utilized.

Minor

Required courses for undergraduate minor:	*Credits*
H P 301—Principles of Historic Preservation	3
H P 401—Historic Preservation Laws and Policies	3
H P 402—History of American Architecture	3
H P 405—Historic Preservation Survey and Planning	3
H P 470—Practicum in Historic Preservation Research	3
ANTH, ART, BIOL, HIST, H EC 309—Museology	3
H P 475, 480, P SC 341 or L SC 407	3

Additional information is available upon request from Dr. Don D. Fowler, Business Building, Room 501, or phone 784-6851.

Honors Study

The honors study program offers talented students additional opportunity for developing their skills and training their powers of observation, thought, and expression. Successful participation in the program gives superior students the personal satisfaction of having met and mastered the most in-

novative and challenging program the university offers. In accomplishing this, students enjoy a close relationship with their teachers and fellow honors students. Courses completed for honors are recorded on the student's record and honors students may graduate *cum laude, magna cum laude,* or *summa cum laude* from the university. These marks of distinction indicate the ability to complete independent study and exhibit superior scholarship.

Students entering the university are considered for acceptance to honors study on the basis of their previous achievement and/or ACT/SAT scores. Students already enrolled are considered on the basis of their performance at the university. Normally each student must maintain a GPA of 3.0 or above in all university courses to participate.

Students elect the courses they wish to attempt for honors by completing an Honors Study Agreement, approved by the instructor and the director of the honors study program. In addition to honors sections of large courses and occasional special offerings of the Honors Study Board, *any course graded A through F* (including independent study courses and graduate courses taken by eligible seniors) may be taken for honors by doing additional work of honors quality. Honors points (equal to, or in some cases less than, the number of course credits) are awarded at the discretion of the instructor but in no case for course grades of less than B.

The honors program leads to graduation *cum laude, magna cum laude,* or *summa cum laude* and is the only way to achieve these distinctions. Requirements for graduation within the program are: (1) satisfaction of all university and college requirements for the degree program selected; (2) fulfillment of any college or department requirements for graduation with honors; (3) accumulation of 18 or more honors points, at least nine of which are earned in the major field in courses numbered 300 and above; (4) completion of a senior thesis (which completes three of the nine points) based on independent research, or the equivalent, in the major field; (5) attainment of the indicated GPA, both in the major field and in all courses. For transfer students, a minimum of 64 semester credits or more must be earned in residence at the university in courses graded A through F. Each transfer student must satisfy the UNR GPA requirements and have a combined transfer-UNR GPA that satisfied the minimum specified. Graduation *cum laude,* requires a GPA of 3.5 or above; *magna cum laude* a GPA of 3.7 or above with grade of A on the senior thesis; *summa cum laude* a GPA of 3.9 or above with grade of A on the senior thesis. The GPA requirement must be satisfied by 96 credits or more in courses graded A through F.

The honors program is administered by the Honors Study Board, which evaluates all students who apply for graduation with honors. When a student has completed all requirements, the board so informs the registrar for posting on the student's record.

For additional information and Honors Study Agreement forms, contact the director of the Honors Study Program: Dr. L.C. Hsu, Room 214, Scrugham Engineering-Mines, 784-6691 or 784-6050.

Hydrology and Hydrogeology

Academic guidance is administered by an Interdisciplinary Faculty Board comprised of faculty members with teaching and/or research interests in the areas of hydrology, hydrogeology, and water resources. The programs are structured to stimulate professional development of the graduate student by: (1) providing appropriate channels for specialization, (2) broadening knowledge and competence through basic and applied concepts relative to the field(s) of choice, and (3) providing a learning and/or working climate conducive to subsequent professional careers in teaching, research, consulting, and/or administration.

Entering students should have a bachelor of science degree or the equivalent in agricultural engineering, biology, civil engineering, geology, geological engineering, renewable natural resources, or a related field. The master of science degree can be pursued under either Plan A (thesis) or Plan B (nonthesis), and the Ph.D. degree is available for qualified students who intend to pursue a career in teaching or research. Core courses are established by the Interdisciplinary Faculty Board for both the M.S. and Ph.D. programs. Prerequisites for these programs are: mathematics through differential equations, a year of physics, a year of chemistry and a course in fluid mechanics. The graduate degree may be completed through agriculture, engineering or mines.

Residents of Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, New Mexico, Oregon, Utah, Washington, or Wyoming, who qualify under the Western Interstate Commission for Higher Education (WICHE) western regional graduate programs, may be selected under the WICHE program. This program provides an out-of-state tuition waiver for the first year only. A letter must accompany the application stating that the applicant is going to apply for a UNR grant-in-aid for the WICHE approved program. The state WICHE office from the state of origin must send a letter to the Office of Admissions and Records certifying that the applicant is eligible for the WICHE regional graduate program.

Applications for the program are processed twice a year. For the fall semester, applications and letters of reference must be received by February 15. Letters of acceptance are mailed by March 15. For the spring semester, applications and letters of reference must be received by October 1. Letters of acceptance are mailed by November 1.

Additional information is available upon request from Dr. G. Fred Gifford, program director, Hydrology/Hydrogeology Interdisciplinary Program, Department of Range, Wildlife and Forestry, 1000 Valley Road, Reno, Nevada 89512.

International Affairs

An interdisciplinary major in international affairs, administered through the Department of Political Science, is offered by the College of Arts and Science with the cooperation of the College of Business Administration. It is designed as an integrated liberal arts program for students desiring both social scientific and humanistic explorations of international cultures and relationships, and for students preparing for careers in business, diplomacy, journalism, or teaching. The latter careers usually require at least a master's or professional degree beyond the bachelor of arts.

Students should complete at least EC 101-102, HIST 106, a course in statistics (ordinarily SOC/PSY 210 or EC 261), and two years of foreign language, as well as other university requirements during the first two years. These requirements enhance the degree and provide vital context and tools. Preparation is also strengthened by completion of such courses as ANTH 101, culture courses from foreign languages and literatures, GEOG 106, 109, HIST 105, PHIL 100, 112, P SC

104, and SOC 204. Additional work in language, ideally certifiable competency, is strongly recommended.

The major includes a required core of 18 credits selected from 10 course options, with at least one course each from economics and political science: EC 301, 410 (approved seminars); HIST 407-408; HIST 301-302; GEOG 319; and P SC 211, 231, 336. Students also select a specialized "advanced track" consisting of 18 additional credits including a required senior research paper prepared under faculty supervision. Current advanced track options include area study concentrations for Asia, Latin America, Soviet/Communist World, and Western Europe, and topical study concentrations for diplomacy, political economy, and peace and security. Students are strongly encouraged to participate in study abroad programs and can include approved 200-level and above courses taken abroad in appropriate advanced track concentrations.

Students are required to complete minors, and are encouraged to select skill-oriented minors in such fields as accounting, foreign language, journalism, or finance.

Programs of study are designed in consultation with the Director, Dr. Richard Ganzel, who also approved senior paper topics and the supervising faculty for the research project. Since international careers are demanding, the program is aimed at serious, capable students willing to meet the demands of participating faculty.

Master of Judicial Studies

The Master of Judicial Studies is offered through a cooperative program of the University of Nevada-Reno, the National Judicial College, and the National Council of Juvenile and Family Court Judges. The two judicial organizations are academic affiliates of UNR and are located on the campus. The purpose of the MJS program is to provide sitting judges with a coherent theoretical and practical academic experience aimed at giving them more knowledge and tools to use in their courtrooms.

Sitting judges may apply for admission to the program and, if admitted, may pursue one of two major courses of study: one intended for trial judges, the other intended for juvenile and family court judges. The degree requires the successful completion of 32 semester credits in required and elective courses and the writing of an acceptable thesis. Candidates spend a minimum of two summers in residence at the university. For further information, contact Dr. Neal Ferguson, Dean of Continuing Education, telephone (702) 784-4851.

Land Use Planning Policy

A master of science degree is offered with a major in land use planning policy. The program is interdisciplinary and is offered through the cooperative efforts of several departments — agricultural economics, anthropology, civil engineering, economics, geography, political science and range, wildlife and forestry. The Land Use Planning Policy Board manages the program under the administration of the College of Arts and Science. Close liaison is maintained with planning and related personnel in government and industry.

The program requires a minimum of 39 credits. Candidates take 21 credits of core requirements, including computer graphics, statistical analysis, environmental law, and seminars in resource and land use policy, in urban and regional planning and in economics of renewable natural resources.

Beyond the core, the student chooses a field of specialization, for example, planning and administration, environmental policy and law, or historic preservation. In this field, the student takes at least 12 credits in lectures, independent research, and seminars, and completes a thesis (six credits). An internship is also highly recommended.

Requirements in addition to those for regular graduate standing admission include a minimum grade-point average of 3.0, introductory work in calculus, computer programming and statistics, and reasonable competency in communication. Applications are submitted through the Office of Admissions and Records for evaluation by the Land Use Planning Policy Board, the participating department and its college. Approved applicants must satisfy the requirements of the land use planning policy program and any additional requirements of the specific department and college.

For additional information, contact the chair of the Land Use Planning Board, Christopher H. Exline, Geography Department, Room 225, Mackay Science, telephone 784-6995.

Medieval and Renaissance Studies

Medieval and Renaissance studies is a minor for students majoring in anthropology, art, criminal justice, English, foreign languages and literatures, history, mathematics, music, philosophy, political science, psychology, sociology, and speech and theatre. The purpose of this interdisciplinary program is to enable students to understand and explore the culture of the Middle Ages and Renaissance so they may better understand the roots of Western civilization.

Students wishing to minor in Medieval and Renaissance studies must complete a total of 18 credits which must include courses from at least two departments. Twelve of these credits must be earned from courses numbered 300 or above. The courses acceptable toward the minor are listed below in two groups, *Group A* (courses with a predominantly Medieval and/or Renaissance content) and *Group B* (courses of an auxiliary nature). At least 12 credits must be chosen from Group A.

Group A: ART 314, 315, 419; ENGL 271, 272, 412, 413, 417, 418, 451, 453, 454, 458, 460, 461, 464, 465; FLL 458; FR 463, 464, 465, 466; GER 458; HIST 373, 384, 393, 473; ITAL 223; MUS 201; PHIL 212; SPAN 353, 462.

Group B: ART 116, 117; ENGL 235, 292, 337; FLL 292; FR 221, 313; GER 221 and 459; HIST 105, 281, 371, 372, 377, 385, 421; ITAL 221; PHIL 211, 410, 411; SPAN 221, 464, 466, 469; THTR 471.

In addition, several of these departments have courses treating individual authors, artists, themes, etc., as well as independent studies courses. Where the subject matter of such courses is appropriate, they may be used toward fulfillment of the requirements of this minor.

A student minoring in Medieval and Renaissance studies may include a maximum of six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements of the major. To insure cohesiveness in a student's program, courses should be chosen with the help of an adviser and the minor program must be approved by the Medieval and Renaissance Studies Committee.

Additional information is available from Dr. Phillip Boardman, Room 6, Frandsen Humanities.

Museology Minor

The interdisciplinary program in museology offers students an opportunity to explore the expanding field of museum work

and museum research. The museology minor is designed to provide an introduction to the field, an exposure to some of the skills and techniques required of a career museologist, and an initial apprenticeship experience in a museum setting. Today there are roughly 7,000 public museums in the United States, employing career museologists as well as professional curators, exhibit technicians, educators and others. Students contemplating a career in the museum field, or in a discipline such as anthropology, art, biology, geology, history, home economics or historic preservation, or one in federal or state agency service, should find the minor particularly useful. Students choosing this minor must complete six credits in required courses as well as twelve credits in elective courses. Because the elective directions can be many and varied, students and their advisers must consult the chair of the museology committee for a specific program plan (see below). A student minoring in museology may include in the minor a maximum of six credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements for the major. Nine of the total minor credits must be upper division. For additional information, contact Dr. Edgar F. Kleiner, Chair, Museology Committee, 784-6188.

Required:	*Credits*
ANTH, ART, BIOL, GEOL, HIST, H EC 309	3
ANTH 480, BIOL 310, HIST 310, H EC 470, or ART 490	3
Additional Electives: ANTH 330, 340, 345, 360, 362, 402, 403, 423, 425; ART 100, 116, 117, 150, 258, 259, 314, 315, 316, 419; BIOL 333, 334, 360, 362, 372, 373, 376, 377, 378; GEOL 101, 102, 160, 211, 212, 461; HIST 281, 282, 315, 371, 372, 384, 403, 404, 473; H EC 151, 152, 315, 353; H P 301, 475	12
	12

Suggested Emphases:

History Emphasis: ANTH 340; HIST 281, 282, 309, 310, 315, 371, 372, 384, 403, 404, 473; H EC 315, 353; H P 301, 474

Science Emphasis: ANTH or BIOL 309; ANTH 480 or BIOL 310; ANTH 330, 340, 345, 360, 362, 402, 403, 423, 425; BIOL 333, 334, 360, 362, 372, 373, 376, 377, 378; GEOL 461; HIST 281, 282.

Exhibits Emphasis: ANTH 330, 345; ART 309 or H EC 309; ART 319 or H EC 470; ART 100, 116, 117, 150, 258, 259, 419; H EC 151, 152.

Program for Adult College Education (PACE)

The Program for Adult College Education (PACE) offers an innovative, "off-hours" way to earn the university's bachelor of general studies (BGS) degree. With a curriculum that integrates the humanities, social sciences, and natural sciences, PACE is designed for adults who desire a liberal arts education, but need a flexible, convenient class schedule. By offering courses in an evening and weekend format, students who work full-time can go to college full-time and earn a bachelor's degree in four to six years.

Students may enroll in either a 12-credit "block" or a six-credit "half-block" of related courses which are taught in an integrated way, so that each class in a block highlights, contrasts, and supplements information from other courses in the same block. A block, therefore, represents a theme such as "Women's Studies" or "Value Conflicts in American Society."

A 12-credit block of courses consists of a four-hour meeting one night a week for 15 weeks, four weekend sessions (a weekend session meets eight hours each day on Saturday and Sunday), and an independent study segment requiring four hours of outside study per week. A six-credit half-block consists of either the evening or the weekend courses and a two-hour per week independent study segment.

PACE completion requirements are the same as those for the university's bachelor of general studies degree (see "General Studies"). For further information, contact the PACE office at (702) 784-1465.

Religious Studies

The purpose of this interdisciplinary program is to allow the student to pursue, as an object of academic inquiry, such aspects of religious experience as are subject to study without regard to sectarian sentiment or affiliation.

Minor

Students wishing to minor in religious studies must complete a total of 18 credits to include courses from at least two departments and R ST 101, Introduction to Religious Studies. Twelve (12) of these credits must be earned from courses numbered 300 or above. The introductory course (R ST 101) is a prerequisite for 300-level courses unless waived by the religious studies adviser. The courses acceptable toward the minor are listed below in two groups, *Group A* and *Group B.* At least 12 credits must be chosen from Group A; other courses may be selected from Group B.

Group A: ANTH 322; ENGL 268, 335, 337; HIST 317, 318; PHIL 112, 323; B V 264; PSY 350; R ST 101; SOC 333.

Group B: ANTH 338; ART 116, 314; ENGL 292, 333, 339, 340, 453, 464; HIST 105, 371, 372, 373, 403, 404, 427; PHIL 201, 203, 211, 401; SHR 340.

In addition, several of these departments have courses treating individual authors, artists and themes, as well as courses in independent studies. Where the subject matter of such courses is appropriate, they may be used toward fulfillment of the requirements of this minor. A student minoring in religious studies may include a maximum of six (6) credits from courses in the major department. Such credits must be in addition to those used to fulfill the requirements of the major. To insure cohesiveness in a student's program, courses should be chosen with the help of an adviser and the minor program must be approved by the Religious Studies Committee.

Additional information is available upon request from the chair of the Religious Studies Committee, Dr. Robert D. Harvey, English Department, Frandsen Humanities, Room 19, 784-6750.

Teacher Certification

Students who successfully complete the professional education requirements of the teacher preparation degree programs at the university, with major and minor teaching fields, simultaneously meet all requirements for certification by the Nevada State Department of Education. However, proper application must be made to the state certification director. **New state certification requirements are met through appropriate courses listed in this catalog under the College of Education.**

Advisement for teacher education programs is offered through the Department of Curriculum and Instruction and the dean of the College of Education, in cooperation with department chairs and deans of the Colleges of Agriculture, Arts and Science, and Business Administration, and the Schools of Mines and Home Economics.

The programs for teacher education at the university conform with standards of the National Council for Accreditation of Teacher Education, which are considerably higher than the minimum requirements currently demanded by the Nevada State Department of Education.

Graduates of this or other universities who have not followed the approved teacher education curriculum may obtain infor-

mation concerning minimum requirements for certification from the State Certification Director, Nevada State Department of Education, 400 West King Street, Carson City, NV 89710. Students who wish to be certified in another state should obtain a statement of requirements from that state's department of education.

A postbaccalaureate certification program for graduates is offered through the College of Education.

Additional information is available upon request from Dr. Frank D. Meyers, Dean, Education Building, Room 101.

Women's Studies

The purpose of this interdisciplinary program is to provide a fuller understanding of the nature and role of women through academic study, to discover and evaluate the accomplishments of women, and to consider the special problems of women in a changing world.

The core course (W S 101) is offered each fall semester and occasionally during the summer session, and is open to all students, regardless of major. Related courses are offered by various departments. In addition, suitable courses offered from time to time may be approved by the women's studies coordinator for inclusion in the minor program.

Students wishing to minor in women's studies must complete the introductory course (W S 101) and a program comprising 15 additional credits (nine in 300 or higher level courses) chosen from the following: ANTH 212; C J 498;* ENGL 267; HIST 497;* H EC 131,* 274, 315, 341, 422, 430, 445,* 458;* P SC 354; PSY 233;* SHR 320,* 372; SOC 275, 453, 480; SPAN 441;* SPCM 412,* 490;* W S 297, 490, 497.

Students must consult with the women's studies adviser to choose courses suitable to their needs and majors. Additional information is available from Jill Winter, Center for Applied Research, 784-6718.

National Exchange Program

National Student Exchange

The university is a member of the National Student Exchange (NSE). This program provides qualified undergraduate students with an opportunity to become better acquainted with different social and educational patterns in other areas of the U.S. Governed by the philosophy that participation is essential to education, the NSE encourages students to experience new lifestyles and appreciate various cultural perspectives.

Nevada residents may apply for exchange in the sophomore or junior year to one of several regionally accredited state institutions across the U.S. (currently 50 schools participate). A minimum of 2.5 cumulative UNR grade point average is required and, if accepted, the student pays in-state fees at the school selected.

Information and applications may be obtained from Room 103, Thompson Student Services Center.

Western Interstate Commission for Higher Education (WICHE)

The state of Nevada contributes nearly one-million dollars *each year* in support funds to Nevadans attending out-of-state schools under the auspices of WICHE. Currently, Nevada provides grants to scholars in the fields of *law, physical therapy, occupational therapy, veterinary medicine, dentistry, optometry,* and *library science.*

The recipient selection process is competitive and based upon a composite scoring of grade point averages and admissions test scores. Nevertheless, the application is quite simple. The only requirement is that applicants must be a Nevada resident for one year prior to the date of application.

To receive primary consideration, applications must be received by October 30 of the year prior to the year in which enrollment in professional school is planned. Official transcripts must be submitted and the required admissions examinations must be taken before October 30. Applicants who miss the deadline are placed on an alternate waiting list.

Nevada WICHE also has information on Western regional graduate programs which enable Nevadans to pursue graduate studies at out-of-state institutions at resident tuition rates.

Applications and brochures may be obtained at the Nevada WICHE Office, located in the Old Gym, Room 107, 784-4900.

International Programs

Basque, French and Spanish Study Abroad

University Studies in the Basque Country (USBC) is a consortium project of UNR and four other universities which offers unique programs in Basque, French, and Spanish studies on six European campuses.

Basque/Spanish Studies

Undergraduate and graduate courses in Basque or Spanish language (all levels), anthropology, history, political science, literature, economics, folkdance, art history, and cuisine are available during the summer, fall and spring semesters. A special dimension of this program allows students to fulfill all university foreign language requirements in only one semester. Excursions and fully integrated living opportunities constitute an integral part of these programs. These programs are located in the seaside resort city of San Sebastian near the Spanish/French border.

French Studies

One or two semesters of intensive French language at the elementary, intermediate and advanced levels are offered. Courses in Basque Studies, French literature, geography, history, and political science are also available. This program is located at the University of Pau in the southwestern city of Pau.

Italian Studies: International Business and Economics

The Turin program introduces students to the economic structure of Italy, the European Common Market, and principles of international business and economics while gaining a working knowledge of the Italian language and a deeper understanding of Italy's culture, history, and arts. This program is located in northwestern Italy in the city of Turin. One or two semesters.

For further information, contact Dr. Carmelo Urza, Getchell Library, Room 274, or telephone 784-4854.

*Women's Studies: When these courses or term projects within them deal with women's concerns.

European Studies

The university, through affiliation with the Institute of European Studies, offers high quality academic programs of study at seven campuses abroad. Year programs are available in Vienna (Austria), Durham and London (England), Paris and Nantes (France), Freiburg (Germany), Milan (Italy), Madrid (Spain), Mexico City (Mexico), Japan and Singapore. A single semester program is available, fall and spring, in London. Each institute center, except Durham, also offers fall and spring semester programs. Summer study for beginners, intermediate and advanced students is available in Paris, Freiburg, and Madrid.

Students in nearly all subject areas can take courses through the institute which may be applicable to their regular programs at the university. The courses are not designed exclusively for foreign language majors.

Participation is generally limited to students who have completed at least two years of college and who give evidence of strong motivation, adaptability, and academic promise. A knowledge equivalent to two years of college study of the language of the host country is required, except in Vienna where classes are taught in English. A special fall semester program is available in Freiburg for students with one semester of college German or equivalent. In Versailles, a special interim (quarter) program with emphasis on improving French language skills is offered in the fall. Programs of study must be approved by the student's adviser, the chair of the department concerned, and a screening committee. Limited financial aid is available. Further information and application forms may be obtained from Dr. K.B. Rao, Thompson Student Services, Room 105, 784-4177.

The university's affiliation with the Institute of European Studies does not prevent a student from exploring other programs of study abroad.

London Study Program

The London Study Program is a unique and challenging overseas experience for UNR students. Individuals may study at the University of London for a semester as regularly enrolled UNR students. Students register for all classes prior to departure, pay regular UNR fees, and earn UNR credits to apply toward their major and degree. Any financial aid received at UNR may be applied toward the cost of the program. Students who have completed 30 semester credits or more with a GPA of 2.0 or higher are eligible to participate. Enrollment is limited.

The American Institute for Foreign Studies (AIFS) provides all the necessary nonacademic support services at reasonable rates to participating students. It is a highly regarded international organization which provides comprehensive overseas study and travel opportunities for students and teachers. AIFS support includes classroom facilities at the University of London, room and board, social activities, cultural events, insurance coverage, and transportation arrangements.

UNLV is also a participating member of the program and provides instructional support. Further information on the London Study Program is available upon request from Dr. Francis X. Hartigan, History Department, 784-6562 or 784-6855.

Max C. Fleischmann College of Agriculture

Bernard M. Jones, *Dean*
Elwood L. Miller, *Associate Dean*
Ronald S. Pardini, *Acting Associate Director*

The general objectives of the Max C. Fleischmann College of Agriculture are to provide a sound educational experience for those who come to the university for their higher education; to study, investigate, and build knowledge concerning the problems of agriculture, agriculturally related industries, natural resources and the quality of life; and to gather, interpret, and transmit that knowledge to the people of Nevada.

The College of Agriculture consists of six instructional departments, the School of Veterinary Medicine, the Agricultural Experiment Station, and the Cooperative Extension Service.

Research and Extension

The *Nevada Agricultural Experiment Station* is one of 53 in the United States and its possessions. Federal funds are appropriated to promote efficient production, marketing, distribution, and utilization of agricultural products. A companion piece of legislation termed the McIntire-Stennis Act promotes the development, protection, and utilization of forests and rangelands through research.

The *Nevada Cooperative Extension Service* was established by the passage of the Smith-Lever Act in 1914 by Congress and enabling legislation by the Nevada State Legislature. A central extension faculty is located on the campus and field faculty are located in 14 counties. Rural, urban, and suburban families are served by extension.

Campus faculty members are normally on teaching and research or teaching and extension appointments. This arrangement serves to keep the teaching faculty up to date in their course offerings.

Instructional Program

The College of Agriculture adheres to land-grant missions and policies. "The mission of the land-grant colleges of agriculture is to ensure through education, research, and service programs an abundant and economical supply of high quality food, feed, and fiber; to promote wise management of the natural, renewable resources of America; and to contribute to the improvement of the quality of human life." Students coming from other institutions are awarded credit in the same manner as credit is given by the land-grant institution of that state.

The college continues to emphasize practical experience, including internship, along with theory as an integral part of the education of the student in a chosen field. Instructional and laboratory experiences incorporate concern about the ecology and environmental regulations as the country moves into its third century of consciously encouraging agricultural development.

The College of Agriculture provides resident instruction in various areas of agricultural science at the baccalaureate and graduate levels. Shorter duration certificate programs are available in specialized subject matter areas. Studies in the agricultural, biological, and physical sciences are coordinated with the humanities and social sciences to give the student a well-balanced education with specialized training in his chosen field. Efforts are made to guide the student into the particular field best suited to his interests and abilities. Programs designed to meet the needs of individual students are provided through judicious selection of elective courses.

Excellent field and laboratory facilities encourage students to work on specialized areas by applying classroom work to laboratory situations.

School of Veterinary Medicine

The School of Veterinary Medicine offers a three-year preprofessional curriculum that prepares students for entrance into the four-year professional program at another campus. Qualified Nevada residents participate in a program funded through WICHE that allows them access to places reserved for Nevada residents at certain contract schools.

Certificates

The College of Agriculture grants certificates for the successful completion of 75 or more credits toward a baccalaureate degree or for duly authorized short courses or travel experiences. The student must apply for a certificate at the office of the associate dean.

Baccalaureate Programs

The College of Agriculture offers the bachelor of science degree with majors in agricultural economics, agricultural education, animal science, biochemistry, plant science, and resource management. By selecting appropriate options, students may achieve specialization within the major. Each option includes certain required courses plus electives to be selected by the student in consultation with an adviser.

Master's and Doctoral Programs

Six master of science degree programs are offered in the College of Agriculture. Programs requiring thesis are available with majors in agricultural economics, animal science, biochemistry, integrated pest management, plant science, and resource management. Nonthesis programs are offered in agricultural economics, animal science, integrated pest management, plant science, and resource management. Students with an interest in agricultural education may register for one of the nonthesis majors and supplement with courses from the College of Education. In addition to the above, area of specialization programs can be developed for the individual student.

A doctor of philosophy degree is offered in biochemistry. Students in the College of Agriculture can also obtain interdisciplinary degrees in hydrology and hydrogeology, land use planning and cellular and molecular biology. Specific information and course requirements are located in the Interdisciplinary and Special Programs section of the catalog.

Instructional Departments

Agricultural Economics

Faculty: Champney, Franklin, Garrett, Harris, Lambert, Pardew, Narayanan, Mooney, Myer (Ch.), Shane

Undergraduate Degree: bachelor of science
Major: agricultural economics
Options: agricultural business, ranch and farm management
Minor: agricultural economics
Graduate Degree: master of science
Major: agricultural economics
Areas of Specialization: production economics, ranch and farm management, agricultural marketing, land and water economics, agricultural policy, price analysis and agricultural business

Agricultural Education and Communications

Faculty: Harper, Haskell, Havercamp, Hill (Ch.), Hoffman, Kirk, Waters, Weiser

Undergraduate Degree: bachelor of science
Major: agricultural education

Animal Science

Faculty: Armstrong, Bailey, Cirelli, Foote, Garner (Ch.), Holcombe, Jones, Judkins, Krysl, Ringkob, Smith

Undergraduate Degree: bachelor of science
Major: animal science
Minor: animal science
Graduate Degree: master of science
Major: animal science
Areas of Specialization: animal breeding, meat science, nutrition, reproductive physiology, production, management, and general animal science

Biochemistry

Faculty: Blomquist, de Renobales, Dreiling, Harrington, Heisler, Lewis, Miller, Pardini, Pritsos, Reitz, Seemann, Welch, Winicov, Woodin

Undergraduate Degree: bachelor of science
Major: biochemistry
Minor: biochemistry
Graduate Degrees: master of science, doctor of philosophy
Major: biochemistry

Plant Science

Faculty: Arnett, Devitt, Gilbert, Jensen, Johnson, Maxfield (Ch.), Thran

Undergraduate Degree: bachelor of science
Major: plant science
Options: agronomy, horticulture, integrated pest management
Graduate Degree: master of science
Major: plant science
Areas of Specialization: crop science, soil science, irrigation, bioclimatology, and commercial or noncommercial horticulture
Major: integrated pest management
Areas of Specialization: integrated pest management, entomology, plant pathology, and weed science

Range, Wildlife and Forestry

Faculty: Berger, Budy, Buist, Burkhardt, Gifford (Ch.), Guitjens, Hackett, Klebenow, Mahannah, Miller, Nowak, Peterson, Robertson, Skau, Swanson, Tausch, Tueller, Walker
Adjunct Faculty: Eckert, Evans, Everett, Lent, Svejcar, Yoakum, Young

Undergraduate Degree: bachelor of science
Major: resource management
Options: forest, range, hydrology, wildlife
Graduate Degree: master of science
Major: resource management
Areas of Specialization: resource planning and management as they relate to rangeland, forests, wildlife, and hydrology

A master of science and doctor of philosophy is offered in hydrology/hydrogeology as part of an interdisciplinary program with the College of Agriculture, School of Mines and College of Engineering.

School of Veterinary Medicine

Faculty: Brothers, Hall, Hanks (Ch.), Henry, Hudig, Kvasnicka, Nichol, Redelman, St. Jeor, Taylor
Adjunct Faculty: Walther

Undergraduate Degree: bachelor of science
Major: veterinary science
After completion of the three-year, pre-veterinary medicine curriculum at UNR, students must complete and transfer 32 credits from a professional school to receive the bachelor's degree from UNR.

Bachelor's Degree Requirements

Bachelor of science degree programs in the College of Agriculture are offered in six majors with options in most of the majors. Special course requirements are established for each major and option.

To obtain the bachelor degree the student must complete 128 semester credits and meet both university and college requirements. At least 40 credits must be in upper-division courses. The number of credits taken on an S/U basis may not exceed 30. Each academic department sets actual credits allowed for its majors within this maximum. Those courses required of all students in agriculture are indicated in university requirements and Group I listing below. Group II requirements for the special field of study are specified by the appropriate subject matter department. Each student's course of study must be approved by the adviser and the associate dean.

Candidates for graduation must submit the completed application form to the associate dean by the registration period two semesters before the proposed date of graduation. (See Requirements for Graduation section.)

University Requirements

The following are required for all students in the university:

Subject	*Credits*
ENGL 102[1]	6
U.S. and Nevada Constitutions[2]	(3-6)
Mathematics (105 or higher)	3
Natural science	3
Social science or humanities	3
	18-21

College of Agriculture Requirements

The following requirements apply to *all* students in the College of Agriculture regardless of major:

Group I Requirements	*Credits*
SPCM 113	3
Social sciences and humanities (may include courses to meet constitution requirements). Satisfies university requirement.	15
MATH 115 or higher. Satisfies university requirement.	4
BIOL 101, 102, 201 or 202; CHEM 101. Satisfies university requirement.	11
Agricultural electives (courses selected may not be in the student's major and cannot include independent study, internship or other variable credit courses)	8
	41

A maximum of 12 credits of the 280, 480 — Independent Study — courses may apply toward the baccalaureate degree requirements.

AGRICULTURAL ECONOMICS (AGEC)

Students enrolled in the agricultural economics major may elect options in either ranch and farm management or agricultural business. The department also offers a minor.

Agricultural Business Option: This option is designed for students interested in employment in agri-business. The curriculum emphasizes business management, accounting, and economics as relevant to agri-business management. Students completing this option satisfy the undergraduate curriculum requirements for an MBA graduate program.[3]

Group I and II Requirements
(suggested course plan may be altered with counseling from adviser)

Freshman Year

	Credits
AGEC 211, 213	6
CHEM 101	4
EC 101	3
ENGL 101, 102	6
MATH 115	4
Agriculture electives (not in AGEC)	8
Elective (social science and humanities)	3
	34

Sophomore Year

	Credits
ACC 201, 202	6
AGEC 202	3
AGEC 270	3
BIOL 101, 102, 201 or 202	7
C S 250	3
MATH 211	3
SPCM 113	3
Elective	3
	31

Junior and Senior Years

	Credits
ACC 303 or 309	3
AGEC 310, 312, 313, 314, 315, 322, 332, 411, 421, 422, 423, 470	24
EC 303, 321, 322	9
C S 480	3
MGRS 325	3
Communications elective	3
Electives	7
Electives (humanities and social science)	9
U.S. and Nevada Constitution requirement	3
	64

Ranch and Farm Management Option: This option emphasizes agricultural economics, management, and production. Students take a broad spectrum of courses in agriculture disciplines. A strong background for a variety of career opportunities including farming and ranching is provided.

Group I and II Requirements
(suggested course plan may be altered with counseling from adviser)

Freshman Year

	Credits
AGEC 213	3
AGED electives	3
CHEM 101	4
EC 101	3
ENGL 101, 102	6
MATH 115	4
Agriculture electives (not in AGEC)	8
U.S. and Nevada Constitutions	3
	34

Sophomore Year

	Credits
A SC 212, 213, 214, 215 (choice of two)	4
ACC 201	3
AGEC 202, 211	6
AGEC 270	3
BIOL 101, 102, 201 or 202	7
MATH 211	3
SPCM 113	3
Electives (humanities and social sciences)	3
	32

Junior and Senior Years

	Credits
A SC 211 or 203 or A SC upper-division courses	3
AGEC 310, 312, 313, 314, 315, 322, 332, 411, 421, 422, 423	21
AGRO 304	3
EC 321	3
C S 250	3
MGRS 325	3
RWF elective	3
Communications elective	3
Electives	12
Social science and humanities electives	9
	63

Minor: The minor is designed for students who may not want to major in agricultural economics but are interested in supplementing their major with a background in economics.

	Credits
AGEC 202 or EC 102	3
AGEC 211, 310, 332	9
AGEC 315, 322, 411, 421, 422, 423, 428, 466 (choice of two)	6
EC 101	3
	21

[1]High school grades and ACT scores determine whether the entering student takes ENGL 101 or goes directly to 102. Students not required to take 101 may use these three credits for free electives.

[2]HIST 111 or P SC 103 may be used to satisfy both requirements. U.S. Constitution requirements may be satisfied by: P SC 409, 410; HIST 101, 401. The Nevada Constitution requirement may be satisfied by: P SC 208; HIST 102, 217. These courses may be taken as part of the social science electives shown in Group 1 requirements.

[3]Students interested in pursuing an MBA degree should take MGRS 373, 374, 404 rather than MGRS 325.

AGRICULTURAL EDUCATION AND COMMUNICATIONS (AGED)

The curriculum in agricultural education major prepares students for a variety of career opportunities.

Graduates are prepared to teach vocational agriculture in the public schools or assume other education related careers. Graduates may also find employment opportunities in production agriculture, agricultural finance, or other governmental agencies.

Students may select the teaching or non-teaching option. Those students selecting the non-teaching option will substitute professional education courses with upper-division agriculture electives in consultation with their adviser.

Group I and II Requirements
Freshman Year

	Credits
A SC 100	3
AGED 115, 212	6
CHEM 101	4
ENGL 101, 102	6
MATH 115	4
RWF 100	2
Agriculture electives	2-5
U.S. and Nevada Constitutions	3
	30-33

Sophomore Year

	Credits
A SC 211, 212, 213	7
AGEC 202, 211	6
AGED 230, 316	4
AGRO 222	4
BIOL 101, 201 or 202	7
HORT 164	3
SPCM 113	3
	35

Junior Year

	Credits
A SC 214, 215	4
AGEC 213	3
AGED 331, 332, 416,[1] 446[1]	9
AGRO 355	3
HORT 363 or 465	3
RWF 341	3
Electives	6-9
	31-34

Senior Year

	Credits
AGED 305, 341, 356, 444,[1] 447,[1] 457[1]	20
Agriculture and university electives	6-9
Course work in multi-cultural education,[1] counseling,[1] and exceptional children[1]	3
	29-32

ANIMAL SCIENCE (A SC)

Students majoring in animal science prepare for careers in livestock production, business, education, research, and services related to livestock. Beef cattle ranching, meat processing and production, livestock extension, university teaching and research, livestock consultants, market livestock analysis, and animal recreationists are examples of some of the professional opportunities available. All animal science majors must complete the Group II core requirements as listed below:

Group II Core Requirements	Credits
A SC 100, 203, 211	9
CHEM 102, 142, or equivalent	7
AGEC 213, or equivalent	3

Group II Program Requirements

This curiculum is designed to aid students in formulating a plan of study to parallel their specific interests and to provide a sound background in scientific and management principles. Students may follow a course of study emphasizing agribusiness, equine management, livestock production, science, or a combination thereof. Each program of study must be approved by both the student's adviser and department chairman following completion of 64 credits.

Lower-division Requirements

Select 12 credits from the following: A SC 162, 163, 200, 201, 206, 208, 280; AGEC 100, 202, 211, 270; AGED 100, 120, 200; AGRO 100, 222; BIOL 201, 202, 208, 212, 251, 290; CIS 250, 261; EC 101, 102; HORT 164; IPM 100; MATH 211, 213, 214, 215, 216; RWF 100, 201; V M 100.

Upper-division Requirements

	Credits
A SC 307 – Physiology of the Domestic Animal	5
A SC 309 – Physiology of Reproduction	5
A SC 325 – Animal Genetics	5
A SC 400 – Seminar	1
A SC 406 – Advanced Nutrition Management	4
A SC 412, 413, 423, 424 (two out of four courses)	5-6
BIOL 366 or V M 413 – Anatomy	3-4

Select 15 credits from the following: A SC 305, 315, 316, 411, 414, 416, 480; A SC 412, 413, 423, 424 (two out of four not utilized for the upper-division requirements); AGEC 310, 312, 313, 314, 315, 322, 332, 411, 421, 422, 423; AGED 332, 341, 360, 371, 410; AGRO 304, 355, 412; B CH 400, 403, 404, 413; BIOL 360, 364, 381, 404, 481; IPM 422; RWF 302, 341, 345, 346, 348, 351, 450, 482, 493, 494; V M 408.

Minor: The minor is designed for non-majors who desire supplemental courses in animal science.

	Credits
A SC 100	3
A SC 203 or 211	3
A SC 307, 309, 325, or 406	9
A SC 412, 413, 423, or 424	3
	18

BIOCHEMISTRY (B CH)

An undergraduate major is offered in biochemistry through the College of Agriculture and the School of Medicine. This program provides the student with a well-rounded general education that emphasizes the biological and chemical sciences and strong specific training in the major field through a sequence of standard biochemistry courses during the junior and senior years. A senior thesis is required. A minor in biochemistry is also available.

The bachelor of science in biochemistry prepares students for graduate study, civil service positions, industry and professional fields related to life, health, agriculture and the medical sciences.

The curriculum for majors is shown below. Students interested in the program should contact the Biochemistry Department for advisement.

[1]Denotes professional education courses which are needed for Nevada certification. Students on the non-teaching option select upper-division agriculture courses to replace them.

Biochemistry Curriculum

Freshman Year

	Credits
BIOL 101, 102, 201 or 202	7
CHEM 201, 202 recommended; CHEM 101, 102 accepted	8
ENGL 101, 102	6
MATH 215	4
P SC 103 or HIST 111[1]	3
Electives	4
	32

Sophomore Year

	Credits
AGEC 270 or equivalent	3
CHEM 343, 344	6
CHEM 347, 348	4
MATH 216	4
PHYS 151, 152	6
PHYS 153, 154	2
SPCM 113	3
Electives	4
	32

Junior Year

	Credits
B CH 400	4
B CH 417	4
B CH 403, 404	4
CHEM 330	4
CHEM 353, 354 recommended; CHEM 357, 451 accepted	6
MINE 213 or equivalent	2
Biological science electives[2]	4
Electives	4
	32

Senior Year

	Credits
B CH 407, 408	6
B CH 413	4
B CH 420, 421	2
Biological science electives[2]	4
Electives	16
	32

Minor in Biochemistry

Students majoring in another field may minor in biochemistry by completing the following:

	Credits
B CH 400, 403, 404	8
B CH 413 or 417	4
An additional six credits in any course in the physical sciences (including additional biochemistry)	6
	18

PLANT SCIENCE (PS)

A student majoring in plant science may select an option in agronomy, horticulture or integrated pest management. Completion of an option provides academic background in both the theoretical and applied aspects of the selected specialty.

Agronomy Option: Agronomy, the study of field crops and soils, is the foundation science underlying the production and management of food, feed and fiber crops to meet human needs and protect the environment.

This four-year undergraduate option prepares students for careers in general or technical sales, or research and development with private industry; service with state and federal agencies; or self employment. By selecting appropriate electives, a student may be prepared to pursue graduate studies in agronomy or an allied area.

The students following this option take a core of basic courses. They may elect additional courses leading to specialization in crop production or soil management. In addition, they have the opportunity to pursue broad interests in supporting disciplines from the College of Agriculture.

Group II Core Requirements	Credits
AGEC 270—Introduction to Statistics	3
AGRO 222—Soils	4
AGRO 304—Principles of Plant Production	3
AGRO 327—Soil Fertility and Management	3
AGRO 431—Bioclimatology	3
AGRO 344—Irrigation Principles and Practices	3
AGRO 400—Seminar	1
CHEM 102—General Chemistry	4
CHEM 142—Introduction to Organic Chemistry	4
	28

Horticulture Option: The horticulture curriculum provides students with a basic knowledge of ornamental horticulture principles and practices. Emphasis is on learning and applying principles to commercial and noncommercial horticulture. Students may direct their studies toward commercial ornamental horticulture, marketing and sales, or home landscape horticulture. A wide variety of career opportunities exist in government, industry and private enterprise. By selecting appropriate electives, a student may prepare for graduate study in horticulture or an allied field.

Group II Core Requirements	Credits
AGRO 222—Soils	4
AGRO 327—Soil Fertility and Management	3
AGRO 344—Irrigation Principles and Practices	3
BIOL 355—Plant Physiology	3
BIOL 356—Plant Physiology Lab	1
CHEM 102—General Chemistry	4
CHEM 142—Introductory Organic Chemistry	4
HORT 164—Horticultural Science	3
HORT 316/416—Internship	1-3
HORT 400—Seminar	1
IPM 356—Weeds and Weed Control	3
IPM 391—General Economic Entomology	3
IPM 471—Plant Pathology	4
	37-39

Integrated Pest Management Option: The pest management option provides students with a sound background in the basic scientific and agricultural disciplines and a broad educational basis for identifying and solving pest problems associated with agricultural production. In addition to providing a broad understanding of agricultural pest problems, their management and impact on the environment, a student, by course selection, may gain specialized education in one of several areas. These areas include integrated pest management, entomology, plant pathology and weed science. Students in this option obtain sufficient knowledge to obtain employment in sales, technical sales, or research and development with private industry; extension, regulatory and technical positions with various governmental agencies or self-employment in the area of pest control and pest management consulting. By selecting appropriate electives, a student may prepare to pursue graduate studies in a pest science or allied area.

[1]Both requirements may be satisfied by HIST 111 or P SC 103; U.S. Constitution requirements by P SC 409, HIST 101, 401-402; Nevada Constitution by P SC 209, HIST 102, 217. May be applied toward satisfying College of Agriculture Group I requirements.

[2]Must be a 300-level course or higher.

Group II Core Requirements	*Credits*
AGEC 270—Introduction to Statistics	3
AGRO 304—Principles of Plant Production	3
BIOL 290—Principles of Genetics	3
BIOL 333—Systematic Botany of Plants	3
CHEM 142, 143—Organic Chemistry	4
HORT 164—Horticultural Sciences	3
IPM 100—Introduction to Agriculture Pests and Management	3
IPM 356—Weeds and Weed Control	3
IPM 391—General Economic Entomology	3
IPM 400—Seminar	1
IPM 452—Integrated Pest Management Strategies	3
IPM 471—Plant Pathology	4
MATH 183—Introduction to Computer Science	3
	39

RANGE, WILDLIFE AND FORESTRY (RWF)

The resource management major offers a program which balances a sound background in basic disciplines, flexibility in choice of specialized education, and emphasis on developing analytical skills necesssary for the many careers available in resource management.

A student may elect an option in either forest management, wildlife management, range management, or hydrology. These options correspond to recognized professions, and each offers a distinct program that meets appropriate professional and civil service requirements. As a rule, electives can be taken to meet special interests of the student, i.e., a student may choose a substantial number of courses in some supporting or related field, such as business, public relations, ecology, or another range, wildlife, and forestry option.

The resources management curriculum consists of lower-division courses to meet the university and college requirements. These courses are normally completed during the freshman and sophomore years. Additional core requirements and additional courses in the student's professional field of interest (i.e., range management, wildlife management, hydrology and forest management) are normally completed during the junior and senior years.

The program of study in the student's professional field of interest is defined by the student and presented during the second semester of the sophomore year to the student's academic adviser. After review, the adviser submits the program to the department chair for approval. The program of study is then filed in the department office and the office of the associate dean. If, at a later time, it is necessary to change the program of study, the student initiates the change in writing and secures the concurrence of the academic adviser and division chairman. The change is filed with the original program of study in the division office and the office of the associate dean.

Core Program of Study
(Hydrology option excluded)

	Credits
AGEC 202	3
AGEC 270	3
AGRO 222	4
BIOL 101, 102, 201 or 202, 212	10
CHEM 101	4
ENGL 101, 102	6
GEOL 101	3 or 4
MATH 115 or equivalent	4
RWF 100—Principles of Resource Management	3
RWF 345 or 393—Range and Forest Plants or Dendrology and Silvics	3
RWF 351—Photogrammetry and Computer Mapping	3
RWF 407—Quantitative Range and Forest Techniques	5
RWF 493—Range and Forest Ecology	3
RWF 494—Administration and Policy	3
SPCM 113	3
Agriculture electives (not in RWF)	8
Computer science (e.g., E E 337, CIS 250, C S 183)	3 or 4
Electives (humanities, Nevada and U.S. Constitution requirement, social science or fine arts)	15[1]

Professional Programs: Each student completes a minimum of 15 credits of additional career-related courses plus electives as outlined in the approved program of study to satisfy the 128 credits required for the B.S. degree. Examples of these career-related courses are given for each of the resource professions. Each student, through consultation with the adviser, tailors this specific group of courses to fit the desired career goals.

Forest Management Option: This option prepares students for careers as managers of forested lands. Emphasis is placed on a balanced program which includes both biological and social-economic factors influencing the production and use of diversified resources from our nation's forests. Programs of study are developed to meet individual career goals which may include advanced study leading to graduate degrees. Career opportunities are found in a variety of public agencies as well as private timber companies and consulting firms. The following example, when combined with other range, wildlife, and forestry core courses, meets the Federal Civil Service standards for career forestry positions:

	Credits
IPM 390—Range and Forest Entomology-Pathology	3
RWF 303—Forest Products	3
RWF 304—Hydrology for Natural Resource Management	3
RWF 351—Photogrammerry and Computer Mapping	3
RWF 401—Logging Systems	3
RWF 402—Forest Management	3
RWF 403—Advanced Forest Mensuration	3
RWF 405—Silviculture and Regional Silviculture	5
Electives	19

Range Management Option: This option provides the diverse background necessary to manage the natural resources upon which livestock and big game depend for food and cover. Range science courses provide specialization in range plants and ecology, range evaluation methods, and range management principles and practices. Related courses such as soils, animal science, forestry, and wildlife management are essential. Students are encouraged to seek summer employment with one of several resource agencies. Employment opportunities are found in a variety of state and federal agencies and private ranches or agribusiness. The following example, when combined with the preprofessional and core courses, meets the Federal Civil Service standards for range conservationist careers:

	Credits
A SC 211—Feed and Feeding or A SC 406—Animal Nutrition	3
A SC 212—Beef Cattle Production or A SC 213—Sheep Production	2
BIOL 334—Systematic Botany of Flowering Plants Lab	2
BIOL 355—Plant Physiology	3
RWF 304—Hydrology for Natural Resource Management	3
RWF 341—Principles of Range Management	3
RWF 346—Range Resources Field Trip	2
RWF 348—Range Improvements	3
RWF 444—Soil Morphology and Classification	3
RWF 450—Range Resource Planning	3
Electives	18

[1]Total needed for graduation, 15 credits of arts, humanities and social studies.

Hydrology Option: This option is designed to provide a basic background in hydrology. Students learn to monitor water quality and quantity and to determine the impact of land management activities on surface and groundwater resources. They are taught how to regulate water movement, classify soils, manage snow, recognize the effects of salts, acids, sediments, heavy metals and nutrients on water quality, perceive the effects of landforms on water, assess the influence of soils, geology and vegetation on streamflow and solve various groundwater problems. The profession requires a strong background in biological and physical sciences combined with courses in hydrology and land management. Completion of these courses qualifies a student as a hydrologist using Civil Service criteria:

	Credits
MATH 215, 216 – Calculus I, II	8[1]
C S 183 – Introduction to Computer Science	4
Statistics (including AGEC 470)	6
CHEM 102 – General Chemistry	4
BIOL 212 – General Ecology	3
Physics (PHYS 151, RWF 422)	6
Earth sciences (GEOL 101, AGRO 222)	8
General hydrology (RWF 482)	5
Atmospheric processes (AGRO 431 or GEOG 422)	3
Surface processes (GEOL 414, CE 410, or AGRO 344)	3
Subsurface processes (including GEOL 484)	6
Water quality (C E 497 or BIOL 420)	3
Water law (C E 415)	3
Business and economics	6
Electives	17

Wildlife Management Option: This option stresses aspects of wildlife management based on ecological principles. Emphasis is given to habitat management and wildlife management under multiple-use programs on public and private lands, game management programs and nongame management. Application to rangeland environments is stressed. The program prepares students for further advanced study or careers in private or public agencies as managers, biologists, or administrators. The following required program, when combined with the core requirements, meets the standards developed by The Wildlife Society for certification as a wildlife biologist. Additional references for program development may include Federal Civil Service standards and Nevada Personnel Division requirements.

	Credits
A SC 406 – Animal Nutrition	3
BIOL 376 – Ornithology	3
BIOL 366 – Comparative Vertebrate Anatomy	4
BIOL 377 – Field Ornithology	1
BIOL 378 – Mammalogy	4
BIOL 485 – Comparative Population Ecology	3
MATH 265 – Elements of Calculus	3
RWF 323 – Fishery Management	3
RWF 341 – Principles of Range Management	3
RWF 421 – Upland Game and Waterfowl Management	4
RWF 425 – Big Game Management	3
RWF 427 – Wildlife Habitat Management	3
RWF 450 – Range Resource Planning	3
Electives	9

Resource management students are advised that suggested courses may in some instances require additional prerequisite courses.

Graduate Offerings

Graduate study leading to the master of science degree is offered by each instructional division. Both major-minor and area of concentration programs are available. The master's program includes both Plan A (thesis program requiring 30 credits) and Plan B (nonthesis program requiring 32 credits). A doctor of philosophy degree is offered in biochemistry. The interdisciplinary doctoral program in hydrology and hydrogeology offered through the College of Engineering encompasses study in the departments of plant science and range, wildlife, and forestry.

The plan of study for each student is developed by the student and the advisory committee. The program must meet the minimum graduate school requirements as stated in the Graduate School section. The student must also meet any additional requirements specified by the advisory committee or the department concerned.

The doctor of philosophy degree is primarily a research degree with a course of study determined by the student and an advisory committee. The program must meet the minimum graduate school requirements as stated in the Graduate School section.

Graduate research assistantships are available. Applications for graduate research assistantships should be submitted to the appropriate subject matter department.

Agricultural Economics Department

The department offers a master's degree in agricultural economics and cooperates with the College of Business Administration in offering an MBA degree with concentration in agri-business. Students interested in pursuing an MBA degree that emphasizes agri-business can contact either the College of Business Administration or the Department of Agricultural Economics.

Graduate study in agricultural economics may be pursued in the following areas of specialization: production economics, farm and ranch management, agricultural marketing, land and water economics, agricultural policy, price analysis, and agricultural business.

Two plans are available to the student pursuing the master of science degree. Plan A requires the writing of a thesis. Plan B involves the writing of a professional paper plus additional course work in lieu of the thesis requirement.

A minor may be selected from any approved area in the university, including among others, business management, economic theory, technical agriculture and renewable natural resources, political science, psychology, and sociology.

Written and oral examinations are required.

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

Animal Science Department

A master's degree in animal science is contingent upon fulfilling the requirements of the Graduate School and the student's advisory committee. The number and nature of graduate examinations are determined by the student's advisory committee. A master's degree may be obtained either with or without a thesis requirement. A thesis may be written on research completed in animal breeding, meats, nutrition,

[1] Students planning to enter the graduate hydrology/hydrogeology program should plan to take MATH 310 and 320.

physiology, production, management, and general animal science.

A nonthesis degree has the following requirements in addition to those required by the Graduate School. Each candidate must have at least five years' professional experience in agriculture related to animal science or complete an approved professional project. This project is selected by the candidate and adviser for approval by the assigned committee. The project is designed to train the individual for increased proficiency in the livestock industry. It may consist of (1) a field study carried out under the direction of the adviser or other appropriate university staff member or (2) the student may work full time in a progressive agricultural program of a nature that involves the student in the administrative role and other activities of the livestock industry. The duration of this project is at least one semester or three months during the summer. Satisfactory completion of the project and a detailed written report of the nature and results of this experience are required. A student may receive a salary under (2) above. Each candidate must select an approved topic appropriate to his major and write a professional paper incorporating and interpreting pertinent literature. This paper satisfies three graduate (700) credits. The literature review and the report on the professional project may be incorporated into one paper, if appropriate.

Biochemistry Department

Both master's and doctorate-level programs are offered in this department. The plan of study may involve either a major-minor or field of concentration type of program.

Master of Science Degree in Biochemistry: Graduates with a bachelor's degree in the physical or natural sciences including agriculture, having at least three hours each in biology, and organic chemistry, and meeting the requirements of the Graduate School, may be accepted in biochemistry. Before completing the requirements for the master's degree, the student must have completed the following courses or their equivalents: one year of physics; one year of biology, botany, zoology, or physiology; and CHEM 330, 343, 344, 347, 348, 353, 354, 355. In the major-minor option, minors may be pursued in organic, inorganic, physical, or analytical chemistry; nutrition; physiology; botany; zoology; microbiology; genetics; and statistics. Thesis research is required and may be pursued in many areas of biochemistry. Further information may be obtained from the *Graduate Studies in Biochemistry* publication in the departmental office.

Doctor of Philosophy Degree in Biochemistry: The general requirements of the Graduate School must be satisfied by all candidates for the Ph.D. degree. The minimum credit requirements for the major-minor program are:

	Credits
Biochemistry course work and seminar	24
Biochemistry research and dissertation	24
Minor courses	12
Electives	12
	72

Plant Science Department

The master of science degree may be pursued under either Plan A or Plan B with majors in plant science or integrated pest management. Within the plant science major fields of concentration include agronomy and horticulture.

In agronomy areas of specialization may be developed in crop science, irrigation or bioclimatology. Areas of specialization in horticulture include either commercial or noncommercial horticulture. In integrated pest management areas of specialization may be developed in integrated pest management, entomology, plant pathology or weed science.

College graduates with training in agriculture, biochemistry, biology, chemistry, physics, geology, and/or engineering are encouraged to enter the program with the understanding that identified deficiencies must be corrected. A student should ordinarily plan a minimum of two years to complete the master's program.

Special requirements of the department include (1) a written examination during the first semester to assist the advisory committee in developing the study program; (2) attendance at all divisional seminars; (3) written final examinations at the option of the advisory committee.

Students pursuing Plan A are required to submit to the advisory committee, prior to graduation, a manuscript of the thesis in acceptable journal format. Students pursuing Plan B must also complete a two-credit professional paper (AGRO 796, HORT 796 or IPM 796) on a subject approved by the advisory committee. Transfer from Plan A to Plan B or from Plan B to Plan A is permitted at any time by fulfilling the appropriate requirements of the plan to which transfer is made.

Range, Wildlife and Forestry Department

Graduate study is directed at management and understanding of renewable natural resources. Thesis may include basic and/or applied aspects of forest, range, wildlife, or hydrology/hydrogeology.

The resource management program recognizes that today's complex and accelerating demands require breadth of view and specialized training and skills of numerous disciplines if these resources are to be intelligently managed. It follows that the applicant with a narrow technical background is encouraged to take course work that adds breadth; that the generalist is encouraged to develop specialized skills. Graduates from other disciplines are encouraged to enter the program with the understanding that deficiencies must be ascertained and made up as determined by the advisory committee in preliminary review. Experience at levels of responsibility is considered in satisfying deficiencies.

An overall GPA of 3.0 or higher will insure consideration for admission into graduate programs at the departmental level.

Plan A (Thesis)

See Graduate School section.

Plan B (Nonthesis)

1. Minimum of 32 course credits.
2. Fifteen credits at 700 level.
3. Professional paper with two credits at 700 level.
4. Final comprehensive oral examination.

The department also participates in the interdisciplinary master of science and doctor of philosophy program in hydrology and hydrogeology, and the interdisciplinary master of science program in land use planning. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

School of Veterinary Medicine

This program provides a basic three-year pre-professional curriculum which satisfies the entrance requirements for the four-year professional curriculum at all of the schools of veterinary medicine with which Nevada has a contract as well as several others. The pre-professional program provides intensive advisement, an internship with veterinary practitioners, and scholarships from the Gordon MacMillan endowment. Selection into the professional program is made on the basis of high academic performance, practical experience in some phase of veterinary medicine, references, motivation, personal interview and results of written examinations.

Students who satisfactorily complete the three-year university preprofessional curriculum, including the resident credit requirements, and are accepted into the professional program, may qualify for a bachelor of science in veterinary science degree from the university after the satisfactory completion of the first year at a professional school.

Since not all students are admitted to the professional program, preprofessional students are encouraged to select courses allowing them to receive a bachelor's degree at the end of four years.

Veterinary Medicine Curriculum

	Credits
AGEC 270 or EC 261	3
A SC 211, 325	6
A SC 412 or 413	3
B CH 400	4
BIOL 101, 102, 201, 202, 251	14
CHEM 101, 102, 343, 344, 345	16
ENGL 101, 102	6
HIST 111 or P SC 103	3
MATH 115	4
PHYS 151, 152, 153, 154	8
V M 100	1
Humanities	6
Social sciences	6
Suggested electives: AGEC 202, 213; A SC 100, 424; BIOL 208, 364, 368, 468; SPCM 113; V M 408, 413	

Minimum of 96 credits required.

College of Arts and Science

Vacant, *Dean*

Departments of Instruction: anthropology, art, biology, chemistry, criminal justice, English, foreign languages and literatures, geography, history, mathematics, military science, music, philosophy, physics, political science, psychology, recreation, physical education and dance, social and health resources, sociology, and speech communication and theatre.

Objectives

The College of Arts and Science, through its undergraduate and graduate programs, offers students the discipline and knowledge of a traditional liberal education. Students are encouraged to develop intellectual curiosity and habits of creative, but disciplined thought.

The student's education is directed through certain broad requirements in the natural and social sciences and the arts and humanities. College requirements also ensure acquisition of the basic skills necessary to use this knowledge — skills, for example, in the student's own and a foreign language and in following procedures for orderly investigation. Requirements for a field of concentration (major and minor subjects) are intended to equip the student with a deeper understanding of at least one body of knowledge, sometimes in preparation for a profession or for advanced study.

Requirements for the Baccalaureate Degree

A candidate for a bachelor's degree in the College of Arts and Science must earn a minimum of 128 credits in required and elective courses. Each candidate must complete:

1. The requirements listed under Prescribed Courses in Arts and Science.
2. Courses totaling 40 credits or more in courses numbered above 300.
3. The requirements for a field of concentration (major and minor subjects), usually 50 credits. The particular grouping of courses depends on the particular educational goals of the student but must be in accord with departmentally sponsored fields of concentration or cross-disciplinary fields outlined in this catalog.

It is advisable that students plan their work for their junior and senior years as early as the sophomore year, sometimes as early as the freshman year, in order that the studies then elected may fit in with their work later. At the beginning of the junior year, each student, in consultation with the adviser and with the approval of the chairman, must submit to the office of the dean a written notice selecting a field of concentration (major and minor subjects); such selection requires approval of the chairman of the department sponsoring the field of concentration.

The remaining credits necessary to make a total of 128 in the chosen course of study may be freely elected from any department in the university.

Candidates for graduation must submit an application for graduation to the dean of the College of Arts and Science at the beginning of the final semester before graduation.

Prescribed Courses in Arts and Science:

1. Satisfactory completion of courses in United States and Nevada Constitutions as required by the state law.
2. The university requirement is the completion of ENGL 102.
3. Bachelor of arts and bachelor of science degree programs require the successful completion of a fourth semester college course in a foreign language, or evidence of equivalent proficiency as determined by placement examination, or other means, by the department of foreign languages and literatures. A student who successfully completes the fourth year course of a foreign language in high school satisfies the requirement. The foreign language requirement is a departmental option for other bachelor degrees and for the bachelor of science degree with an expanded field of concentration (64 or more credits required in the major and minor/related field). Information on the few programs with a departmental option may be obtained from those departments or from the office of the dean of the College of Arts and Science.
4. A minimum of 26 credits to be earned in Groups I, II, and III. A student must pass three courses in each group in a minimum of two departments in each group. No course may be counted as more than one of the nine required courses, but interdepartmental courses may be counted in any *one* of the participating departments. Courses satisfying university requirements may not be used to fulfill the group requirements. The university course requirements in natural science and social science or humanities are satisfied upon the successful completion of the college group requirements. Group I includes courses dealing with the principles and methods of the natural sciences and mathematics. Group II includes courses dealing with interpretations and objective descriptions of peoples, of institutions, and of social and political phenomena. Group III includes courses dealing with the history, appreciation, and analysis of the arts, language, and literature; the principles of logic and thought; and the reconstruction and interpretation of the past.
5. Mathematics requirement: A minimum of three credits in mathematics, from 100- or 200-level mathematics at the 105 course level or higher. Courses excluded are MATH 173, 174, 210, and 480. Specific mathematics courses used to fulfill the Group I requirement may also be used to satisfy this mathematics requirement.

Courses Which Satisfy Group Requirements:[1]

Group I, Natural Sciences and Mathematics: ANTH 102; BIOL 100, 101, 103, 201, 202, 204, 208, 210, 212; CHEM 100, 101, 102, 201, 202; ENGR 204; ENV 101; GEOG 103; GEOL 101, 102, 160; HIST 282; MATH 105, 115, 211, 213, 215; C S 183; PHYS 101, 106, 108, 109, 110, 117, 151-152, 201-206.

[1]Some courses have prerequisites; students are advised to see course descriptions.

Group II, Social Sciences: ANTH 101, 201, 202, 205; CJ 110, 120; EC 101, 102; GEOG 106; HIST 101, 102, 281; JOUR 101; P SC 104, 205, 210, 211, 231; PSY 101; SHR 220; SOC 101, 202, 205; SPCM 210; W S 101.

Group III, Humanities: ART 116, 117, 214, 257 (3 cr. only); ENGL 131, 235, 236, 241, 244, 253, 261, 281, 291, 292, 293; FR 221, 223; GER 221, 223; ITAL 221, 223; SPAN 221, 222, 223; HIST 105, 106; MUS 120, 121, 122, 201-202; PHIL 100, 110, 125, 130, 211, 212, 213; THTR 100.

Major and Minor Programs: In most cases the college requires that students specialize in at least two areas. This is normally accomplished by completing a major and a minor or a dual major. Students who seek a *dual baccalaureate degree* with one or both degrees in the College of Arts and Science are required to fulfill all college requirements. A dual degree requires the completion of a minimum of 32 credits beyond the requirements for the first degree. In Arts and Science it is expected that a student seeking a dual baccalaureate degree will specialize in a minimum of three areas, completing the two majors and at least the equivalent of one minor. By their junior year, students must declare a major by filing a field of concentration form. The field of concentration may consist of a major only, for some departments or programs (see biology, chemistry, criminal justice, geography, health education, mathematics, music, computer science, physics, predentistry, premedicine, prephysical therapy), or a major interest area and a minor interest area for other departments. Majors are offered in each department in the College of Arts and Science, except military science, and in prelegal studies. Approved minors exist in most departments within the college, in interdisciplinary programs, and some departments outside the college.

1. The requirements for most fields of concentration consist of major requirements and minor requirements. The total number of credits in the combined major and minor programs may not exceed 54 credits. For departments requiring a major only, the field of concentration includes courses required in the department and specific courses required in other fields which together constitute between 45 and 54 credits.
2. Students have the option of completing a minor program if they wish, even if a minor is not required for completion of the field of concentration.
3. The completion of an approved minor is recorded on the student's permanent record at the time of graduation.
4. Minor programs in the same department as the major are not accepted, except in English, foreign languages and literatures and speech communication and theatre.
5. With justification, a student may petition the dean through the department to have a special related field substituted for a required minor. The special field, however, is not recorded on the student's transcript as a minor.

Approved Minors: Minor interest areas that may be used for the field of concentration, or completed by a student within the college, are listed below. A description of the required courses for each minor may be found under the heading of the appropriate department or interdisciplinary program that offers the minor. Accounting, anthropology (cultural anthropology, archaeology), art, Basque (in Department of Foreign Languages and Literatures), biology (biology, botany, ecology, microbiology, zoology), chemistry, computer sciences, criminal justice, business administration and economics (with College of Business Administration), English (literature, language and linguistics, dramatic literature, English as a second language (ESL)) environmental studies, ethnic studies, French (in Department of Foreign Languages and Literatures), geography, geology, German (in Department of Foreign Languages and Literatures), historic preservation, history (general history, American history, European history, Third World History), journalism, mathematics, medieval and renaissance studies, museology, music, philosophy, physics, political science (general, foreign affairs, public administration, American government, public policy), psychology, recreation and physical education (recreation and physical education, dance), religious studies, social and health resources, sociology (general sociology, applied sociology), Spanish (in Department of Foreign Languages and Literatures), speech communication and theatre (speech communication, theatre), women's studies.

Suggested Curriculum for First Two Years: In order that these requirements may be used to the best advantage in assuring a well-balanced curriculum and at the same time give the student some freedom of choice in the selection of courses, the following course of study is recommended for the first two years. A minimum of two courses each semester in at least two of the groups or foreign languages listed in the foregoing should be selected. Because of the variation in the language requirements, each lower-division student should consult with the assigned adviser and the appropriate official of the department of foreign languages for proper advisement.

Freshman Year

	Credits
(16 credits per semester)	
ENGL 101-102 (three credits each)	6
Foreign language, natural science, social science or humanities	5-8
Electives	5-9

Sophomore Year

	Credits
(16 credits per semester)	
Foreign language, natural science, social science, or humanities	5-8
Electives or field of concentration courses	6-10

General Regulations: Except as otherwise specified, all students, including transfer students, must fulfill the foregoing requirements before the bachelor's degree may be received from the College of Arts and Science.

In addition to the graduation requirement of the university that every student must have an average of two grade points for each credit registered, the College of Arts and Science requires that each of its students earn a GPA of 2.0 in both the major and minor interest portion of a field of concentration.

S/U Option: Students may register in certain courses on a satisfactory/unsatisfactory basis and may elect to take such courses among either the group requirements of the College of Arts and Science or electives.

The college's policy on S/U courses conforms in every respect to the university policy, but with the restriction that courses taken for S/U credit may not count toward the field of concentration (major and minor subjects) except upon the recommendation of the adviser and department chair with the approval of the dean.

Graduate Study

Graduate programs leading to the degrees of master of arts or master of science are offered in anthropology, atmospheric physics, biology, botany, chemistry, English, foreign languages and literature (French, German, Spanish), history,

mathematics, music, philosophy, physical education, physics, political science, psychology, public administration and policy, speech communication, teaching of English, and zoology.

The doctor of philosophy degree is offered in anthropology, biology, cellular and molecular biology, chemistry, English, history, physics, psychology, and social psychology.

Further information on all programs may be obtained from the chair of the department concerned.

Prelegal Curricula in the University

Law schools neither prescribe nor encourage any specific undergraduate major. A broad general education with emphasis on courses that develop clear and systematic thinking is better preparation for the study of law than is specialized study in subjects closely related to the law. Most important for prospective law students is that they develop their command of the English language and their ability to communicate ideas clearly, logically and critically.

Students should read the catalogs of law schools in which they are interested and the "Preparation for Law School: Prelaw Study" sections in the *Prelaw Handbook* for more detailed discussion of the general education program recommended by legal educators.

Students select approximately 40 credits beyond the major of their choice; that is, prelaw students must meet the regular requirements of their major plus selected courses to a total of 70 credits. Each department has a prelegal adviser with whom the students discuss their programs. For general information contact the chair, Political Science Department, 138 Mack Social Science Building.

Premedical and Predental Programs

There is no one ptescribed program for admission to medical or dental schools. Students must prepare themselves with a basic background in chemistry, physics, mathematics and biology as well as the social and behavioral sciences and the humanities. Beyond this basic preparation, students should choose a major in conjunction with an adviser or the Office of Health Career Advisement. Most medical and dental school applicants have pursued majors in biology, chemistry, physics, premedical, predentistry, or psychology. However, successful medical school and dental school applicants have also had majors in the humanities or other social or behavioral sciences. The major can be in any subject, but should be based on the student's own interests, abilities, and needs, as long as medical or dental school entrance requirements are completed.

ANTHROPOLOGY (ANTH)

Faculty: d'Azevedo, C. Fowler, D. Fowler, Hardesty, Haynes, Kappelman, Winzeler (Ch.)
Adjunct Faculty: Budy, Elston, Hatoff, Jeanne, Kennard, Tuohy, Turner
Cooperating Appointments: Irwin-Williams, Liljeblad, Pippin

The department offers courses leading to the degrees of bachelor of arts, master of arts, and doctor of philosophy.

Bachelor of Arts Degree

Major Interest Subject	*Credits*
ANTH 101, 102, 103 (one credit), 200 or 201, 202, 312, 405, 440	22

In addition, all majors must take at least one course from each of the following four groups (one course must be in a geographical area):

	Credits
1. Archaeology – ANTH 400, 401, 402, 403, 409, 423, 424, 425	2-3
2. Physical Anthropology – ANTH 431, 435, 436	3
3. Linguistics – ANTH 405, 414, 415, 416, 420, 429	3
4. Cultural Anthropology – ANTH 210, 312, 330, 345, 440, 452, 460, 461, 462, 467, 470, 489, 491, 494	3
	33-34

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Anthropology accepts any minor approved by the College of Arts and Science.

Both museology and historic preservation are approved areas of study for anthropology majors. See Interdisciplinary and Special Programs section for description.

Minor in Anthropology

Students majoring in another field may minor in anthropology by completing the following:

Minor Interest Subject (Cultural Anthropology)	*Credits*
ANTH 101, 102, 103, 200 or 201	10
At least one of the following geographical area courses: ANTH 461, 462 467, 489	3
Additional courses to be selected from: ANTH 210, 312, 345, 429, 440, 460, 491, 494	6
	19

Minor Interest Subject (Archeology)	
ANTH 101, 102, 103, 202	10
Additional courses to be selected from: ANTH 400, 401, 402, 409, 423, 424, 425	9
	19

Master of Arts Degree

Applicants for admission to the program must satisfy all admission requirements of the Graduate School and, in addition, satisfy the following departmental requirements: (1) at least a B average in their undergraduate major field; (2) provide to the Department of Anthropology *three* letters of recommendation from university instructors who know their qualifications for graduate work. Applications for admission should be made on or before March 1 for admission to the fall semester and on or before September 1 for admission to the spring semester. Preference for admission is given to those with an undergraduate major (or the equivalent) in anthropology. If a student is accepted with a background that is deemed inadequate by the department, additional preparation is required prior to being admitted to candidacy (see below). No student is admitted whose letters of recommendation do not indicate competency for graduate work.

To become a candidate for the master of arts degree in anthropology, a graduate student must satisfy the general requirements of the Graduate School as well as the special departmental requirements. The student must maintain a minimum B average in anthropology courses and be accepted to candidacy by his graduate committee at a meeting in the first year of graduate work. It is in consultation with this committee that the candidate plans the completion of a degree program, the scheduling of the comprehensive written examination, and selecting a thesis or professional paper. The candidate may choose the option of either Plan A (thesis), or Plan B (nonthesis), as described in the Graduate School re-

quirements for the master's degree. With the Plan B option, however, the department requires the submission of a professional paper. The candidate who intends to proceed to a Ph.D. program in anthropology at another university is urged to demonstrate a reading knowledge of at least one foreign language by passing the Graduate School Foreign Language Test.

A limited number of teaching fellowships are available to graduate students in anthropology. In addition, there is an anthropology museum assistant curatorship and graduate research assistantship funded by the Donald C. Kitselman Endowment. More information may be obtained by writing the department chair. The department also gives the Carol McCandless Prize for meritorious performance by an anthropology graduate student. Applications for fellowships should be made directly to the department chair; the deadline for such applications is March 1.

The department is closely associated with the program in historic preservation described elsewhere in this catalog.

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

ART (ART)

Faculty: Bonjorni, Davidson (Ch.), Goin, Mahsun, Martinez, McCormick, Morrison, Rosenberg, Unterseher

The department offers courses leading to the degree of bachelor of arts.

Major Interest Subject	*Credits*
ART 100, 121	6
ART 221, 222, 321 or 135, 235, 236 or 150, 250, 251 or 163, 263, 264 or 175, 275, 276 or 185, 285, 286	9
ART 116, 117 and one additional art history course	8-9
ART 403	2
Art courses numbered 300 or above, chosen with the approval of the adviser and dean	12
	37-38

It is recommended that art majors with a two-dimensional concentration elect either ART 163 or 175, and those with a three-dimensional concentration elect ART 135 sometime during the early parts of their programs.

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Art accepts any minor approved by the College of Arts and Science.

Minors

Students majoring in another field may minor in art by completing one of the following:

Minor: Art Studio	*Credits*
ART 100, 121, 116, and 117	12
Nine credits from ART 135, 150, 163, 175, and 185	9
	21

Minor: Art History	*Credits*
ART 100	3
One studio course selected from: ART 121, 135, 150, 163, 175, and 185	3
ART 116, 117	6
Three additional courses selected from ART 314, 315, 316, 417, 418, and 419	9
	21

Minor: Photography	*Credits*
ART 100, 150, 250, 251, 350	18
One additional upper-division course in photography	3
	21

Options

Option: Ceramics	*Credits*
ART 100, 116, 163, 175, 275, and 276	18
One additional upper-division course in ceramics	3
	21

Option: Painting	*Credits*
ART 100, 117, 121, 135, 235, and 236	18
One additional upper-division course in painting	3
	21

Option: Printmaking	*Credits*
ART 100, 121, 185, 285, 286, and 384	18
One additional upper-division course in printmaking	3
	21

Option: Sculpture	*Credits*
ART 100, 116, 163, 175, 263, and 264	18
One additional upper-division course in sculpture	3
	21

For further information, please contact the Department of Art.

Secondary School Teacher Certification: Students in the College of Arts and Science majoring in art may work toward certification to teach at the secondary level (middle, junior, and senior high schools) by electing required courses offered through the College of Education, approximately 20 credits to include EDFM 210; CAPS 330, 400; C I 401, 457 (student teaching); and ART 346—Art Education: Secondary Schools, in addition to the departmental major.

A teaching minor concentration is available to students engaged in securing a major other than art. It consists of approximately 26 credits, most of which are prescribed.

BIOLOGY (BIOL)

Faculty: Baker, Gubanich, Jenkins, Kleiner, Knorr, McCracken, Mead, Nellor, Ort, Prusso, Rust, Tibbitts, Vig (Ch.), Vinyard

The department offers courses leading to the degrees of bachelor of science, master of science, and doctor of philosophy.

Bachelor of Science Degree

All biology majors complete a common core of lower-division biology and required related courses, and then follow either a general biology program or one of four options in selecting upper-division courses.

Core Courses	*Credits*
BIOL 101, 102, 201, and 202	10
BIOL 208	3
BIOL 290	3
BIOL 212	3
	19
Required Related Courses: CHEM 101, 102 or the equivalent	8

Recommended Electives: general physics, mathematics through calculus, statistics, computer programming.

General Biology Option	*Credits*
1. Two of the following: BIOL 331, 333, 347, 355	5-8
2. Two of the following: BIOL 260, 360, 372, 376, 378, 383, 384	5-7
3. One of the following: BIOL 315, 404, 405	3-4
4. At least two credits must be for laboratories.	
5. Additional upper-division credits in biology to make 38 total credits in biology.	
Required Related Courses: organic chemistry (either CHEM 142 and 143 or 343, 344, and 345)	4 or 8
	50-54

Botany Option	*Credits*
1. Four of the following four sets of courses: BIOL 331, 333 and 334, 347, 355 and 356	15-17
2. Additional credits from the following set of courses to make 38 total credits in biology: BIOL 251, 341, 491	2-4
Required Related Courses: organic chemistry (either CHEM 142 and 143 or 343, 344, and 345)	4 or 8
	50-54

Zoology Option	*Credits*
1. One of the following: BIOL 360, 368, 383, 384	3-4
2. One of the following: BIOL 260, 372 and 373, 376 and 377, 378	3-4
3. One of the following: BIOL 364, 366, 460, 475	3-5
4. Additional credits from Group 1, 2 or 3 or the following to make 38 total credits in biology: BIOL 315, 408, 414, 481, 482, 484, 491	
Required Related Courses: organic chemistry (either CHEM 142 and 143 or 343, 344, and 345)	4 or 8
	50-54

Cellular and Developmental Biology Option	*Credits*
1. Fifteen credits from the following courses: BIOL 251, 301, 302, 303, 364, 408, 414, 415, 464, 468	
2. Additional upper-division credits in biology to make 38 total credits in biology	
Required Related Courses: organic chemistry (either CHEM 142 and 143 or 343, 344, and 345)	4 or 8
	50-54

Ecology Option	*Credits*
1. BIOL 294	1
2. Two of the following: BIOL 347, 381, 420	6-7
3. One of the following: BIOL 404, 485, 486	3-4
4. Additional credits from group 2 or 3 or the following to make 38 total credits in biology: BIOL 315, 320, 345, 346, 380, 481, 482, 484, 491	
Required Related Courses: intermediate statistics (AG 470 or the equivalent)	3
	49

Minors in Biology

Students majoring in another field may minor in biology by completing 18 credits in biology. A minimum of nine lower-division credits must be chosen from the core courses listed for biology majors and a minimum of nine upper-division credits must be chosen from the list of courses given in any one of the five options available for biology majors.

Preparation for Transfer to Dental and Medical Schools

Students enrolling as biology majors and planning to apply to out-of-state medical or dental schools should take the following courses: cellular biology, general biology, genetics, comparative anatomy, animal physiology, embryology, histology, and at least one course in systematic zoology. This curriculum meets the entrance requirements of the accredited dental and medical schools in this country. If the student changes educational goals and decides against a professional school, this curriculum is appropriate for entrance into graduate school or for a career in teaching.

Those students who intend to go to a dental or medical school and who complete three years of approved work prior to entering an accredited medical school may obtain a baccalaureate degree with a major in biology after meeting all department, college, and university requirements and completing one year of professional school.

Additional Required Courses: general physics with laboratory (one year), organic chemistry (one year), analytical chemistry.

Recommended Electives: mathematics through calculus, psychology (six credits) required by some medical schools.

Master of Science Degree

The Department of Biology offers graduate programs leading to the master of science degree with majors in biology, botany and zoology, to include an emphasis on ecology or genetics and developmental biology. Two plans are available: (A) thesis, or (B) nonthesis. Further details may be obtained from the dean of the Graduate School or from the chair of the department.

Doctor of Philosophy Degree

Prospective students must meet the requirements established by the university and the Graduate School for admission to the graduate program. Candidates for the Ph.D. degree must fulfill all general university, Graduate School, and departmental requirements for obtaining the doctorate degree at the university.

Minimum Credit Requirements:	
Course credits	48
Credits for research and dissertation	24
	72

At least two-thirds of the total credits, including thesis research, must be taken in the major field.

CHEMISTRY (CHEM)

Faculty: Baglin, Burkhart, Corcoran, Fickes, Frederick, Kemp, LeMay, Lynch, Lightner, Morgan, Nelson, Rose, Scott, Sheridan, Shin

The department offers courses leading to the degrees of bachelor of science, master of science, and doctor of philosophy.

Bachelor of Science Degrees

The bachelor of science in chemistry is a professional degree certified by the American Chemical Society; students are prepared for graduate study, civil service positions, and industry.

The field of concentration in chemistry provides basic training for other professions; graduates usually can enter the chemical profession if the recommended upper division chemistry courses are taken. Students planning to pursue a career in medicine or dentistry may enroll in this program.

Bachelor of Science in Chemistry

Freshman Year

	Credits
CHEM 201-202 recommended (CHEM 101-102 acceptable)	8
ENGL 101-102	8
GER 101-102 (or equivalent courses in French or Russian)	8
Electives (Groups II and III; HIST 111 or P SC 103)	8
	32

Sophomore Year

	Credits
CHEM 343-344	6
CHEM 347-348	4
MATH 215-216	8
PHYS 201-202 recommended (PHYS 151-152 acceptable)	6
PHYS 204-205 recommended (PHYS 153-154 acceptable)	2
GER 205-209 (or equivalent courses in French or Russian)	4
Electives (Groups II and III; HIST 111 or P SC 103)	2
	32

Junior Year

	Credits
CHEM 330	4
CHEM 353-354	6
CHEM 355	2
CHEM 387	1
MATH 217	4
MATH 320	2
Chemistry electives (four of the following courses, including one laboratory course: CHEM 434, 442, 443, 450, 456, 461, B CH 400, 403)	6
Electives (Groups II and III; HIST 111 or P SC 103)	7
	32

Senior Year

	Credits
CHEM 415	3
CHEM 497	2
Chemistry electives (four of the following courses, including one laboratory course: CHEM 434, 442, 443, 450, 456, 461, B CH 400, 403)	7
Electives (chemistry, biochemistry, physics, mathematics or related areas: 300/400-level courses. Courses in computer programmming)	20
	32

Bachelor of Science with Field of Concentration in Chemistry

Freshman Year

	Credits
CHEM 201-202 recommended (CHEM 101-102 acceptable)	8
ENGL 101-102	6
PHYS 151-152	6
PHYS 153-154	2
Electives (Groups II and III; language; HIST 111 or P SC 103)	10
	32

Sophomore Year

	Credits
CHEM 343-344	6
CHEM 347-348 recommended (CHEM 345 acceptable)	4
MATH 215-216	8
Electives (Groups II and III; language; HIST 111 or P SC 103)	14
	32

Junior Year

	Credits
CHEM 330	4
CHEM 353-354	6
Chemistry electives (three of the following courses, including one laboratory course: CHEM 355, 415, 434, 442, 443, 450, 456, B CH 400, 403)	3
Electives (Groups II and III; language; HIST 111 or P SC 103) (chemistry, biochemistry, physics, mathematics or related areas; 300/400 level courses; courses in computer programming)	19
	32

Senior Year

	Credits
Chemistry electives (three of the following courses, including one laboratory course: CHEM 355, 415, 434, 442, 443, 450, 456, B CH 400, 403)	6
Electives (chemistry, biochemistry, physics, mathematics or related areas; 300/400 level courses; courses in computer programming)	26
	32

In addition to the foregoing, all the general requirements of the College of Arts and Science must be satisfied; this includes 16 credits in humanities and social science courses.

Minor in Chemistry

Students majoring in another field may minor in chemistry by completing a minimum of 20 credits which must include an organic chemistry laboratory course of two credits and nine upper-division credits in chemistry. A maximum of two credits of CHEM 387 and 391 may be applied to make up the nine upper-division credits.

Master of Science Degree

Candidates for the master of science degree with a major in chemistry must satisfy the general requirements of the Graduate School. Of the 24 credits required, 12 (including two credits of seminar) are in the major, six are in the minor, and the remaining six are elective. A reading knowledge of a foreign language is required. Options in the Department of Chemistry include organic, inorganic, and physical chemistry and biochemistry.

Doctor of Philosophy Degree

The general requirements of the Graduate School must be satisfied by all candidates for the Ph.D. degree. The minimum credit requirements are:

Total credits	72
Total course credits	48
Total credits in major, including research	48
Major-minor distribution:	
Course credits in major	24
Course credits in minor	9
Seminar	2
Electives	13

The student must demonstrate a reading knowledge of one foreign language as specified by the student's advisory committee.

The major and minor areas available in the Department of Chemistry are inorganic, organic, physical, and biochemistry. The minor may be taken in another department, such as physics or mathematics, if desired. Every student's program is subject to the approval of an advisory committee.

The graduate curriculum, with its research orientation, provides for an advanced study of theoretical concepts, the methods used to establish these concepts, and the means by which basic observations are made. Emphasis is placed on ability to make valid and relevant observations, to correlate the established facts, and to deduce warranted conclusions and generalizations. A problem in laboratory research is used to determine whether or not the student has the capacity to contribute to the advancing knowledge of chemistry. For further information, contact the chair of the Department of Chemistry.

CRIMINAL JUSTICE (C J)

Faculty: Barnhill, Braunstein, Peak (Ch.), Rosecrance

The bachelor of arts in criminal justice is a professional program. Students are educated for justice or justice-related positions in both the public and private sectors, graduate study, and law school.

All criminal justice majors are required to be advised in both the spring and fall semesters.

Bachelor of Arts in Criminal Justice

At least 15 credits of required criminal justice courses must be completed at UNR.

Major Interest Subject	*Credits*
C J 110, 120, 211, 220, 231, 312, 320, 326, 410	27
PSY 101, 441	6
SOC 101, 366	6
ENGL 321	3
SPCM 113	3
	45

Minor in Criminal Justice

Students majoring in another field may minor in criminal justice by completing one of the following:

Option: Corrections	*Credits*
C J 110, 220, 231, 410	12
C J 326, 328, 331, or 332	6
	18

Option: Law	*Credits*
C J 110, 120, 220, 410	12
C J 320, 328, or 420	6
	18

Option: Police	*Credits*
C J 110, 211, 220, 410	12
C J 312, 324, or 328	6
	18

Criminalistics

A student desiring to specialize in criminalistics follows the curriculum listed under criminal justice. Courses in biochemistry, biology, and chemistry are recommended to each student. Students are encouraged to see the department chairman during their first semesters of matriculation.

ENGLISH (ENGL)

Faculty: Baker, P. Boardman, K. Boardman, Brown, Brownell, Calabrese, Cronan, DuPree, Essa, Francis, Haddawy, Harvey, Hettich, Hieke, Howard, Jacobsen, Merrill, Minter, Pahmeier-Henry, Reid, Ronald (Ch.), Stookey, Urie, Webb, Wilborn

Bachelor of Arts Degree

In consultation with the adviser, the student elects a program leading to the bachelor's degree with a major in English in one of the following options:

Literature Option

	Credits
ENGL 281, 291, 292, 451, 465	15
Additional courses to be selected from ENGL 305-306, 307-308, 405-406, 407-408 (a total of no more than six credits), and other courses numbered above 400 — excluding 414, 415, 416, 419, 436, 437, 438, 439	17

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. English accepts any minor approved by the College of Arts and Science, including English as a Second Language.

Language and Linguistics Option

	Credits
ENGL 281, 404 or 415 or 416, 410	9
ENGL 411 or 414, 413, 417, 451	12
Additional courses to be selected from ENGL 291, 292, 293, 316, and any course numbered 400 or above	11

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. English accepts any minor approved by the College of Arts and Science, including English as a Second Language.

Secondary Teaching Option

	Credits
ENGL 281, 291, 292, 321, 410, 411 or 413, 441 or 445 or 446, 465	24
Additional courses to be selected from courses numbered above 400	8
	32

Requirements for Certification In Secondary Education: (18 credits). See "Foundations for Secondary Teaching" in College of Education section.

Students planning to teach in the secondary schools should normally be prepared in a second teaching subject. See "Secondary Teaching Field" under College of Education.

Second Teaching Subject (Minor)	*Credits*
(Program for teachers selecting English as a minor teaching subject)	
ENGL 281, 291, 321 or 437, 410	12
Two courses to be selected from the 400-level courses, one in both American literature and English literature	6
	18

Students thinking of majoring in English are strongly advised to take 281 and 291 no later than the sophomore year, and 291 by no means later than the second semester after declaring the major.

Minors in English

Students majoring in another field may minor in English by completing one of the following options:

Literature Option	*Credits*
Required: ENGL 291, 465	6
At least three credits from ENGL 235, 236, 292, 293, 337	3
At least nine credits from ENGL 423, 425, 426, 430, 441, 445, 446, 451, 453, 458, 460, 461, 463, 464, 469, 470, 471, 475, 481, 483, 484, 485, 486, 489	9
	18

Language and Linguistics Option	*Credits*
Required: ENGL 281, 410	6
ENGL 404, ENGL or ANTH 415, 416, 429, FLL 455, or GER 455	3
ENGL or ANTH 411, 414, or ANTH 405	3
ENGL 413, FLL 458, or GER 458	3
ENGL 417 or 451	3
	18

English as a Second Language Option	*Credits*
ENGL 281, 410	6
ENGL or ANTH 411, 415, ANTH 405, or FLL 455	3
ENGL 436, 438, 439	9
	18

Dramatic Literature Option	*Credits*
Required: ENGL 253, 291, 292	9
At least nine credits from ENGL 355, 356, 458, 460, 465, 470 and 423, 469 and 489, when the subject matter is drama or dramatists	9
	18

The Graduate Programs

The Department of English offers graduate programs leading to the master of arts for the teaching of English, the master of arts, and the doctor of philosophy. For further information, write to the chair of the Department of English to obtain the bulletin *Graduate Study in English.*

Master of Arts for the Teaching of English Degree

The master of arts for the teaching of English (MATE) degree is designed primarily to train teachers. The MATE degree encourages broad preparation in language and literature, with special attention to composition, literary appreciation, applied linguistics, ESL, and other subjects needed by teachers in both primary and secondary school. Except for the specialty in ESL, foreign language proficiency is not required for this degree. Students pursuing the MATE degree normally do not expect to continue their studies beyond the master's level.

Master of Arts Degree

The master of arts degree is intended for students who plan to continue work toward the doctor of philosophy degree, for potential community college teachers, and for individuals who want to acquire overall background in the study of language and literature. The program includes extensive reading in English and American literature and language, as well as practice with basic tools and methods of scholarship. Evidence of proficiency in one foreign language, normally French or German, is required.

Upon admission to the M.A. program, the student follows either Plan A, the thesis program, or Plan B, the nonthesis program.

Doctor of Philosophy Degree

Students who have earned M.A. degrees in English may apply to the doctoral program upon evidence of an overall grade-point of 3.0 or higher in all undergraduate and graduate work, a satisfactory score on the Graduate Record Examination verbal and advanced tests, and a writing sample indicating superior ability when discussing literature. Final acceptance depends upon successful performance on a departmentally administered Ph.D. qualifying examination.

All candidates for the Ph.D. degree are required to present an acceptable dissertation and to give evidence of proficiency in two foreign languages, normally French and German, or a more intensive knowledge of one foreign language, normally French or German.

FOREIGN LANGUAGES AND LITERATURES (FLL)

Faculty: Curry, Hertling, Leneaux, Lindsay, Macura, Manca, Marvick, Melara, Petersen, Rojas (Ch.), Sepúlveda-Pulvirenti, Tobin, Torres Caballero, Wagener, Whitenack

The objectives of the study of foreign languages and literatures are practical and humanistic: proficiency in the four basic language skills of oral comprehension, speaking, reading comprehension, and writing; knowledge and understanding of the literature, thought, and culture.

The Department of Foreign Languages and Literatures offers courses of study leading to the degrees of bachelor of arts with majors in French, German, and Spanish language and literature, and master of arts with a major in foreign language and literature. In addition, students may take courses in Arabic, Basque, Chinese, classical Greek, Hebrew, Italian, Japanese, Latin, Persian, Portuguese, and Russian. Most courses offered help fulfill requirements toward a liberal arts degree, and are also designed to assist in the preparation of language teachers and to help provide training for other careers requiring language skills.

Within the major program, the student has the option of emphasizing language or literature, although neither may exclude the other.

In addition, in Spanish, the student may choose either a peninsular or Spanish-American emphasis.

Foreign Language Requirement

The College of Arts and Science and a few departments in other colleges have a foreign language requirement. In the College of Arts and Science, students may meet the requirement by completing course 204 or 209 or equivalents in any language. Students have a choice of a total skills sequence (listening comprehension, speaking, reading, writing) or a sequence which stresses reading.

Successful completion of two college semesters of Latin and two college semesters of classical Greek also fulfills this requirement.

Secondary School Teacher Certification

Students in the College of Arts and Science who are majoring in a foreign language may be certified to teach in junior high, middle, and high schools by taking a prescribed number of courses in the College of Education, usually about 20 credits. These include eight credits of supervised teaching in the public schools, and specialized courses in methods.

The teaching *major* consists of 30 credits in one language, all of which must be upper-division except for required courses in culture and civilization. French majors must take FR 221, 301, 305-306, 309 (two credits), 313, 314, and FLL 455 or approved equivalents. German majors must take GER 221, 301, 305-306, 309 (two credits), 311, and 455 or approved equivalents. Spanish majors must take SPAN 221 or 222, 301, 305-306, 309 (two credits), 351, 352, and FLL 455. The student must also have a teaching minor. The department strongly recommends a teaching minor in a second foreign language.

The teaching *minor* in a foreign language is available to students who are working for a teaching major in another foreign language or in another subject. It consists of 20 credits in the language of the minor, of which no less than 10 credits must be in upper-division work, most of which are prescribed.

For further information, contact the Department of Foreign Languages and Literatures.

Laboratory Facilities

The Learning Laboratory, located in Room 109 of the Getchell Library, has a language practice laboratory whose records and tapes of different languages are used to improve the command of the spoken language. Laboratory practice is required as part of homework in specified courses.

Bachelor of Arts Degree Requirements for a Field of Concentration in French, German or Spanish

For the bachelor of arts degree, a minimum of 48 credits are required in the field of concentration, distributed as follows:

Major Interest Subject

In the major interest subject (French, German, or Spanish) 30 credits are required, all of which must be upper-division except for required courses in culture and civilization. French majors must take FR 221, 305-306, 309 (two credits), and 313, 314. German majors must take GER 221, 305-306, 309 (two credits), and 311. Spanish majors must take SPAN 221 or 222, 305-306, 309 (two credits), 351, 352.

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Foreign languages and literatures accepts any minor approved by the College of Arts and Science.

Minor in Foreign Languages and Literatures (Basque, French, German, Spanish)

Students majoring in foreign languages and literatures and other fields may minor in foreign languages and literatures by completing one of the following:

For a minor, 20 credits are required of which 14 must be numbered above 300. French minor: 204, 221, 305, 306, 309 (two credits) and two other three-credit French courses numbered above 300. (FR 313 is recommended.) German minor: 204, 221, 305, 306, 309

(two credits) and two other three-credit German courses numbered above 300. (GER 311 is recommended.) Spanish minor: 204, 221 or 222, 305, 306, 309 (two credits) and two other three-credit Spanish courses numbered above 300.

For Basque studies minor, see Interdisciplinary and Special Programs.

Secondary School Teaching: to include all the courses in education required by the College of Education, usually 20 credits. The teaching major must include an approved course in linguistics. A teaching minor in a second foreign language is strongly recommended, consisting of from 20 to 26 credits (at least 10 must be at the upper-division level), and must include courses 305-306.

Master of Arts Degree

The Department of Foreign Languages and Literatures offers a program of graduate study leading to the degree of master of arts with a major in foreign languages and literature and specializations in French, German or Spanish. The student must meet the general university requirements for admission to graduate standing. In addition, each student must have acquired a degree of proficiency in a major language acceptable to the department, and must have generally no less than a 3.0 GPA, on a scale of 4, in the undergraduate language major.

Plan A requires 30 graduate credits. No less than 18 credits, including six thesis credits, must be in courses numbered 700 or above. If a minor is approved, no less than six graduate credits are required in the minor area.

Plan B requires 32 graduate credits, of which no less than 15 must be in courses numbered 700 or above. No thesis is required. If a minor is approved, a minimum of eight graduate credits are required in the minor area.

Further details of the programs may be obtained from the department.

GEOGRAPHY (GEOG)

Faculty: Exline (Ch.), Hausladen, James, Kramer

Adjunct Faculty: Eigenheer, Klieforth

Bachelor of Science in Geography

The department offers courses leading to the degree of bachelor of science in geography.

Students of modern geography develop an unusual combination of knowledge, techniques and theory that can be applied to an almost limitless variety of problems. This versatility is the product of the geographer's concern with both the natural and cultural features of the earth's surface and the manner in which they are bound together in a web of intricate relationships. Today's geographer focuses on two kinds of inquiry — locational patterns and processes and understanding the cultural and environmental systems found on the earth.

The geography student completes a core of 16 credits and then works with a departmental adviser to develop an area of concentration suited to the individual's needs. Examples may be found in areas such as physical geography (including environmental impact analysis), cultural and international studies, urban and regional planning (including the analysis and management of growth), cartography and computer mapping, and climatology.

Students must complete a minimum of 36 credits in geography. Because of the necessity of tailoring programs to the students' needs and desires, close contact between the student and the departmental adviser is required.

Major Interest Subject	*Credits*
GEOG 103 – Geography of Man's Environment	4
GEOG 106 – Cultural Geography	3
GEOG 109 – Economic Geography	3
GEOG 212 – Cartography	4
GEOG 418 – Geographic Thought	2
	16
Additional geography courses are determined in conjunction with an adviser. Nine credits will be from outside the geography department	29
	45

Minor in Geography

Students majoring in another field may minor in geography by completing the following:

Minor Interest Subject	*Credits*
GEOG 103 (laboratory required)	4
GEOG 106 or 109	3
An additional 11 credits, nine of which must be upper division, are determined in conjunction with a departmental adviser	11
	18

Land Use Planning Policy

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

HISTORY (HIST)

Faculty: Brodhead, Coray, Crouchet, Davies, Edwards, Ferguson, Folkes, Hartigan, Hildreth, Hulse, Marschall, Moran, Raymond, Rowley, Shepperson (Ch.), Tigner

Adjunct Faculty: Bandurraga

The Department of History offers courses of study leading to the degrees of bachelor of arts, master of arts, and doctor of philosophy.

Bachelor of Arts Degree

Major Interest Subject	*Credits*
HIST 101-102	6
HIST 105-106 (three credits each)	6
Additional credits in history courses numbered 200 and above to be selected in consultation with adviser. From among these credits a total of at least six credits must be selected from the following non-American and non-European courses: HIST 343, 344, 345, 346, 351, 352, 353, 361, 362, 371, 372, 447, 448, 449. A total of 30 credits exclusive of HIST 101 and 102 are required	24
	36

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. History accepts any minor approved by the College of Arts and Science.

Minor in History

Students majoring in another field may minor in history by completing one of the following:

Minor Interest Subject (General History)	*Credits*
To be chosen from HIST 101, 102, 105, 106	6
From 300-level or above American history courses	6
From 300-level or above European history courses	6
From 300-level or above Third World history courses	3
	21

Minor Interest Subject (American History)

HIST 101 and 102	6
plus 12 additional credits in American history 200 level and above (nine credits of which must be 300 and above), but no more than three credits in 495–497	12
	18

Minor Interest Subject (European History)

HIST 105 and 106	6
plus 12 additional credits in European history courses numbered 200 and above (nine credits of which must be 300 and above)	12
	18

Minor Interest Subject (Third World History)

HIST 105	3
plus 15 upper division credits from African, Latin American, Far Eastern, Middle Eastern history or Ancient History 371	15
	18

Master of Arts Degree

Students wishing to work toward the master of arts degree in history should read the section relating to graduate study and obtain from the department a brochure on *Graduate Study in History*. The department requires that applicants hold a baccalaureate degree with a major (or 24-semester-credit minor) in history, have a cumulative undergraduate GPA of 2.75, and achieve a satisfactory score on the Graduate Record Examination. There are optional programs for the Master of Arts degree. The Option A program requires a written comprehensive examination (after completion of 20 credits of graduate work), reading knowledge of one foreign language, 24 semester credits, a six-credit thesis, and a final oral examination. The Option B program requires a written comprehensive examination (in the semester in which 30 credits of graduate study are completed), reading knowledge of one foreign language, 32 semester credits, and a final oral examination. Further details may be obtained from the dean of the Graduate School and from the chairman of the department.

Doctor of Philosophy Degree

Students wishing to pursue a Ph.D. degree with a major in history should read the section relating to graduate study and obtain from the department a brochure on *Graduate Study in History*. The department requires that applicants have a master of arts degree, have a cumulative GPA in all undergraduate and graduate work of 3.0 or higher, and achieve a satisfactory score on the Graduate Record Examination. The Ph.D. degree program requires an oral qualifying examination, 48 graduate credits past the M.A., of which at least 30 must be in approved courses, a current working knowledge of one foreign language and meeting of the university language requirement, written and oral comprehensive examinations in three fields, a dissertation, and a final oral examination.

As subjects for special research and for the required dissertation are limited to areas in which the department has particular strengths, applicants should plan to specialize in history of Nevada, Western North America, or American studies. Exceptions to this emphasis may be made with departmental approval, on the basis of adequate library resources and committed faculty involvement. Further details may be obtained from the Office of the Dean of the Graduate School and from the chairman of the department.

For general information, contact the chairman of the department.

LIBRARY SCIENCE (L SC)

Library Science is not a department; however, information on courses is available from the director of libraries.

MATHEMATICS (MATH)

Faculty: Bagchi, Blackadar, Brady, Colbert, Davis, Evans, Hooper, Jessup, Kumjian, Langsner, Macauley, McMinn, Olmstead, Pfaff, Sot, Tompson (Ch.), Wagner, Wishart

The department offers courses leading to the degrees of bachelor of science with a major in mathematics, bachelor of science with a major in computer science, master of science, and master of arts for the teaching of mathematics.

Bachelor's Degrees

Mathematics

Major Interest Subject	*Credits*
MATH 215, 216, 217, 251, 311, 320, 330, 331, 341	29
Courses selected from the following:	
mathematics courses numbered above 300	9
	38

Students who are preparing for secondary school teaching may substitute two of the three courses: MATH 373, 474, 475 for MATH 311 and 320.

Additional Required Courses: The total number of credits in the field of concentration must be at least 56. In addition to credits for the major, students must complete 18–21 credits in a minor or selected program of study chosen with the adviser and approved by the department chair. This program usually consists of courses from other departments which support the student's mathematical interest or which comprise a substantial program in a single area. Mathematics accepts any minor approved by the College of Arts and Science.

Computer Science

Major Interest Area	*Credits*
MATH 215, 216, 217, 251, 330, 381	21
C S 183, 283, 285, 333, 386, 387, 485, 486	25
Courses selected from C S 435, 437, 475, 483, 487, 488, 489, 496 MATH 481, 484, E E 372, 405, 431	10
	56

Additional Required Courses (17 credits): PHYS 201, 202, 203, 204, 205, 206, CHEM 101.

For graduation in the computer science major a total of 130 credits are required. Students desiring to major in computer science are designated *pre-computer science* upon admission to the university. Upon satisfactory completion of their first two years of studies they are granted full acceptance into the computer science major.

Pre-computer science students should conduct their studies in accord with the following schedule:

Freshman Year
First Semester

	Credits
C S 183 – Introduction to Computer Science I	4
MATH 215 – Calculus I	4
CHEM 101 – General Chemistry	4
ENGL 101 – Composition I	3
	15

Second Semester

	Credits
C S 283 – Introduction to Computer Science II	3
MATH 216 – Calculus II	4
PHYS 201 – Physics for Scientists and Engineers I	3
PHYS 204 – Physics for Scientists and Engineers Lab I	1

ENGL 102 – Composition II	3
HIST 111 – Survey of American Constitutional History	3
	17

Sophomore Year
First Semester

	Credits
C S 285 – Introduction to Computer Systems	3
MATH 217 – Calculus III	4
PHYS 202 – Physics for Scientists and Engineers II	3
PHYS 205 – Physics for Scientists and Engineers Lab II	1
College group requirements	6
	17

Second Semester

	Credits
C S 386 – Computer Programming Languages	3
MATH 251 – Probability and Statistics	3
PHYS 203 – Physics for Scientists and Engineers III	3
PHYS 206 – Physics for Scientists and Engineers Lab III	1
College group requirements	6
	16

Junior Year
First Semester

	Credits
C S 333 – Computer Logic Design	3
C S 485 – Computer Data Structures	3
MATH 330 – Linear Algebra I	3
College group requirements	6
	15

Second Semester

	Credits
C S 387 – Introduction to the Theory of Computation	3
C S 486 – Principles of Computer Operating Systems	3
MATH 381 – Discrete Mathematics	3
Required technical electives	8
	17

Senior Year
First Semester

	Credits
Required technical electives	2
Technical electives (upper division)	9
Electives	6
	17

Second Semester

	Credits
Technical electives (upper division)	10
Electives	6
	16

Minor in Mathematics

A student in any college who completes 18 credits in mathematics courses in the Department of Mathematics at the 200 level or above including nine credits at upper-division (300-400) level satisfies the requirement for a minor in mathematics.

Minor in Computer Science

Refer to the interdisciplinary section of this catalog for a complete description of the requirements.

Master of Science Degree

The Department of Mathematics offers a graduate program leading to the master of science degree and participates in an interdisciplinary program leading to a master of science degree with a major in computer science. For further information, contact the dean of the Graduate School or the department chair or refer to the interdisciplinary section of this catalog.

Master of Arts for the Teaching of Mathematics Degree

The Department of Mathematics offers a graduate program leading to the master of arts for the teaching of mathematics (MATM) degree. The MATM program is designed to upgrade the mathematical and educational expertise of practicing secondary teachers. For further information, contact the department chair.

MILITARY SCIENCE (MIL)

Faculty: Audrain (Ch.), Bluemer, Clapper, Dunn, Journey, McCloskey, Young

The Army Reserve Officers Training Corps (ROTC) is the only military commissioning program of any armed service within the University of Nevada System. ROTC is available at university request and represents a contractual agreement between the army and the university. The ROTC program in the Military Science Department is administered by career army officers, carefully nominated by the Department of the Army, subject to approval by the university president.

Major interest subjects required for commissioning	Credits
Basic Course requirement	
Option I – MIL 101, 102, 201, 202	8
Option II – MIL 204 – Basic Summer Camp	2
Option III – Students with three or four years of JROTC or 12 or more months continuous federal service may by-pass basic courses	0
Advance Course requirement	
MIL 301, 302, 303, 401, 402	14
Additional elective hours for credit	
MIL 203, 304, RPED 181	4-10
	20-34

Program Objective

The overall objective of the ROTC program is to develop in the student/cadet – through both classroom theory and practical application – the necessary traits, knowledge, proficiency, and experience for a commission in the United States Army. This includes a broad educational base including, in addition to those subjects integral to the degree field, certain academic subjects of particular value in both civilian and military pursuits; a general knowledge of the historical development of the United States Army and of its role in support of national objectives; a working knowledge of the general organizational structure and of how the various components operate as a team in the fulfillment of overall objectives; a strong sense of personal integrity, honor, and individual responsibility; knowledge of the human relationships involved and an understanding of the responsibilities inherent in assignments within the military service; the ability to communicate effectively both orally and in writing; sufficient knowledge of military life to insure a smooth transition from the normal civilian environment. The curriculum is designed to prepare the student for either career service or reserve service.

Program Description

The Military Science Department offers an academically challenging and practical curriculum which can be accomplished in eight semesters or a compressed program of either six or four semesters. The military science curriculum is intended to enrich the student and supplement baccalaureate or

postgraduate studies with the degree-producing departments. The army recognizes the need for officers with varied academic credentials and is prepared to award a commission to any deserving student based on ROTC achievement upon graduation.

The scope of the military science curriculum is oriented toward developing the best possible all-around student who demonstrates leadership and managerial skill; reacts well under pressure; and understands general military subjects. This goal is accomplished by classroom conferences and a leadership laboratory program.

The leadership laboratory program provides academic credit and is an essential gauge in evaluating the student as a prospective second lieutenant. The leadership laboratory for the freshman and sophomore years is an introduction to the skills required in the army. Practical exercise and hands-on training are emphasized. Subject areas include but are not limited to map reading, unarmed defense, weapons familiarization and firing, and familiarization with army tactical vehicles and army aircraft. Junior year leadership laboratory consists of individual leadership training, parade and combat drill, and field exercises. During the senior year students perform actual military duties within the Military Science Department.

Basic Program

Freshmen (MIL 101-102): Introduction to the organization, mission, history, and functions of each of the armed services, the Reserves, National Guard, and the ROTC; multiple options available for military service; the combat and support role of squad-size units; basic individual weaponry; the objectives and instruments of national power, strategy, and security.

Sophomores (MIL 201-202): Provision of a sound foundation in the principles of the art of warfare as exemplified in the United States military history; development of an appreciation of the fundamentals and techniques of small unit tactics and map reading.

Advanced Program

Juniors or selected graduate students (MIL 301-302): Development of individual qualities and capabilities inherent in a successful leader and manager by illustrating effective leadership traits; instruction in methods of instruction; development of an appreciation of the principles of combat at platoon and company levels, techniques of command, control, and management at all levels; attendance at any army-paid, six-week, advanced summer camp (usually between the student's junior and senior years) immediately after spring semester.

Senior or selected graduate students (MIL 401-402): Seminar on the organization, mission, functions, and capabilities of battalion and larger units and the interrelationships of the combined arms team; the numerous administrative and logistical problems which confront leaders at platoon and company level; the role of the United States as a world power to include military alliances and global commitments; introduction to military law.

The advanced course is open to undergraduate and graduate students with at least four remaining semesters as full-time students. Students who successfully complete the basic program or the six-week ROTC basic summer camp (usually held at Fort Knox, Kentucky), may apply for admission into the advanced program. The basic summer camp is normally scheduled after the student's sophomore year or during the summer preceding the four remaining semesters at the university. The basic summer camp substitutes for the basic program and is geared to students who join the ROTC program late and wish to accomplish the curriculum in four semesters (two years).

The advanced program differs from the basic program in that the student enters into a contract with the army whereby the individual agrees, contingent upon continued university enrollment, to complete the ROTC program (including advanced summer camp) and to accept a commission, if offered, upon termination of the degree program. To be eligible for commissioning, each student must have earned at least a baccalaureate degree.

For acceptance into the advanced program a student must:

1. Be a citizen of the United States and be regularly enrolled as a full-time student at the university.
2. Be able to complete the course, graduate, and be commissioned prior to the thirtieth birthday.
3. Have successfully completed such survey and screening tests as may be prescribed.
4. Have successfully passed a prescribed physical examination.
5. Be selected by the professor of military science.
6. Have executed a written contract with the United States government.

Volunteer Extracurricular Activities

Sierra Guard—A competitive precision drill team which has the added distinction of being the personal honor guard of the governor of Nevada. The Sierra Guard is well regarded for its professional competence and esprit de corps.

Colonel's Coeds—A women's honorary organization which supports the University of Nevada Army ROTC and the university. Membership enhances knowledge of the armed services and provides enjoyment by being a part of the many ROTC activities.

Rangers—A highly competitive organization that provides additional military training for students who are interested in getting the ultimate preparation for success as future Combat Arms Officers. The *Wolf Pack Ranger Challenge* team is an element of the organization and competes annually against teams from 58 other colleges and universities in the Western United States.

Career Opportunities

Advanced program students who demonstrate outstanding academic, military, and leadership proficiency may be selected as distinguished military students (DMS) at the beginning of their senior years. As a DMS, a student may apply for a commission in the regular Army. A commission in the regular Army gives the student the same status and benefits as a graduate from the United States Military Academy. The student is not required to make the army a career but simply agrees to serve the minimum time of three years before deciding whether or not to remain. The vast majority of career officers and numerous generals are ROTC graduates from the nearly 300 colleges and universities in the United States which offer ROTC.

Active Duty and Reserve Obligations

Students commissioned from the ROTC program normally serve on active duty in the army as reserve officers for a period

of up to three years upon graduation from the university. After completion of this active duty they are assigned to reserve units for an additional five years, if a vacancy exists in a unit within a reasonable distance from their homes, or are integrated into the regular Army upon request.

Reserve Forces Duty

Students commissioned from the ROTC program may also request to serve with the U.S. Army Reserve or the Army National Guard. This consists of three to six months' active duty, and an eight-year obligation with the reserve forces, either in units or in the individual ready reserve.

Financial Assistance

Students taking the basic course receive no pay unless they have ROTC scholarships. Students awarded Department of the Army two-, three-, and four-year ROTC scholarships receive $100 per month subsistence pay while enrolled in school (ten months per year maximum) and payment for books, tuition, and fees. All other students formally enrolled in the advanced course are paid subsistence at a rate of $100 per month while enrolled in school, not to exceed a total of 20 months. Students are paid one-half of the base pay of a second lieutenant while attending the six-week summer camp training plus travel pay to and from summer camp. The Military Science Department has a limited number of in-state and out-of-state fee waivers available each semester for students requiring financial assistance.

Additionally, the Nevada National Guard pays one-half of the credit costs for students who elect to serve simultaneously in the Nevada National Guard and in Advanced ROTC. This is a particularly valuable option which can be worth over $10,000 for veterans and students with junior ROTC experience.

Textbooks, Uniforms, and Equipment

The United States government provides each basic course student with the necessary textbooks, uniform, and equipment.

Students in the advanced course, in addition to receiving the $100 monthly stipend, texts, and instructional equipment at the expense of the United States government, are provided an officer-type uniform. The United States government provides the university with a uniform allowance for each student enrolling in the advanced course and this allowance is used to purchase the officer-type uniform, which the student may buy upon commissioning.

MUSIC (MUS)

Faculty: Cleveland (Ch.), Ehrke, Engstrom, Haimowitz, Jones, A. Lenz, J. Lenz, McGrannahan, Puffer, Smith, Williams, Yim

The department offers courses leading to the degrees of bachelor of arts with a major in music, bachelor of music with majors in applied music or music education, and master of arts or master of music.

Bachelor of Arts with Field of Concentration in Music

Courses in the areas of music theory, music history, applied music, and methods of music teaching are offered for cultural benefit and for professional preparation of performing musicians and/or music teachers.

All students in the university may participate in one or more of the performance organizations. These include university band, concert choir, symphonic choir, opera theater, university-community symphony, and chamber music ensembles. Solo performance is possible in class recitals or in connection with the performance organizations.

For the bachelor of arts degree, a minimum of 38 credits is required, distributed as follows:

Major Interest Subject	*Credits*
Applied individual instruction in a single area of study	6
Music Theory—MUS 207-208, 209-210, 301-302, 307-308	16
Music History—MUS 201-202	6
Ensemble	6
To be chosen from theory or history and literature courses, 300 or above	4
	38

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Music accepts any minor approved by the College of Arts and Science.

The bachelor of arts is a liberal arts degree. For information about teacher certification with this program, students should consult the Music Department chair.

Bachelor of Music

The bachelor of music, with a major in music education, is a professional degree which meets present state of Nevada music certification requirements.

Major Interest Subject	*Credits*
Applied major instrument or voice (a senior recital of 25 minutes is required)	8
Piano competency (Piano Proficiency Examination must be passed)	
Music Theory—MUS 207, 208, 209-210, 301-302, 307-308	16
Music History—MUS 201-202, Orchestration—MUS 310, Form and Analysis—MUS 408	12
Ensemble	7
Methods courses in the department—MUS 103, 104, 113, 123, 124, 323, 352, 354	15
Conducting—MUS 321, 322	4
	65
The requirement of a minor in an area outside the music department is waived.	
Professional Education; requirements for certification as Music Special K-12 in Nevada	37
	102

The bachelor of music degree with a major in applied music is available only to students approved by the entire faculty as showing professional promise in their applied performance areas.

Major Interest Subject	*Credits*
Applied major, four[1] credits per semester	
100 level (entrance audition required)	16
300 level (upper-division audition required)	16
Minor instrument, one credit per semester (non-keyboard majors enroll in piano until the piano proficiency examination is passed; remaining credits are taken in a single applied area)	7
Music Theory—MUS 207-208, 209-210, 301-302, 307-308	16
MUS 201-202, 321 or 322	8
MUS 310, 408	6
Ensembles: major eight credits, secondary five credits	13
Literature electives to include four credits in MUS 418 for vocal majors, and four credits in MUS 483 for piano majors	4
	81

A full recital is required the senior year. The requirement of a minor in an area outside the music department is waived.

[1]Vocal students for the first four semesters register for three credits with concurrent registration in MUS 218, one credit each semester, to a total of four credits. MUS 218, Vocal Repertory Coaching, is devoted to the study of diction in English, French, Italian and German.

Minor in Music

Students majoring in subject areas other than music in the College of Arts and Sciences may minor in music by completing the following 20 credit sequence of courses:

Minor Interest Subjects	*Credits*
MUS 207-208	6
MUS 201 or 202	3
Major ensembles	3
Instrumental or vocal instruction	3
Electives numbered 300 or above	5
	20

Applied Music

A special fee of $125 per half-hour lesson is required for all applied individual instruction. All university students may take applied music, although music majors and minors are given first priority for available space. Students taking applied music must also enroll in a major ensemble: symphonic choir, concert choir, orchestra, marching and concert band, or symphonic band and wind ensemble. A maximum of 13 credits in ensembles is allowed toward graduation. Students receive one-half hour individual applied lesson for one credit, and one hour lesson for two, three, or four credits. A Jury Examination is required at the end of the semester for all students enrolled in applied music. One hour of daily preparation is required for each credit. A maximum of eight credits of applied instruction at each level may be applied to the B.A. A maximum of four credits of applied instruction at the 700 level may apply toward a graduate degree. All students entering the B.M. applied program must satisfactorily complete an entrance audition and an upper-division audition after completing 16 lower-division credits. Any student seeking upper-division or graduate status in applied music must satisfactorily complete an audition (MUS 749, Secondary Instrument or Voice does not require an audition).

Ensemble Requirements

All students taking applied lessons are required to participate in a major ensemble. Concert Choir, Symphonic Choir, Symphonic Band, University Orchestra and Wind Ensemble are recognized as major ensembles in the Department of Music:

a. Voice students are required to be in Symphonic Choir or Concert Choir.

b. String students are required to be in University Orchestra.

c. Wind and percussion students are required to be in a major instrumental ensemble.

d. Keyboard and guitar students are required to be in a major ensemble. Keyboard students may substitute up to 50 percent (four semesters) of their major ensemble requirement by enrolling in Techniques of Piano Accompaniment (MUS 225, 425, 625.)

Masterclass Attendance Requirements

All music majors enrolled in applied instruction must satisfactorily complete the masterclass attendance requirement each semester while attending UNR. Satisfactory completion of the requirement involves student attendance at an appropriate masterclass as well as the monthly departmental recital, and attendance at eight additional musical events each semester. Failure to meet these requirements will result in an incomplete grade in applied lessons. A current listing of events is available from the music department each semester.

Foreign Language Requirements for Music Majors

a. Bachelor of arts degree candidates: must complete the regular college requirement.

b. Bachelor of music degree candidates: music education majors are exempt from the foreign language requirement. Applied music majors (excluding those in the vocal area) are exempt from the foreign language requirement.

Those in the applied music vocal area must satisfy a departmental foreign language requirement by either completing two years in a single foreign language, one year each of two different foreign languages, or one semester each of three different foreign languages.

Departmental Requirements

Candidates for all bachelor's degrees in music should consult the current Music Department *Student/Faculty Handbook* for information on any additional departmental requirements. Contact the music department for a copy of the handbook.

Master of Arts and Master of Music Degrees

The master of arts degree (Plan A) requires a written thesis and a minimum of 30 credits distributed as follows:

Major Interest Subjects	*Credits*
Required core: MUS 709, 730, 731-732	11
Thesis and related course work	10
Related studies or minor (two credits of an ensemble is required)	9
	30

The master of music degree in performance (Plan A) is available to students by audition. Recital performances must be auditioned before the department faculty.

Major Interest Subjects	*Credits*
Required core: MUS 709, 730, 731-732	11
Area of principal interest: Applied study and recital performances	10
Related studies or minor (two credits of an ensemble is required)	9
	30

The master of music (Plan B) requires a professional paper and is offered for candidates who are active music teachers.

Major Interest Subjects	*Credits*
Required core: MUS 709, 730, 731-732	11
Music education core: MUS 740, 741, and professional paper	9
Related studies or minor (two credits of an ensemble is required)	12
	32

Candidates for all master's degrees in music should consult the current Music Department *Student/Faculty Handbook* for information concerning auditions and placement, comprehensive, oral and piano proficiency examinations. Candidates must complete all requirements for the master's degree as published in the Graduate School section of this catalog.

PHILOSOPHY (PHIL)

Faculty: Achtenberg, Hoffman (Ch.), Kelly, Lucash, Nickles

The department offers courses leading to the degrees of bachelor of arts and master of arts.

Bachelor of Arts Degree

Philosophy as a field of concentration is designed for those students interested in acquiring a comprehensive understanding of the various areas of philosophy, either for their cultural enrichment or as a basis for advanced study and teaching of philosophy. It is an appropriate field of concentration for those planning to enter such fields as law or theology. The department also offers sequences of courses which may constitute secondary fields of concentration for students in most academic areas.

Major Interest Subject	*Credits*
PHIL 211, 213, and either PHIL 114 or 326 (required)	9
At least six credits in each of the following three groups with at least three credits at the 400 level in each group:	
Group A—History of Philosophy: PHIL 212, 314, 315, 316, 410, 411, 413, 414, 415	6
Group B—Metaphysics and Epistemology: PHIL 130, 224, 403, 404, 405, 406	6
Group C—Ethics and Value Theory: PHIL 125, 202, 203, 207, 323, 325, 401, 402, 407	6
Additional credits in philosophy	9
	36

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Philosophy accepts any minor approved by the College of Arts and Science.

Minor in Philosophy

Students majoring in another field may minor in philosophy by completing the following:

Minor Interest Subject	*Credits*
PHIL 211 and 213	6
At least six credits from Group A and three credits from Group B	
Group A—PHIL 314, 315, 316, 403, 404, 405, 406, 410, 411, 413, 414, 415	6
Group B—PHIL 323, 325, 401, 402, 407	3
Additional credits in philosophy	3
	18

Master of Arts Degree

The candidate for the master of arts degree must complete a minimum of 18 credits in 700-level philosophy courses. A total of 30 graduate credits is required for Plan A or thesis program. Six to nine of these credits must be taken outside the department in an area approved by the department. A total of 33 graduate credits is required for Plan B or non-thesis program. Nine to 12 of these credits must be taken outside the department in an area approved by the department. While not required, a reading knowledge in at least one foreign language is highly recommended, especially if the candidate wishes to pursue further graduate studies beyond the master's level.

Each candidate for the master of arts degree is required to pass a comprehensive written examination.

PHYSICS (PHYS)

Faculty: Altick, Bruch, Cathey, Kliwer, Marsh, Moore (Ch.), Salibi, Winkler

Cooperating DRI Faculty: Chai, Gertler, Hallett, Hoffer, Hudson, Neill, Pitter, Telford, Warburton

The department offers courses leading to the degrees of bachelor of science, master of science, and doctor of philosophy.

Bachelor of Science Program

The bachelor of science program provides a foundation in basic science that qualifies the recipient for technical positions in industry, government laboratories, or for graduate studies in physics, as well as a variety of related fields.

Major Interest Subject	*Credits*
PHYS 201, 202, 203, 204, 205, 206	12
PHYS 351, 352	6
PHYS 473-474 or 421 and either 422 or 426	6
Credits at the 300-level or above including a minimum of three laboratory credits	6
	30

Additional Required Courses (22 credits): CHEM 201, 202 (eight credits) recommended or CHEM 101, 102 (eight credits). MATH 215, 216, 310, 320 (14 credits). Either German or Russian is recommended to fulfill the foreign language requirement. A qualified student may participate in the physics honors program; details may be obtained from the Physics Department.

The above requirements are considered minimum. A student who wishes to enter the field of physics is advised to take both the PHYS 473-474 and the PHYS 421 and 422 or 426 sequences as well as PHYS 361-362, 363-364, 355, and 466.

Bachelor of Science Programs in Engineering Physics and Geophysics

A bachelor of science degree in engineering physics is offered by the College of Engineering (see Engineering Physics). This program is for the student who desires a strong emphasis on technical and applied courses. The bachelor of science in geophysics offered by the School of Mines also includes a good background in physics. Either of these degrees can be used as preparation for graduate work in physics.

Minor in Physics

Students majoring in another field may minor in physics by completing the following:

Minor Interest Subject	*Credits*
PHYS 201, 202, 203	9
(By petition to the department chair, PHYS 151-152 may be substituted for PHYS 201, 202)	
PHYS 351	3
Six credits in courses numbered 300 or above, including at least one credit of laboratory	6
	18

Advanced Degrees

Consult regulations of the Graduate School for general admission requirements. Requirements for admission to graduate standing in physics are:

1. A bachelor's degree from an institution offering an approved major in physics (as defined by the American Institute of Physics).
2. Completion of regular junior-senior courses in mechanics, optics, electricity and magnetism, heat and thermodynamics, and modern physics.
3. An average grade of B or better in all physics and mathematics courses, and an overall average of B or better in all undergraduate courses.

Applicants whose records indicate a deficiency in any of the requirements listed above may be admitted on a probationary basis and may be required to take certain undergraduate courses (which do not carry graduate credit). All new graduate

students are required to take a preliminary examination in general physics during the first year of graduate study. Graduate students who hold half-time assistantships are not permitted to enroll for more than 10 credits in graduate courses in any one semester. The general requirements of the Graduate School must be followed by each student in physics working for an advanced degree.

Master of Science Degrees

Master of science degrees are offered with majors in physics or atmospheric physics. The physics courses should include PHYS 701, 702, 711, 721-722, 790, and 712 when feasible. The atmospheric physics courses should include PHYS 701, 704, 740, 741, 742, 743, 749, and 790. Additional credits may be in a minor, usually mathematics. A student who needs laboratory experience is advised to register for experimental work. The program of courses is planned in consultation with a graduate adviser and is subject to approval by the student's advisory committee.

To be admitted to candidacy, the student must complete 10 graduate credits with a grade of B or better, and achieve a satisfactory score on the Graduate Record Examination. Subject to the approval of the committee, a student may elect a master's degree program with or without thesis. The requirements for the master of science degree with thesis include the completion of 30 semester credits, of which 6 credits must be in thesis research; the thesis should demonstrate the student's ability to carry out independent research. For the master's program without thesis, 32 credits are required, with no more than six credits in special problems courses. All M.S. candidates must pass a final oral examination administered by the student's advisory committee. The emphasis in the examination will be on the thesis when one is presented; otherwise, it will be on mastery of the graduate-level course work.

Doctor of Philosophy Degree

A Ph.D. program is offered with a major in physics. In addition, a specialization in atmospheric science is also offered. The purpose of the formal course work is twofold: to give the student a broad background in classical and modern physics, and to prepare for the research work which will form the subject of the dissertation.

Before becoming a candidate for the doctor of philosophy degree, a student ordinarily is expected to earn the master of science degree. The following courses or their equivalents must be satisfactorily completed for the doctor's degree in physics:

	Credits
PHYS 701—Mathematical Physics	3
PHYS 702—Classical Mechanics	3
PHYS 711-712—Electromagnetic Theory I and II	6
PHYS 721-722—Quantum Theory I and II	6
PHYS 732—Statistical Mechanics	3
PHYS 761—Theoretical Spectroscopy	3
PHYS 795—Comprehensive Examination	0
At least three credits of PHYS 790	3
Credits selected from other 700-level physics and/or mathematics courses	12
Credits of approved electives	9
	48

For the specialization in atmospheric science, PHYS 706, 740, 745, 748 may be substituted for 721, 722, 732, 761. If there is a substitution for 721-722, a modern physics competence equivalent to PHYS 421-422 is necessary. Before being accepted as a candidate, the student must pass a comprehensive examination on graduate-level material in physics.

POLITICAL SCIENCE (P SC)

Faculty: Crowley, Eubank, Fox, Ganzel, Haller, Hansot, Launius, Siegel (Ch.), Weinberg, Wilcox

The department offers courses leading to the degrees of bachelor of arts, master of arts, and master of public administration. The doctor of philosophy was placed on inactive status effective July 1, 1983.

Bachelor of Arts Degree

Major Interest Subject (30 credits)
P SC 103 and at least one additional course in each of the following five fields: (1) American government, (2) public administration and public policy, (3) political theory (must be 300/400 level), (4) comparative government, and (5) international relations.

Eighteen of the 30 credits must be in courses numbered above 300. Only six credits of internship courses may be used to fulfill the 30-credit major requirement.

Additional Required Courses. In addition to credits for the major, students must complete 18-21 credits in a minor. Political science accepts any minor approved by the College of Arts and Science.

History and social theory is an approved area of study for political science majors. See Interdisciplinary and Special Programs section for description.

Minor in Political Science

Students majoring in another field may minor in political science by completing one of the following:

Minor Interest Subject (General)	*Credits*
P SC 103	3
Three courses from the following: 104, 210, 211, 231 and 341	9
plus three additional upper-division courses	9
	21

Minor Interest Subject (Foreign Affairs)	
P SC 103, 211, 231	9
plus four upper-division courses in the areas of comparative politics (410-418, 438, 444) and of international relations (336, 410, 430-439) including at least one course from each area	12
	21

Minor Interest Subject (Public Administration)	
P SC 103, 210, 341, 441, 442	15
plus two additional courses selected from the following: 443, 444, 445, 446 and 450	6
	21

Minor Interest Subject (American Government)	
P SC 103, 304, 305, 309	12
plus three additional courses selected from the following: 208, 400, 404, 406, 407, 409, 451 and 452	9
	21

Minor Interest Subject (Public Policy)	
P SC 103, 210	6
plus five of the following courses: 205, 354, 400, 406, 421, 453, 456, 457 and 458	15
	21

Congressional Intern Program

A program in which the student spends one semester in a senator's office in Washington, D.C. For details and application forms, contact the chair of the Political Science Department.

Master of Arts Degree

The Department of Political Science offers a graduate program leading to the degree of master of arts. Further details may be obtained from the office of the dean of the Graduate School or from the chair of the department.

Master of Public Administration and Policy Degree

An interdisciplinary master of public administration and policy degree is offered through the Department of Political Science. The program is designed to prepare young people for specific careers in public service and to increase the administrative and policy analysis skills of persons presently employed in government service. The program involves three areas of study: public administration, public policy, and a third area which may be another academic discipline or an interdisciplinary grouping of courses. For more detailed information contact the M.P.A. adviser in the Department of Political Science.

The department also participates in the interdisciplinary master of science degree with a major in land use planning policy in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

Certificate in Public Administration

This program provides a course of study for employees and officers of federal, state, and local governmental agencies in Nevada. The program is designed to provide an understanding of the fundamentals of public administration and an opportunity to study in detail some of the problems and techniques of public administration. In some cases the course of study supplements inservice training programs. In other cases an individual program can be developed to fit particular needs. The certificate in public administration requires a minimum of 40 credits of specified course work.

College courses already taken at the university or elsewhere may be applied toward the certificate, but a minimum of 20 credits must be earned at UNR, 15 of which are earned after acceptance in the certificate program. To qualify for the certificate, a person must have been employed by some governmental agency for a period of at least six months *or* have participated for a period of six months in a governmental internship or trainee program.

For further information contact the chair of the Department of Political Science.

Value of Quantitative Skills

Students who intend to do graduate study as well as those who wish to pursue careers in law, business, or public service, will find training in quantitative analytical skills extremely helpful in the pursuit of their career goals. The Political Science Department offers an elective course, Research in Political Science (P SC 481), designed to help students develop their quantitative skills. Students are also encouraged to take courses in social science research methods, statistics and computer science. Graduate students pursuing master of arts and master of public administration degrees with a major in political science are required to take Research in Political Science (P SC 681), and Advanced Research Methods in Political Science (P SC 782).

International Affairs Major

For information, see the Interdisciplinary and Special Programs section of this catalog or contact the Department of Political Science.

PSYCHOLOGY (PSY)

Faculty: Davis, B. Gardner, R. Gardner, Ginsburg (Ch.), Harrington, Hayes, Mikawa, Peterson, Solso, Varble, Wallace

The department offers courses leading to the degrees of bachelor of arts, master of arts, and doctor of philosophy.

Bachelor of Arts Program

The general psychology major includes training in all the major areas of psychology; social psychology is a broader major that also includes areas in sociology and anthropology.

General Psychology

Major Interest Subject	*Credits*
PSY 101, 210, 301, 408	14
Additional credits in psychology	18
	32

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Psychology accepts any minor approved by the College of Arts and Science.

Social Psychology

Major Interest Subject	*Credits*
ANTH 101	3
PSY 101, 210, 261, 362, 392	16
SOC 101	3
Additional credits in psychology	12
	34

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Social psychology accepts any minor approved by the College of Arts and Science.

Minor in Psychology

Students majoring in another field may minor in psychology by completing the following:

Minor Interest Subject

For a minor in psychology, the department recommends a total of 24 credits in psychology courses. However, an acceptable minor may be completed by taking a minimum of 18 credits, nine of which must be upper-division credits in psychology that must include the following:

1. PSY 101 (3 credits).
2. At least three of the following courses: 210, 233, 261, 301, 403, 405, 408, 421, 431, 435, 441, 480 or 481.

Electives from additional course offerings in psychology (which may also include additional courses from #2 above).

Advanced Degrees: Master of Arts Program

The master of arts degree program in general psychology attempts to give the student a broad knowledge of the field.

Doctor of Philosophy Program in General Psychology

The student in this program must meet all the requirements for admission to the Graduate School and the general requirements for obtaining a doctoral degree at the university. Also required is one full year in teaching or research which may be satisfied by spending a suitable fraction of time in teaching or research concurrently with graduate study.

Students in this program may elect a concentration in either experimental psychology or clinical psychology. Details may be obtained by writing to the Department of Psychology.

Doctor of Philosophy Program in Social Psychology

This is an interdisciplinary program offered jointly by the departments of psychology and sociology leading to a doctor of philosophy degree with a major in social psychology.

The student in this program must meet all the requirements for admission to Graduate School and the general requirements for obtaining a doctoral degree at the university. Also required is one full year in teaching or research which may be satisfied by spending a suitable fraction of time in teaching or research concurrently with graduate study.

Admission Information

To be accepted as a graduate student requires the earning of the bachelor's degree from an accredited college or university. To be accepted in full standing, a minimum of 18 credits of undergraduate work in psychology is required. The student must also meet the following requirements:

1. Credit in a laboratory course in experimental psychology and a course in statistics. In addition, students in a program emphasizing clinical psychology must have a course in abnormal psychology and a course in theories of personality.
2. A GPA of 3.0 for the four years of undergraduate work.
3. Recommendations from former instructors to the effect that the student is capable of doing graduate work at an acceptable level of performance.

In some instances in which a student is deficient in the above requirements, it is feasible to make up such deficiencies before entering the degree program. The department advises students with deficiencies whether they are likely to be considered as graduate students in full standing after such deficiencies have been made up.

The student interested in the social psychology program may substitute 18 credits of undergraduate work in sociology. The laboratory course in experimental psychology is not required for admission if the student's undergraduate work is in sociology, but it is highly desirable.

Preliminary Screening

Individuals wishing to attend as graduate students should write to the chair, Department of Psychology, at the earliest possible date stating the degree program desired and whether or not financial assistance is needed. Preliminary information forms are provided for completion and return with a transcript of all undergraduate work.

Applicants should make arrangements at the nearest college or university to take the Graduate Record Examination (Aptitude and Advanced) as soon as possible on one of several test dates each year. The scores are to be forwarded to the department for consideration.

Selected applicants are encouraged to make formal application for admission to the university (refer to section on Admission Information).

Financial Assistance

A variety of graduate assistantships, fellowships, and traineeships are available to well-qualified students. Stipends begin at $5,600 plus exemption from most of the tuition and registration fees. *If the student is applying for financial assistance, the application should be completed no later than February 1.* Normally the candidate receives notification by April 1 and has until April 15 to accept or reject the offer. In some instances, financial awards become available after this date and late applications are considered.

RECREATION, PHYSICAL EDUCATION AND DANCE (RPED)

Faculty: Bailey, Ballew, Cook, Fox, Laughter, Legarza, Loper (Ch.), Magney, Murray, Newell, Plummer, Rippee, Twardokens, Young

The department offers courses leading to the degrees of bachelor of science or bachelor of arts (student's option) with majors in physical education and recreation, and master of science with a major in physical education.

Baccalaureate Degree

Curricula in this area are designed to enable the student to meet the requirements for a field of concentration in physical education in the College of Arts and Science. Students are required to complete a field experience approved by the department which requires the development of teacher-leadership skills. This experience must be completed before the beginning of the junior year.

Students may qualify for teacher certification by meeting the requirements in Professional Foundations for Teaching as stated for the respective levels in the College of Education.

Major Interest Subject	*Credits*
Required: RPED 201, 372, 401, 403[1], 405, 406	18
RPED 216 through 232 (select eight credits)	8
RPED (11 credits selected by advisement), eight credits of 300-level or above and not included in above listed requirements	11
	37

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Recreation and physical education accepts any minor approved by the College of Arts and Science.

Physical Education with Emphasis in Dance

Major Interest Subject	*Credits*
RPED 100-122—(dance techniques)	6
RPED 201—Introduction to Recreation and Physical Education	3
RPED 219-222—(dance methods)	3
RPED 261—Choreography	2
RPED 262—Dance Production	2
RPED 360 or 361—Comparative Dance Styles I and II	2
RPED 372—Methods of Teaching Physical Education	3
RPED 403, 405, 406, 407—(movement sciences) (choose two courses)	6
RPED 460—History and Development of Dance	2
RPED 461—Workshop in Modern Dance	2
RPED, MUS 101, SPTH 118 or 119 (five credits selected by advisement)	5
	36

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Recreation and physical education accepts any minor approved by the College of Arts and Science.

Recreation (Municipal Recreation Option)

Major Interest Subject	*Credits*
RPED 216-232	3
RPED 201, 240, 270, 302, 341, 342, 421, 440	20
RPED 351 or 352	3
RPED 340 or 373	2
RPED 492	8-10
	36-38

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Recreation and physical education accepts any minor approved by the College of Arts and Science.

[1]BIOL 262 or 263 must be successfully completed prior to enrollment in RPED 403.

Minor in Dance

Students majoring in another field may minor in dance by completing the following:

Minor Interest Subject	*Credits*
RPED 110-122—(dance techniques)	5
RPED 219-222—(dance methods)	3
RPED 261, 461—(choreography, workshop)	4
RPED 262—Dance Production	3
RPED 360 or 361—Comparative Dance Styles I and II	3
RPED 403, 405, 406, 407—(movement sciences) (choose one)	3
RPED 460—History and Development of Dance	2
	23

Minor in Recreation and Physical Education

Students majoring in another field may minor in recreation and physical education by completing the following:

Minor Interest Subject	*Credits*
RPED 201, 403,[1] 405, 406	12
To be selected from 301 or 302	2 or 3
To be selected from 216 thru 232	3
Additional 1 to 3 credits by advisement	1-3
	18-21

Master of Science Degree

The Department of Recreation and Physical Education offers a graduate program leading to the degree of master of science. Further details may be obtained from the office of the dean of the Graduate School or from the chair of the department.

SOCIAL AND HEALTH RESOURCES (SHR)

Faculty: Dangott, Lamb, Larsen, Pillard, Reed (Ch.), Thornton

The department offers a bachelor of arts degree with majors in social work and health education and a bachelor of science degree with majors in predentistry, premedicine, and prephysical therapy. The department also administers a two-year program in prepharmacy.

Social Work Major

The social work program offers course and field work that prepares students for beginning level professional social work practice. The student is also prepared for admission to graduate school in such programs as social work, public health, counseling, corrections, law, or public administration. Through the unique combination of course work and field experience students learn the knowledge, theories, skills and professional values that enable them to become social workers in such programs as public assistance, child welfare, mental health, mental retardation, rehabilitation, delinquency, corrections, community development, and planning and administration.

The student is required to complete 36 credits in the department; 32 credits must be completed in required courses, the remaining four credits are elective and should be selected in consultation with the adviser. Four credits of general biology are required. In addition, the student must complete 18-21 credits in an approved minor.

The program is accredited by the Council on Social Work Education to award the social work major at the baccalaureate level.

Major Interest Subject	*Credits*
SHR 220—Introduction to Social and Health Services	4
SHR 234—Clinical Interviewing Skills	3
SHR 320—Individual in Society	3
SHR 330—Methods of the Social Services I	3
SHR 331—Methods of the Social Services II	3
SHR 390—Introduction to Social Work Research	3
SHR 450—Social Welfare Policy	3
SHR 480—Field Experience in Social Work	5
SHR 481—Field Experience in Social Work	5
General Requirements	
BIOL 101—General Biology; 102—General Biology Lab	4
	36
Plus four credits selected from electives in the department with adviser	4
	40

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Social and health resources accepts the following minors: anthropology, computer sciences, criminal justice, economics, English, environmental studies, ethnic studies, French, German, Spanish, geography, historic preservation, history, philosophy, political science, prelegal, psychology, recreation and physical education, religious studies, sociology, speech communication, women's studies.

Minor in Social Work

Students majoring in another field may minor in social work by completing the following:

Minor Interest Subject	*Credits*
SHR 220—Introduction to Social and Health Services	4
SHR 320—Individual in Society	3
SHR 450—Social Welfare Policy	3
Other 300-400 level courses offered by SHR department (excluding SHR 331, 480-481)	10
	20

Premedicine and Predentistry

The department offers course and field work that prepares the student for admission to health related graduate or professional schools such as medical school and dental school. The graduate is also prepared for advanced training in such fields as public health, health planning and administration, and community health education.

Students wishing to pursue a premedical or predental course of study should complete a bachelor of science degree. Occasionally, a student is accepted to professional school prior to completing baccalaureate degree requirements. Premedical or predental students who transfer to approved professional schools, and who wish to earn a baccalaureate degree from UNR, should consult the Registration and Records section of this catalog under Requirements for Graduation—Resident Credits Requirement. Additional information about this option and about admission requirements for schools of medicine and dentistry are available from the Office of Health Careers Advisement, Business Building, Room 523.

Required Courses	*Credits*
Social and Health Resources Core:	
SHR 220—Introduction to Social and Health Services	4
SHR 234—Clinical Interviewing Skills	3
SHR 340—Human Values and Professional Ethics	3
SHR 354—Personal Health and Life Styles	3
SHR 452—Advanced Studies in Health Systems and Policy	3
General Requirements	
Chemistry:	
CHEM 101—General Chemistry	4
CHEM 102—General Chemistry	4
CHEM 343—Organic Chemistry	3
CHEM 344—Organic Chemistry	3
CHEM 345—Organic Chemistry Lab	2
Behavioral Science:	
PSY 101—General Psychology	3
PSY 441—Abnormal Psychology	3

[1]BIOL 262 or 263 must be successfully completed prior to enrollment in RPED 403

Additional behavioral science course to be selected from a variety of courses in consultation with adviser	3
Biology:	
BIOL 101 – General Biology; 102 – General Biology Lab	4
Additional credits to be selected from the following (six credits must be upper-division): BIOL 201, 208, 251, 290, 364, 366, 385, 386, 468	11
Physics:	
PHYS 151 – General Physics	3
PHYS 152 – General Physics	3
PHYS 153 – General Physics Lab	1
PHYS 154 – General Physics Lab	1
Mathematics:	
MATH 213 – Calculus for Science I	3
	67

Prephysical Therapy

The prephysical therapy major is designed to meet the admissions requirements of accredited schools of physical therapy as recommended by the Council of Medical Education and the American Medical Association. It can also lead to a bachelor of science degree with a major in prephysical therapy at the University of Nevada-Reno.

To be certified as a physical therapist, the student must complete a professional or certification program from an accredited school of physical therapy. Currently, Nevada has no such program; however, Nevada does participate in the Western Interstate Commission for Higher Education (WICHE) program to place students in physical therapy schools in the Western states. Students can apply to accredited certification programs out of state at the beginning of their junior year. A few schools accept transfers at the end of the junior year.

For additional information on the prephysical program and the various options available to the student, contact the office of Health Career Advisement, Business Building, Room 523 or a department adviser.

Required Courses	*Credits*
Social and Health Resources Core:	
SHR 220 – Introduction to Social and Health Services	4
SHR 234 – Clinical Interviewing Skills	3
SHR 340 – Human Values and Professional Ethics	3
SHR 354 – Personal Health and Life Styles	3
SHR 452 – Advanced Studies in Health Systems and Policy	3
Mathematics:	
MATH 110 – College Algebra	3
Biology:	
BIOL 101 – General Biology	3
BIOL 102 – General Biology Lab	1
BIOL 201 – Animal Biology	3
BIOL 262 – Human Anatomy and Physiology I	3
BIOL 263 – Human Anatomy and Physiology II	3
Chemistry:	
CHEM 101 – General Chemistry	4
CHEM 102 – General Chemistry	4
CHEM 142 – Introductory Organic Chemistry	3
CHEM 143 – Introductory Organic Chemistry Lab	1
Recreation and Physical Education:	
RPED 403 – Kinesiology	3
RPED 406 – Physiology of Exercise	3
Physics:	
PHYS 151 – General Physics	3
PHYS 152 – General Physics	3
PHYS 153 – General Physics Lab	1
PHYS 154 – General Physics Lab	1
Behavioral Science:	
PSY 101 – General Psychology	3
PSY 441 – Abnormal Psychology	3

Additional electives such as statistics, human growth and development, and microbiology should be selected on the basis of the requirements of the specific physical therapy schools to which the student plans to apply.

Health Education

The health education major prepares individuals to plan, implement and evaluate health education programs designed to improve the health of the community. Courses in the natural sciences, social and behavioral sciences and supervised field work enable the graduate to explain and interpret the latest knowledge and developments in the health field. This strong liberal arts degree program also prepares the student to pursue graduate studies.

Major Interest Subject	*Credits*
SHR 220 – Introduction to Social and Health Services	4
SHR 234 – Clinical Interviewing	3
SHR 325 – Foundations of Health Education	3
SHR 340 – Human Values and Professional Ethics	3
SHR 354 – Personal Health and Lifestyle	3
SHR 390 – Introduction to Social Work Research	3
SHR 462 – Epidemiology	3
SHR 470 – Seminar in Health Education	3
SHR 489 – Field Work in Health Education	3
	28

General Requirements	
BIOL 262, 263 – Human Anatomy and Physiology	6
Plus 6 credits from electives in the department with adviser's approval	6

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Health education accepts amy minor approved by the College of Arts and Science.

For further information concerning the health education major, contact the Social and Health Resources Department, Business Building, Room 525.

Prepharmacy

Prepharmacy program is a two-year program which satisfies the preprofessional requirements of most pharmacy schools and prepares the student to transfer to one of these schools and be accepted with advanced standing in his professional program.

Students should consult with the Office of Health Career Advisement regarding specific admission requirements of the schools to which they wish to apply.

Recommended Courses

First Year
First Semester

	Credits
CHEM 101 – General Chemistry	4
ENGL 101 – Composition I	3
BIOL 101 – General Biology; 102 – General Biology Lab	4
MATH 115 – Algebra and Trigonometry	4
	15

Second Semester

	Credits
CHEM 102 – General Chemistry	4
ENGL 102 – Composition II	3
BIOL 202 – Plant Biology (or BIOL 232 – Survey of the Plant Kingdom, three credits)	2-3
MATH 213 – Elements of Calculus	3
EC 102 – Principles of Microeconomics	3
	15-16

Second Year
First Semester

	Credits
CHEM 343 – Organic Chemistry	3
CHEM 345 – Organic Chemistry Lab	2
PHYS 151 – General Physics	3
PHYS 153 – General Physics Lab	1
BIOL 262 – Human Anatomy and Physiology I	3
Electives (B CH 301 – General Pharmacology, recommended. Also psychology, sociology, humanities, etc.)	5
	17

Second Semester

	Credits
CHEM 344 – Organic Chemistry	3
CHEM 345 – Organic Chemistry Lab	2

PHYS 152—General Physics	3
PHYS 154—General Physics Lab	1
BIOL 251—Microbiology	4
Electives	4
	17

Students interested in preparing for a professional career in pharmacy should contact the office of Health Careers Advisement, Business Building, Room 523 or an adviser in the department.

SOCIOLOGY (SOC)

Faculty: Backman (Ch.), Berberoglu, Harvey, Richardson, Warner

Bachelor of Arts Degree

Major Interest Subject	*Credits*
SOC 101 (three credits); 210 (four credits); 392, and 491 or 207; and one of 342, 371, 373, 391, 393; and one of 333, 376, 463, 480, 485	19
Additional courses in sociology	12
	31

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Sociology accepts any minor approved by the College of Arts and Science.

History and social theory is an approved area of study for sociology majors. See Interdisciplinary and Special Programs section for description.

Social Psychology

Major Interest Subject	*Credits*
SOC 101 (three credits), 210 (four credits), 261, 362, 392 (three credits each)	16
PSY 101	3
ANTH 101	3
Additional credits in sociology	12
	34

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Social psychology accepts any minor approved by the College of Arts and Science.

Minor in Sociology

Students majoring in another field may minor in sociology by completing one of the following:

Minor Interest Subject (General)	*Credits*
Required: SOC 101 and 207	6
Two courses from the following: SOC 342, 371, 373, 391, 393	6
Two courses from the following: SOC 333, 376, 480, 485	6
	18
Minor Interest Subject (Applied)	
Required: SOC 101 and 379	6
A choice of SOC 102 or 202; one course from SOC 352, 366, 464; SOC 275 or 480; SOC 376 or 342	12
	18

Master of Arts Program

Master of arts degrees may be taken with emphasis in sociology or social psychology. The program in social psychology is interdisciplinary, with the student taking work in psychology as well as sociology.

An M.A. degree is granted when the student (1) satisfactorily completes 30 semester credits in graduate-level courses, including SOC 601-602—Advanced General Sociology (6 credits), SOC 706-707—Intermediate Statistics (6 credits), and two of the following: SOC 627—Computer Applications in the Social Sciences (3 credits), SOC 718—Research Methods in Social Psychology (3 credits), SOC 737—Survey Research Methods (3 credits), or SOC 738—Methods and Innovations in Assessments (3 credits); (2) earns a minimum of 21 graduate credits while in residence; (3) passes a comprehensive examination; and (4) produces a thesis under the supervision of three faculty members and passes an oral examination given by the department faculty.

An alternative method of earning an M.A. degree is the nonthesis approach. This method includes items (1) through (3) above, in addition to the completion of a professional paper under the supervision of three faculty members and the passing of an oral examination given by the graduate advisory committee (with the total of 32 semester credits required).

Doctor of Philosophy Program in Social Psychology

The Department of Sociology, in cooperation with the Department of Psychology, offers a graduate program leading to the Ph.D. degree in social psychology.

This is an interdisciplinary program which is administered by a social psychology committee. The student may register and receive credits in either the sociology or psychology department, although work is done in both. Students who complete this program receive a Ph.D. degree with a major in social psychology.

The student in this program must meet all the requirements for admission to graduate school and the general requirements for obtaining a doctorate degree at the university. Also required is one full year in teaching or research which may be satisfied by spending a suitable fraction of time in teaching or research concurrently with graduate study.

For additional information, contact the director of the Interdisciplinary Social Psychology Doctorate Program.

Financial Assistance

A variety of graduate assistantships, fellowships, tuition waivers, and other forms of aid are available to well-qualified students. The stipend for these range up to $3,000 plus tuition and registration fee exemptions. *If the student is applying for financial assistance, the application should be completed prior to February 1.* Normally the candidate receives notification by April 1 and has until April 15 to accept or reject the offer. In some instances financial awards become available after this date, and late applications are considered.

SPEECH COMMUNICATION AND THEATRE (SPCM, THTR)

Faculty: Ballard-Reisch, Bernardi, Dillard, Hoffman, Owen, Page, Seibert (Ch.), Thornton, Vogel, Walters, Zimmerman
Adjunct Faculty: Stumpf

The department offers the bachelor of arts degree with a major in speech communication or in theatre and the bachelor of fine arts with a major in theatre. A master of arts degree is offered in speech communication. The master of arts degree in theatre was placed on inactive status effective July 1, 1983.

Bachelor of Arts Degree

Speech Communication Major

	Credits
Required: SPCM 113, 210, 212	9
Electives (A minimum of 18 credits must be taken at the 300-400 level)	24
	33

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Speech communicatinn and theatre accepts any minor approved by the College of Arts and Science.

Theatre Major

	Credits
Required: THTR 100,[1] 118, 119, and 221	12
To be selected from THTR 203, 403	9
To be selected from THTR 471, 472, 473, 474	6
To be selected from other theatre courses	6
	33

Additional Required Courses: In addition to credits for the major, students must complete 18-21 credits in a minor. Speech communication and theatre accepts any minor approved by the College of Arts and Science.

Minors in Speech Communication and Theatre

Students majoring in another field may minor in speech communication or theatre by completing one of the following:

Speech Communication Minor	Credits
SPCM 210	3
To be selected from 113, 213, 217, 319, 329, 480, 490	6
To be selected from 212, 315, 410, 411, 412, 427, 428, 433, 434, 435	9
A minimum of nine credits must be taken at the 300-400 level	
	18

Theatre Minor	
THTR 100, 118, 119	9
To be selected from: All upper-division courses in theatre	9
	18

(After completion of the three required courses, the student may select an area of specialization: history of the theatre, acting, technical theatre, etc.)

Bachelor of Fine Arts Program

Theatre

Requirements for the BFA include:

(a) Acceptance to the major is determined by application to the theatre faculty after completion of 60 credits.

(b) Candidates must have a 3.0 GPA or higher in theatre courses for acceptance to the major or continuation in the program.

(c) Candidates must have completed THTR 100, 118, 119, 221 and 9 credits of 203, 403 prior to application.

(d) Candidates are subject to continuing review by theatre faculty and may be returned to the BA program if they fail to maintain 3.0 GPA in theatre courses or to demonstrate requisite aptitude for professional training.

Departmental Core	Credits
Required: THTR 100, 118, 119 and 221	12
To be selected from THTR 203, 403	9
To be selected from THTR 471, 472, 473, 474	6
	27

In addition to the above requirements, the BFA candidate must specialize in one of two options:

Performance Option	Credits
To be selected from THTR 121, 250-251, 350-351	15
To be selected from THTR 203, 403	12
To be selected from THTR 260, 321, 360, 370, 421, 431-432, 450, 454-455	12
	39

Design/Technology Option	Credits
To be selected from THTR 203, 219-220, 230, 240, 330, 339, 340, 349, 360, 370, 403, 409, 419, 431-432, 440	36
Required: THTR 495	3
	39
TOTAL	66

The bachelor of fine arts degree with a theatre major does not require a minor or satisfaction of a foreign language.

Master of Arts Degree

The department offers a graduate program leading to the M.A. degree with a major in speech communication. Two plans are available: A with a thesis, or B without a thesis.

Internships in such areas as advertising, biomedical communication, conference management, organizational administration, and negotiation may be included as part of the candidate's program.

Requirements for admission to graduate standing in the speech communication major include:

1. An undergraduate GPA of 3.0 (B average, or higher);
2. A 900 (or higher) composite score on verbal and quantitative sections of Graduate Record Examination;
3. At least 18 undergraduate credits in speech communication with grades of B or better (graduate faculty may approve nine upper-division credits in speech communication and nine upper-division credits in a related field, all 18 credits B or better).

Applicants must take the Graduate Record Examination (GRE) before applying for admission to graduate-level courses as a "Graduate Special" while awaiting admission to regular standing; up to nine credits of graduate special courses may apply toward the M.A. degree.

Graduate teaching fellowships are available to qualified applicants. Stipends begin at approximately $6,500 per year. Applications for graduate fellowships should be received by the director of graduate programs in speech communication by March 1. Applicants must be approved for admission to graduate standing in speech communication to be eligible for a teaching fellowship.

See the Graduate School section for general master of arts degree requirements. For additional information, contact the director of graduate programs in speech communication.

[1]THTR 100 should be taken prior to or concurrently with all other theatre courses.

College of Business Administration

Henry N. Amato, *Dean*

Departments of Instruction: accounting and computer information systems, economics, and managerial sciences.

Accreditation

The baccalaureate and the master of business administration programs of the College of Business Administration are fully accredited by the American Assembly of Collegiate Schools of Business.

Objectives

The College of Business Administration strives to maintain a proper balance between general education and professional preparation for careers in the business world, in government, for research, and for teaching.

The Bureau of Business and Economic Research is the official research unit of the college. It focuses on providing opportunities for faculty and students to engage in research studies of business and economic issues of special concern to Nevada.

The Center for Economic Education carries on research, consulting services, and other programs related to the teaching of economics from preschool through adult levels.

The Nevada Small Business Development Center is a cooperative program of the U.S. Small Business Administration and the college. The purpose is to provide professional management assistance to existing and new small businesses throughout the state. There are currently four statewide offices.

Programs

The College of Business Administration offers the following programs:

Baccalaureate Degrees: (a) bachelor of science in business administration with majors in accounting, computer information systems, economics, finance, management, and marketing; (b) bachelor of arts with a major in economics.

Master's Degrees: (a) master of business administration; (b) master of science with a major in economics, and (c) master of arts in economics.

Premajor Admission

New undergraduate applicants to the College of Business Administration are admitted to premajor status rather than to a specific major. Premajor students may not enroll in College of Business Administration courses numbered 300 or above.

Sample Schedule for Premajor Students

Freshman Year

First Semester	*Credits*
EC 101 or 102	3
ENGL 101	3
GEOG 103	3
HIST 111 or P SC 103	3
PSY 101	3
Elective—nonbusiness	1
	16

Second Semester	*Credits*
EC 101 or 102	3
ENGL 102	3
MATH 115	4
PHIL 100 or 110 or 114 or 125	3
SOC 101	3
	16

Sophomore Year

First Semester	*Credits*
ACC 201	3
EC 261	3
MATH 211	3
Literature—3 credits in literature	3
Elective—nonbusiness	4
	16

Second Semester	*Credits*
ACC 202	3
EC 262	3
CIS 250	3
HIST 105 or 106	3
Elective—nonbusiness	4
	16

Academic Standards

Students enrolled in the College of Business Administration either as premajor or accepted to a major must have their courses reviewed by a faculty adviser before registering. Students placed on college or university probation are not eligible to progress from premajor to a major program. A student may remain on probationary status in the College of Business Administration for a maximum of two consecutive semesters. After that period, the student must appear before the college's Academic Standards Committee before registering for any additional courses in the college.

Acceptance of Transfer Students Into Business Administration

An overall GPA of 2.5 or higher in bachelor's-level courses is required for a student to be approved for transfer, or be admitted, to a prebusiness or major program in the College of Business Administration. This requirement does not apply to new freshmen applicants.

Requirements for Acceptance to a Major

1. Completion of 60 credits or more with an overall GPA of 2.5 or higher.

2. Completion of the lower-division business core with an overall GPA of 2.5 or higher. The following courses presently constitute the lower-division core: ACC 201, 202; CIS 250; EC 101, 102, 261, 262; MATH 211.

These requirements are minimum standards which all students are encouraged to surpass. Success in a major program is dependent upon a student possessing strong quantitative and English usage skills.

Application

Students must formally apply to the office of the associate dean for acceptance to a major program. The fall acceptance deadline is April 1. The spring acceptance deadline is November 1. Forms are available in the office of the associate dean.

Program of Study

Upon acceptance to a major program in the College of Business Administration, the student is assigned a department adviser. The student, in consultation with the adviser, must complete a major program of study form for approval prior to the end of the *first semester.*

Requirements for Graduation in a Major

1. Complete 128 credits or more with an overall GPA of 2.0 or higher.
2. Complete lower-division business core with a GPA of 2.5 or higher to be accepted to a major.
3. Complete all College of Business Administration courses with a GPA of 2.3 or higher.
4. Complete all courses in the major field with a GPA of 2.5 or higher.

Baccalaureate Degree Requirements

Bachelor of Arts (See Economics)

Bachelor of Science in Business Administration

Basic Curriculum for All Majors

Upon completion of any one of the following four-year curricula with satisfactory grades and upon the recommendation of the faculty and the dean, the bachelor of science in business administration is granted. An economics major may elect a program leading to the bachelor of arts degree.

A student may elect to graduate under the degree requirements of the year of admission and registration, the year of acceptance to the major in which the student is graduating, the year of reentry to the university if not enrolled for a period of five years or more or the year of graduation. In the case of reentry after five years, a student may use the requirements of the years of reentry or graduation only. Students transferring into business administration may elect only the year of transfer, acceptance to a major, or graduation. Adjustments of the individual curricula to fit the needs of individual students may be made with the consent of the adviser and the dean of the college. No changes are considered that bring the curriculum into conflict with any of the following requirements which must be met by every student:

1. The requirements of the university for admission to regular standing and residence credit as well as general university graduation requirements.
2. A minimum of 128 credits is required for graduation.
3. Of the total 128 credits presented for graduation, each student must successfully complete:

a) A minimum of 40 credits in courses numbered 300 or above.

b) A minimum of 51 credits in nonbusiness (of which 48 must be academic credits) which include the following:

Nonbusiness Requirements

	Credits
ENGL 101, 102, 321	9
GEOG 103	3
HIST 111 or P SC 103	3
HIST 105 or 106	3
Literature—3 credits in literature	3
MATH 115, 211	7
PHIL 100 or 110 or 114 or 125	3
PSY 101	3
SOC 101	3
SPCM 213 or 217 or 329	3
Elective—nonbusiness	11

Limitations

1. MATH 101, Intermediate Algebra, three credits, is excluded from the 128 credits required for graduation.
2. A maximum of four 100- and 200-level credits in recreation, physical education, dance, and military science courses may be applied toward the 128 credits required for a bachelor's degree.

c) A minimum of 51 credits in business and economics subjects which include the following courses:

	Credits
ACC 201—Introductory Accounting I and ACC 202—Introductory Accounting II	6
EC 101-102—Principles of Macroeconomics and Microeconomics	6
EC 261-262—Principles of Statistics I and II	6
CIS 250—Introduction to Business Information Systems	3
EC 300 (or above)—theory course[1]	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
MGRS 325—Legal Environment or MGRS 373 and 374—Business Law I and II[1]	3-6
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
MGRS 488—Policy Formulation and Administration	3
International Business[1]	3
Must be selected from the following:	
ACC 420—International Accounting	
EC 301—Comparative Economic Systems	
EC 367—Comparative Labor Movements	
EC 458—International Economics	
EC 459—Economic Development	
EC 410—Multinational Corporations. (Course content varies and does not always satisfy the international business requirement. Check with Economics Department for details.)	
MGRS 420—International Finance	
MGRS 452—Comparative Management	
MGRS 470—International Marketing	
Other College of Business Administration courses to an overall total of	51

d) Completion of course requirements for the selected major.

Upper-Division Courses

Courses numbered 300 or above in business are open only to:

1) business students who have been accepted to a major;
2) nonbusiness majors with the approval of the instructor, department chair and dean.

Satisfactory/Unsatisfactory Courses

Students in the College of Business Administration may apply a maximum of 15 S/U credits, including CLEP, (physical education and military science excluded) toward the baccalaureate degree. Premajor or major students may not register for courses in business administration or MATH 211, 213 or 215 on an S/U basis, except for thesis or internship.

[1]Managerial sciences department majors check department section for specific course requirements.

ACCOUNTING AND COMPUTER INFORMATION SYSTEMS (ACC, CIS)

Faculty: Blatz (Ch.), Burch, Evans, Fuller, Karbens, Mills, Moscove, Neidert, Newman, Petroni, Simkin, Strefeler.

The department offers the majors of accounting and computer information systems. A student may also take an option that includes both accounting and computer information systems. These majors are outlined in detail below. Upon choosing a major, the student must meet course requirements established by the department, the college, and the university.

Accounting and Computer Information Systems

Accounting, by its nature, operates within a broad socio-economic environment. Therefore, great emphasis is placed upon conceptual knowledge; that is, the student must not only know, but understand.

The accounting major is provided with the theories and procedures which prepare the student for the many facets of the accounting profession, such as public, industrial, managerial, tax, and governmental accounting.

The computer information systems major is offered for those who wish to specialize in business-oriented electronic data processing. The curriculum provides a broad overview of computer-based information systems, with special emphasis on business applications and managerial control.

The programs of study for the accounting major, the accounting and computer information systems option, or the computer information systems major are:

(ACC, CIS and ACC/CIS)
Freshman Year

	Credits
EC 101-102—Principles of Macroeconomics and Microeconomics	6
ENGL 101-102—Composition I and II[1]	6
GEOG 103—Geography of Man's Environment	3
HIST 111 or P SC 103—constitution requirement[2]	3
MATH 115—Algebra and Trigonometry	4
PHIL 100 or 110 or 114 or 125	3
PSY 101—Introductory Psychology	3
SOC 101—Principles of Sociology	3
Elective—nonbusiness	2
	33

Accounting Major

Sophomore Year

	Credits
ACC 201-202—Introductory Accounting I and II	6
CIS 250—Introduction to Business Information Systems	3
CIS 261—Microcomputers in Business	3
EC 261-262—Principles of Statistics I and II	6
HIST 105 or 106	3
Literature—3 credits in literature	3
MATH 211—Elements of Calculus I	3
Elective—nonbusiness	6
	33

Junior Year

	Credits
ACC 303-304—Intermediate Accounting I and II	6
ACC 309—Management Accounting I	3
ACC 313—Federal Taxation I	3
Accounting elective—ACC 307 or 310 or 314 or 490	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
ENGL 321—Expository Writing	3
SPCM 213 or 217 or 329	3
Elective—nonbusiness	3
	30

Senior Year

	Credits
ACC 405—Advanced Accounting	3
ACC 411—Auditing I	3
ACC 480—Accounting Systems and Automation	3
Accounting elective—ACC 307 or 310 or 314 or 424 or 470 or 490 or 493 or 494	3
Economic theory—300- or 400-level course	3
International business course—recommend ACC 420	3
MGRS 325—Legal Environment or MGRS 373-374—Business Law I and II	3
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
MGRS 488—Policy Formulation and Administration	3
Electives—business or nonbusiness. If MGRS 373 taken, student must complete MGRS 374	2
	32

Accounting majors who plan to take the CPA Examination upon graduation must take MGRS 373 and 374 in place of MGRS 325.

Computer Information Systems Major

Sophomore Year

	Credits
ACC 201-202—Introductory Accounting I and II	6
CIS 250—Introduction to Business Information Systems	3
CIS 251—Computer Applications Using COBOL	3
CIS 261—Microcomputers in Business	3
EC 261-262—Principles of Statistics I and II	6
HIST 105 or 106	3
Literature—3 credits in literature	3
MATH 211—Elements of Calculus I	3
Elective—nonbusiness	3
	33

Junior Year

	Credits
CIS 451—Advanced Computer Problems	3
Computer information systems elective—CIS 253 or 475 or 487 or 488 or 490 or 495 or ACC 424 or C S 333 or 386 or 437 or 485	3
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
MGRS 352—Operations Management	3
MGRS 365—Corporation Finance	3
ENGL 321—Expository Writing	3
SPCM 213 or 217 or 329	3
Elective—nonbusiness	3
Electives—business or nonbusiness	4
	31

Senior Year

	Credits
CIS 484—Systems Analysis and Design	3
CIS 485—Data Base Management and Operating Systems	3
Computer information systems electives—CIS 253 or 475 or 487 or 488 or 490 or 495 or ACC 424 or C S 333 or 386 or 437 or 485	6
Economic theory—300- or 400-level course	3
International business course	3
MGRS 325—Legal Environment	3
MGRS 488—Policy Formulation and Administration	3
Elective—nonbusiness	3
Electives—business or nonbusiness	4
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Accounting and Computer Information Systems Option

Sophomore Year

	Credits
ACC 201-202—Introductory Accounting I and II	6
CIS 250—Introduction to Business Information Systems	3
CIS 251—Computer Applications Using COBOL	3
CIS 261—Microcomputers in Business	3
EC 261-262—Principles of Statistics I and II	6
HIST 105 or 106	3
Literature—3 credits in literature	3
MATH 211—Elements of Calculus I	3
Elective—nonbusiness	3
	33

[1]University requirement. (ACT scores may also require a student to take ENGL 101 as a prerequisite for ENGL 102.)

[2]Both requirements may be satisfied by HIST 111 or P SC 103: U.S. Constitution requirements by P SC 409, HIST 101, 401, 402; Nevada Constitution by P SC 208, HIST 102, 217.

Junior Year

	Credits
ACC 303-304 – Intermediate Accounting I and II	6
ACC 309 – Management Accounting I	3
ACC 313 – Federal Taxation I	3
ACC 480 – Accounting Systems and Automation	3
CIS 485 – Data Base Management and Operating Systems	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpetsonal Behaviot	3
ENGL 321 – Expository Writing	3
SPCM 213 or 217 or 329	3
Elective – nonbusiness	3
	33

Senior Year

	Credits
ACC 405 – Advanced Accounting	3
ACC 411 – Auditing I	3
ACC 424 – Computer Based Auditing	3
Computer information systems electives – CIS 253 or 451 or 475 or 484 or 487 or 488 or 490 or 495 or C S 333 or 386 or 437 or 485	3
Economic theory – 300- or 400-level course	3
International business course	3
MGRS 325 – Legal Environment	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
MGRS 488 – Policy Formulation and Administration	3
Elective – nonbusiness	3
	33

Accounting/computer information systems majors who plan to take the CPA Examination upon graduation must take MGRS 373 and 374 in place of MGRS 325.

Minor in Accounting

	Credits
ACC 201 – Introduetory I	3
ACC 202 – Introductory II	3
CIS 261 – Microcomputers in Business	3
Plus upper-division courses in accounting except ACC 395, 396, 420, 491	9
	18

Computer Information Systems Minor

	Credits
CIS 251 – Computer Applications Using COBOL	3
CIS 261 – Microcomputers in Business	3
CIS 451 – Advanced Computer Problems	3
CIS 484 – Systems Analysis and Design	3
CIS 485 – Data Base Management and Operations	3
Plus an upper-division course in computer information systems	3
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ECONOMICS (EC)

Faculty: Atkinson, Cargill, Chu, Dobra, Eadington, Fanchon, Halliday, Larsen, Metts, Raffiee, Reed (Ch.), Wendel

The economics major is designed to prepare students for positions as economic and statistical analysts in business, government and nonprofit organizations, and for the teaching profession. In addition, it provides a strong foundation for graduate study and research in the fields of economics, business, public policy and law.

Two economics degree programs are offered. One leads to the bachelor of science in business administration and complies with all the requirements of the American Assembly of Collegiate Schools of Business, as administered through the College of Business. The other program leads to the bachelor of arts with a major in economics and follows the traditional liberal arts approach.

The department also offers a minor or related area program in economics (see Minor or Related Area).

Bachelor of Science in Business Administration

This program is intended for economics majors desiring a curriculum which includes a foundation in the functional areas of business administration. Candidates for this degree are not required to present credits in a foreign language.

Bachelor of Science in Business Administration
Economics

Freshman Year

	Credits
EC 101-102 – Principles of Macroeconomics and Microeconomics	6
ENGL 101-102 – Composition I and II[1]	6
GEOG 103 – Geography of Man's Environment	3
HIST 111 or P SC 103 – constitution requirement[2]	3
MATH 115 – Algebra and Trigonometry	4
PHIL 100 or 110 or 114 or 125	3
PSY 101 – Introductory Psychology	3
SOC 101 – Principles of Sociology	3
	31

Sophomore Year

	Credits
ACC 201-202 – Introductory Accounting I and II	6
CIS 250 – Introduction to Business Information Systems	3
EC 261-262 – Principles of Statistics I and II	6
HIST 105 or 106	3
Literature – 3 credits in literature	3
MATH 211 – Elements of Calculus I	3
Elective – nonbusiness	6
	30

Junior Year

	Credits
EC 303 – Money and Banking	3
EC 321 – Intetmediate Price Theory	3
EC 322 – Intetmediate Income Theory	3
ENGL 321 – Expository Writing	3
SPCM 213 or 217 or 329	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organizational and Interpersonal Behavior	3
MGRS 325 – Legal Environment	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
Elective – nonbusiness	3
	33

Senior Year

	Credits
Economic courses (300 or above)	12
International business[3]	3
MGRS 488 – Policy Formulation and Administration	3
Elective – nonbusiness	2
Electives – business and nonbusiness	14
	34

Bachelor of Arts

This program is intended for economics majors desiring a curriculum which emphasizes a foundation in the social sciences. Candidates for this degree are required to successfully complete a fourth semester college course in a foreign language or evidence of equivalent proficiency. They are also required to complete a minimum of 38 credits in economics courses.

[1]University requirement. (ACT scores may also require a student to take ENGL 101 as a prerequisite for ENGL 102.)

[2]Both requirements may be satisfied by HIST 111 or P SC 103; U.S. Constitution requirements by P SC 409, HIST 101, 401, 402; Nevada Constitution by P SC 208, HIST 102, 217.

[3]May not include upper-division courses needed to meet the 12 credit requirement in the senior year.

Freshman Year

	Credits
ENGL 102 – Composition II[1]	3
P SC 103 – Principles of American Constitutional Government[2]	3
Foreign language[3]	8
MATH 211 – Elements of Calculus I	3
EC 101-102 – Principles of Macroeconomics and Microeconomics	6
Social science	3
Elective	4
	30

Sophomore Year

	Credits
Foreign language[4]	6
Mathematics or natural science	3
PHIL 110 – Introduction to Philosophy	3
SOC 101 – Principles of Sociology	3
EC 261-262 – Principles of Statistics	6
CIS 250 – Introduction to Business Information Systems or C S 183 – Introduction to Computer Science	3
Elective	6
	30

Junior Year

	Credits
PSY 101 – General Psychology	3
EC 303 – Money and Banking	3
EC 321-322 – Intermediate Economic Theory	6
Social science	3
Natural science laboratory course	4
Humanities	3
Elective	12
	34

Senior Year

	Credits
Humanities	3
Economic history	3
EC 431 – Introduction to Mathematical Economics or EC 441 – Introduction to Econometrics	3
EC 481 – History of Economic Doctrines	3
Other economics courses (300 or above)	8
Elective	14
	34

Minor or Related Area

The minor or related area program in economics is designed for those who do not want to major in economics, but would like a background in economics to complement their own major programs.

EC 101-102 – Principles of Macroeconomics and Microeconomics	6
EC 321 – Intermediate Price Theory	3
EC 322 – Intermediate Income Theory	3
Other economics courses (300 or above)	6
	18

MANAGERIAL SCIENCES (MGRS)

Faculty: Ansari, Austin, Barnes, Blum, Boal, DeMaskey, Ghymn, Gillette, Grant (Adj.), Lund, Mitchell, Sandilya, Sekiguchi, Severance, Spraggins, Wachtel, Winne (Ch.)

The Managerial Sciences Department offers major fields of study in finance, management and marketing. The department also offers courses in business law.

The following program outline is suggested for freshmen and sophomores planning to major in finance, management, or marketing:

Freshman Year

	Credits
EC 101-102 – Principles of Macroeconomics and Microeconomics	6
ENGL 101-102 – Composition I and II[1]	6
GEOG 103 – Geography of Man's Environment	3
HIST 111 or P SC 103 – constitution requirement[2]	3
MATH 115 – Algebra and Trigonometry	4
PHIL 100 or 110 or 114 or 125	3
PSY 101 – Introductory Psychology	3
SOC 101 – Principles of Sociology	3
Elective – nonbusiness	1
	32

Sophomore Year

	Credits
ACC 201-202 – Introductory Accounting I and II	6
CIS 250 – Introduction to Business Information Systems	3
EC 261-262 – Principles of Statistics I and II	6
HIST 105 or 106	3
Literature – 3 credits in literature	3
MATH 211 – Elements of Calculus I	3
Elective – nonbusiness	8
	32

Finance Major

Students with career objectives in financial management, banking and other financial institutions, investments or insurance may choose to major in finance. Course requirements for the finance major include:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, finance majors must complete:

MGRS 373-374 – Business Law I and II	6
MGRS 420 – International Finance	3
EC 303 – Money and Banking	3

2. Nine credits required for all finance majors:

MGRS 370 – Investments	3
MGRS 404 – Problems in Business Finance	3
MGRS 462 – Business and Society	3

3. Twelve credits chosen from the following list. Course selection requires the written approval of the adviser and department chairman.

MGRS 353 – Risk and Insurance	3
MGRS 415 – Commercial Bank Management	3
MGRS 481 – Intercollegiate Business Games[4]	3
MGRS 482 – Internship[4]	2 to 3
MGRS 490 – Independent Study[4]	1 to 3
MGRS 493 – Advanced Seminar in Finance	3
B A 480 – Small Business Institute[4]	3
EC 403 – Monetary Institutions and Policy	3
EC 451 – Public Finance	3
ACC 309 – Management Accounting I	3

The following program outline is suggested for finance majors during their junior and senior years:

Junior Year

	Credits
EC 303 – Money and Banking	3
ENGL 321 – Expository Writing	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
MGRS 370 – Investments	3
MGRS 373-374 – Business Law I and II	6
SPCM 213 or 217 or 329	3
Elective – nonbusiness	2
	32

[1]University requirement. (ACT scores may also require a student to take ENGL 101 as a prerequisite for ENGL 102.)

[2]Both requirements may be satisfied by HIST 111 or P SC 103; U.S. Constitution requirement by P SC 409, HIST 101, 401, 402; Nevada Constitution by P SC 208, HIST 102, 217.

[3]Students may meet the foreign language requirement by completing course 204 or 209 in any language.

[4]A maximum of three credits may be applied to major requirements from these courses.

Senior Year

	Credits
Finance courses (with written approval)	12
MGRS 404 – Problems in Business Finance	3
MGRS 420 – International Finance	3
MGRS 462 – Business and Society	3
MGRS 488 – Policy Formulation and Administration	3
Electives – business and nonbusiness	8
	32

Management Major

Students with career objectives in general management, operations management, personnel and industrial relations, or public administration may choose a management major. Course requirements for the management major include:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, management majors must complete:

MGRS 452 – Comparative Management	3
EC 365 – Labor Economics	3

2. Twelve credits required for all management majors:

MGRS 362 – Production Management	3
MGRS 460 – Management Theory and Practice	3
MGRS 462 – Business and Society	3
MGRS 491 – Advanced Seminar in Management	3

3. Nine credits chosen from the following list. Course selection requires the written approval of the adviser and department chair.

B A 480 – Small Business Institute[1]	3
MGRS 367 – Personnel Administration	3
MGRS 453 – Organizational Change and Development	3
MGRS 461 – Advanced Operations Management	3
MGRS 471 – Marketing Research	3
MGRS 481 – Intercollegiate Business Games[1]	3
MGRS 482 – Internship[1]	2 to 3
MGRS 490 – Independent Study[1]	1 to 3
P SC 442 – Public Personnel Administration	3
PSY 362 – Social Psychology II: Group Structure and Process	3
PSY 480 – Motivation	3

The following course outline is suggested for management majors during their junior and senior years:

Junior Year

	Credits
EC 365 – Labor Economics	3
ENGL 321 – Expository Writing	3
MGRS 310 – Marketing Principles	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 325 – Legal Environment	3
MGRS 352 – Operations Management	3
MGRS 362 – Production Management	3
MGRS 365 – Corporation Finance	3
SPCM 213 or 217 or 329	3
Elective – nonbusiness	2
Electives – business and nonbusiness	3
	32

Senior Year

	Credits
MGRS 452 – Comparative Management	3
MGRS 460 – Management: Theory and Practice	3
MGRS 462 – Business and Society	3
MGRS 491 – Advanced Seminar in Management	3
MGRS 488 – Policy Formulation and Administration	3
Management courses (with written approval)	9
Electives – business or nonbusiness	8
	32

Marketing Major

Marketing embraces those economic activities directed toward and incident to the flow of goods from the producer to the consumer or user. The marketing major may be appropriate for students with career objectives in advertising management, consumer behavior, general marketing, international marketing, marketing research, quantitative marketing, and retailing and distribution. Course requirements for the marketing major include:

1. Satisfaction of the basic curriculum requirements for all business students. As part of those requirements, marketing majors must complete:

EC 321 – Intermediate Price Theory	3
MGRS 470 – International Marketing	3

2. Twelve credits required for all marketing majors:

MGRS 316 – Industrial Marketing OR	
MGRS 312 – Consumer Behavior	3
MGRS 462 – Business and Society	3
MGRS 471 – Marketing Research	3
MGRS 489 – Marketing Management	3

3. Nine credits chosen from the following list. Course selection requires the written approval of the adviser and department chair.

B A 480 – Small Business Institute[1]	3
JOUR 335 – Corporate Communications	3
MGRS 312 – Consumer Behavior OR	
MGRS 316 – Industrial Marketing	3
MGRS 314 – Marketing Structure and Channels	3
MGRS 422 – Promotional Management	3
MGRS 455 – Business Logistics	3
MGRS 481 – Intercollegiate Business Games[1]	3
MGRS 482 – Internship[1]	2 to 3
MGRS 490 – Independent Study[1]	1 to 3
MGRS 492 – Advanced Seminar in Marketing	3
PSY 362 – Social Psychology II: Group Structure and Process	3

The following course outline is suggested for marketing majors during their junior and senior years:

Junior Year

	Credits
EC 321 – Intermediate Price Theory	3
ENGL 321 – Expository Writing	3
MGRS 310 – Marketing Principles	3
MGRS 316 – Industrial Marketing	3
MGRS 323 – Organization and Interpersonal Behavior	3
MGRS 325 – Legal Environment	3
MGRS 352 – Operations Management	3
MGRS 365 – Corporation Finance	3
SPCM 213 or 217 or 329	3
Elective – nonbusiness	2
Electives – business and nonbusiness	3
	32

Senior Year

	Credits
Marketing courses (with written approval)	9
MGRS 462 – Business and Society	3
MGRS 470 – International Marketing	3
MGRS 471 – Marketing Research	3
MGRS 488 – Policy Formulation and Administration	3
MGRS 489 – Marketing Management	3
Electives – business or nonbusiness	8
	32

Undergraduate Minor in Business Administration

This minor program is for non-College of Business Administration students only who desire a background in general business to complement their own major program.

[1] A maximum of three credits may be applied to major requirements from these courses

	Credits
EC 101-102—Macroeconomics and Microeconomics	6
ACC 201-202—Introductory Accounting I and II	6
MGRS 310—Marketing Principles	3
MGRS 323—Organization and Interpersonal Behavior	3
MGRS 365—Corporation Finance	3
	21[1]

International Business Minor

The purpose of this minor program is to provide business students with a broad base background in international business. The minor in international business should be considered as a complement to a major program in the College of Business Administration. This minor program is open only to College of Business Administration students.

Program

	Credits
ACC 420—International Accounting	3
EC 458—International Economics	3
MGRS 420—International Finance	3
MGRS 452—Comparative Management	3
MGRS 470—International Marketing	3
Electives (refet to below)	3
	18

Electives

	Credits
EC 301—Comparative Economics Systems	3
EC 367—Comparative Labor Movements	3
EC 410—Seminar in Social Economics (Multinational Corporations)	3
EC 459—Future Development	3

Prelegal Education in the College of Business Administration

Information regarding the prelegal curricula is referred to in the College of Arts and Science section of this catalog. For those interested in obtaining an undergraduate degree in business in preparation for admission to a law school, information regarding prelegal advisement may be obtained from the chairman, Managerial Sciences Department, Room 311, Business Building.

Graduate Programs

Graduate Student Classifications

Graduate Special (GS)

Graduate special classification is for students who (1) do not wish to pursue a program leading to an advanced degree, (2) wish to pursue a program leading to an advanced degree but need to complete additional undergraduate course work or take an examination in order to meet the admission requirements for graduate standing, or (3) can demonstrate that they meet the requirements for admission to graduate standing but are unable to complete the application for admission prior to registration.

Admission to graduate special status requires filing official documents showing that the applicant has a baccalaureate degree from a fully accredited four-year college or university.

With graduate special classification a student may enroll for undergraduate credit in the College of Business Administration. *Advanced written approval of the director of graduate programs is required prior to registration for graduate special students to enroll in graduate-level courses in the college. Students who do not obtain proper approval are ineligible to enroll for graduate credit and will be cancelled.*

International students who are on a student visa are not eligible for admission to the graduate special classification.

Graduate special students may not enroll in 700-level MBA core courses.

Graduate Standing (MA)

Graduate standing classification is for those students who wish to pursue a program leading to an advanced degree. Admission to graduate standing permits a student to plan a degree program and to select an advisory/examining committee to oversee progress in the program (also see "Advisement").

Meeting the requirements for admission to graduate standing is a prerequisite for enrollment in 700-level MBA core courses.

Admission to graduate standing is the first of a series of progression requirements toward an advanced degree and does not constitute admission to candidacy for a higher degree.

In addition to meeting the requirements of the Graduate School, the following are the *minimum standards normally required for admission to graduate standing* in the College of Business Administration. (See the "Prescribed Program" section under Graduate School of this catalog for those students who do not meet the minimum requirements.)

For Master of Business Administration: A baccalaureate (or an advanced) degree from an accredited four-year institution with a satisfactory combination of undergraduate grade-point average and scores on the Graduate Management Admission Test (GMAT). The current admission formula is available from the office of the director of graduate programs. The GMAT must have been taken within the past five years and scores must be submitted prior to admission. The Graduate Record Examination (GRE) is not acceptable for admission to the MBA program.

For master's degree in economics:

1. A baccalaureate degree from an accredited institution with an overall GPA of at least 2.75 on a scale of 4.0.
2. Satisfactory scores on the GMAT or GRE Aptitude and Advanced Economics tests. Scores must be submitted prior to admission.
3. Previous completion of at least 18 semester credits of undergraduate course work in economics. Undergraduate prerequisites may be completed while enrolled at the university as a graduate special student (see "Graduate Special classification").

The GMAT and GRE tests are administered at many locations by the Educational Testing Service. Information and application forms may be obtained by writing directly to Educational Testing Service, Box 966, Princeton, NJ 08540.

Application Procedures

An applicant seeking admission to graduate standing in the College of Business Administration must submit to the Office of Admissions and Records (1) a completed Application for Admission form, obtainable from that office, (2) two official transcripts from each college or university where work has been completed or is in progress, (3) official scores on the GMAT (or GRE for economics degree applicants), and (4) the nonrefundable application fee.

[1]For non-College of Business Administration students declaring a minor in business administration, the lower-division prerequisites (EC 261, 262, CIS 250 and MATH 265) will be waived for MGRS 310, 323 and 365 only.

Application Period

An applicant for graduate standing is only admitted into the MBA program at the start of the fall semester, and at that time is expected to begin the fall/spring sequence of 700-level courses.

All admission applications and credentials must be received in the Office of Admissions and Records by July 1 (or January 2 for economics for spring semester admission) to be considered for the fall semester.

If the student is applying for financial assistance or a graduate assistantship, the application should be completed and returned no later than February 1.

Certain exceptions are granted to permit spring matriculation. Contact the office of the director of graduate programs in the College of Business Administration for details.

International Students

Applications from international students are evaluated on an individual basis.

The minimum TOEFL score required for admission to advanced degree programs in business administration is 550.

International applicants must satisfy the medical examination and financial responsibility requirements prior to admission.

Advisement

The MBA is a college-wide degree program. Student advisement is provided by the director of graduate programs in the office of the dean. The director counsels a student through the program if Plan B (non-thesis) is elected. For a Plan A (thesis) student, the director provides advisement at least the first half of the program and then assists with the formation of the student's advisory/examining (thesis) committee. Thereafter, the committee works closely with the student to fulfill the remainder of the program requirements.

The department of economics advises all students enrolled in the master of arts or master of science programs in economics.

Students are cautioned that many graduate courses in the college are offered only one semester per academic year and program conflicts may result if proper advisement is neglected.

It is the policy of the college that all graduate standing students must meet with the director of graduate programs prior to initial registration to develop their official written schedules of study. Students without an approved schedule of study may not continue in the program as this is essential for the students to be assured of completion of their curricula in a timely manner.

A student is permitted to alter the schedule of study during the program, but only after consultation with the office of the director..

Course Loads and Sequencing

Students must progress through the graduate programs in proper sequence. An economics student follows a program approved by the departmental adviser; the MBA student must complete courses in one tier before enrolling in more advanced courses in the upper tiers. Provision is made for transition semesters where a student may have only a partial credit load remaining in a particular tier and wishes to include one or more courses from the next. In such instances the student must consult with the proper adviser to ensure smooth progression through the program.

The director of graduate programs must approve course loads of greater than 12 credits in the MBA program.

Limitations on Transfer and S/U Courses and Courses Taken as Graduate Special

A maximum of nine appropriate graduate transfer credits may be accepted only from another business school fully accredited by the AACSB.

S/U graded courses are not acceptable for 600- or 700-level graduate credit in the MBA (except by examination in Tier I courses) or economics programs.

A maximum of nine graduate credits earned as a graduate special student may be used in satisfying requirements for any advanced degree.

Academic Standards and Probation

Graduate students in the College of Business Administration who do not maintain an overall GPA of at least 3.0 in all graduate courses are placed on probation. Those on probation are discouraged from further enrollment if they fail to raise their overall GPA to at least 3.0 by the end of the first probationary semester. Exceptions are made only at the discretion of the director of graduate programs and the graduate school dean and may then be for a single additional semester should circumstances warrant. Additional information on the graduate academic standards requirements is included in the Graduate School section of this catalog.

Continuous Matriculation

A graduate student who discontinues enrollment for more than one year may be required by the director of graduate programs to apply for readmission. Enrollment is defined as registration in one or more courses for credit relevant to the student's degree program. (See "approved leave" under "Academic Requirements" in the Graduate School section.) Enrollment commences upon registering for the first course for credit.

In addition, a student who discontinues enrollment for more than one year forfeits the option to graduate under the degree requirements in effect for those years prior to readmission and may only use the requirements of the year of reentry or graduation.

Degrees

The College of Business Administration offers the following advanced degrees:

1. Master of Business Administration (MBA)
2. Master of Science in Economics
3. Master of Arts in Economics

The college also offers minors in many of the primary fields within the business administration discipline.

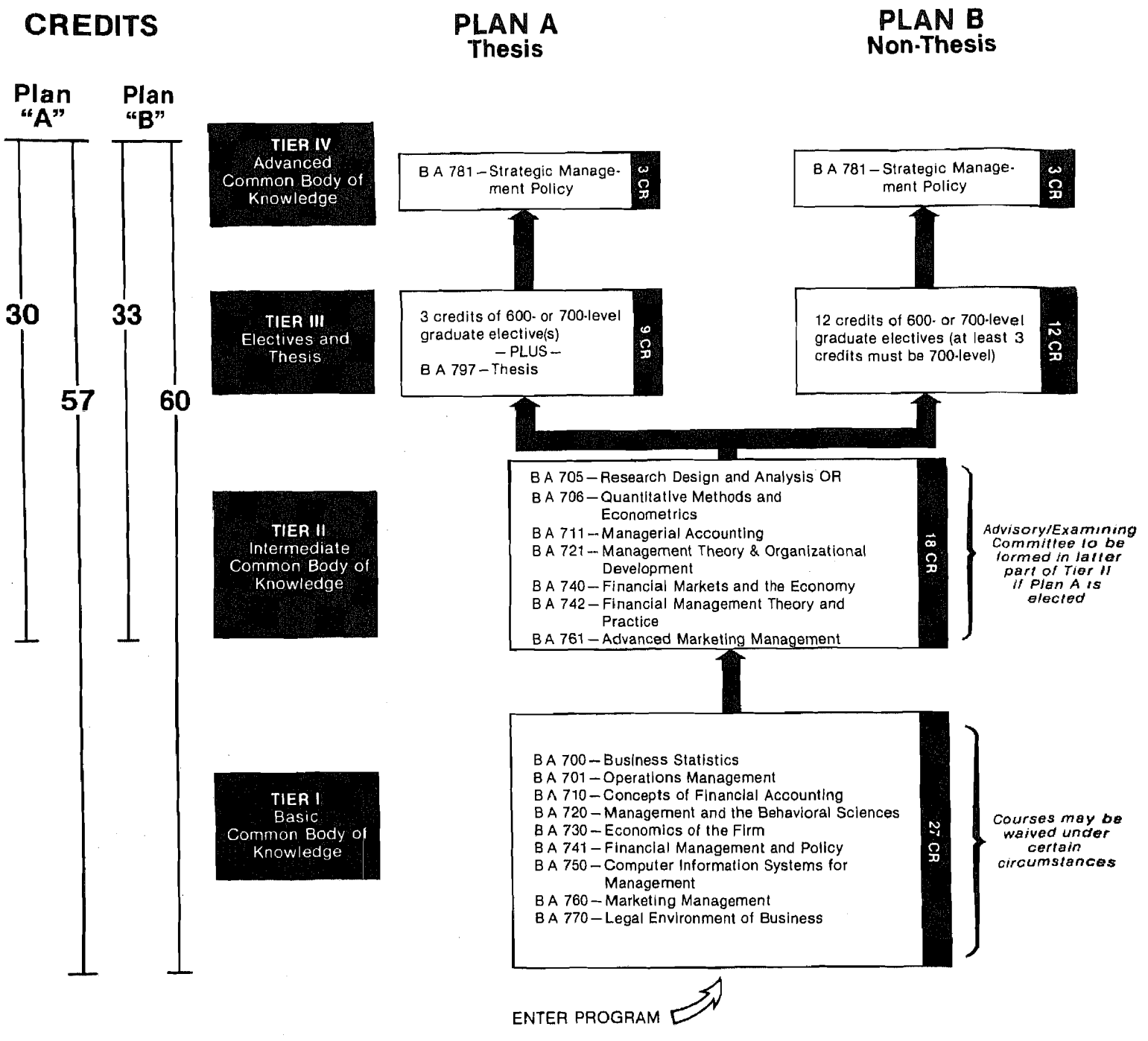
The master of science and master of arts degrees require the successful completion and defense of a thesis (Plan A). A non-thesis option (designated Plan B) is available to candidates for the Master of Business Administration degree.

Master of Business Administration (MBA)[1]

The Master of Business Administration degree program entails a general major in business administration. A field of concentration may be chosen from the disciplines of accounting,

[1] For detailed information on the BS/MBA joint degree program with agricultural economics please see the respective departments

The MBA at UNR — program at a glance



CIS, economics, finance, management, or marketing. A minor field may be chosen from another college in the university. Degree requirements are as follows:

Course Requirements
Core Courses and Primary Electives

Tier I — Basic Common Body of Knowledge (CBK) Core Courses: Knowledge contained in these elementary business administration core courses is required for all students in the program, but under certain circumstances waivers may be obtained if the student has recent and appropriate undergraduate preparation (see below). Tier I courses are listed on the chart for the MBA — program at a glance.

NOTES: Some of the courses are prerequisites for others within the tier. All incoming MBA students are required to have completed a basic calculus course (MATH 211 or equivalent) prior to their formal admission to the program or complete MATH 211 during their first semester in residence and are responsible for a current working knowledge of its principles.

Waivers of courses in Tier I may be accomplished by requesting summary waiver of a course (if certain stringent criteria have been met) or by taking a proficiency examination in the subject. All summary waivers and testing must be completed before or during the first two semesters immediately following admission to graduate standing (MA) at UNR. Complete information is available from the director of graduate programs in the college. Waivers are not granted for courses in Tier II or above because these must be taken in residency.

Tier II — Intermediate and advanced common body of knowledge business administration core courses: Tier II courses may only be taken after completion of requirements for Tier I.

Tier III — Electives and thesis: See advanced program options below.

Tier IV — Integrative "capstone" advanced CBK course: The capstone course is taken in or near the final semester and most other core courses must have been completed at that time. Electives may be taken prior to, concurrently with, or follow the policy course.

NOTE: Nonbusiness graduate standing students are not permitted to register for Tier II and Tier IV MBA courses unless they are enrolled in an approved joint degree program at UNR.

Advanced Program Options
(Thesis or Nonthesis)

Plan A (Thesis Option)

The thesis option requires the satisfactory completion of:

1. All core courses in Tiers I, II and IV above.
2. Tier III: three credits of 600- or 700-level electives, which may be taken in any academic program at UNR, plus a thesis in business administration (six credits).

For Plan A major programs: At least 21 graduate credits (excluding thesis) beyond the Tier I basic core courses must be in business administration.

For Plan A major-minor programs: At least 21 graduate credits (excluding thesis) beyond the Tier I basic core courses must be in business administration with at least six credits in the minor field. Specific requirements for a minor field are set by the minor department.

Plan B (Nonthesis Option)

The nonthesis option requires the satisfactory completion of:

1. All core courses in Tiers I, II and IV above.
2. Tier III: 12 credits of 600- or 700-level electives, three credits of which must be at the 700-level. Three credits must be in business administration; the remainder may be from any UNR academic program.

NOTE: A comprehensive examination is required for those students electing to graduate under the Plan B terms of older catalogs. Complete information is available from the office of the director of graduate programs.

For Plan B major programs: At least 24 graduate credits beyond the Tier I basic core courses must be in business administration.

For Plan B major-minor programs: At least 24 graduate credits beyond the Tier I basic core courses must be in business administration, with at least an additional eight credits in a minor field. Specific requirements for a minor field are set by the minor department.

Total Credits Required for Program Completion

Graduate credits required for completion of each of the MBA options are as follows:

Plan A (thesis): 30 credits in Tiers II through IV, plus those courses required in Tier I.

Plan B (nonthesis): 33 credits in Tiers II through IV, plus those courses required in Tier I.

MBA Course Numbering System

700-709 Quantitative
710-719 Accounting
720-729 Management/Behavioral
730-739 Economics
740-749 Finance
750-759 Computer/Management Information Systems
760-769 Marketing
770-779 Legal
780-789 Policy
790-799 Independent Study
Selected Topics
Thesis
Comprehensive Exams (if necessary)

Master of Science or Master of Arts in Economics

The master of arts and master of science degree programs are designed to be terminal degree programs for individuals aspiring to careers in applied economics. The programs are also valuable for individuals considering careers in finance, banking, or law, as well as other professions that require analytical and quantitative skills. The M.A. and M.S. programs also provide excellent preparation for those who are considering a Ph.D. in economics, public policy or in a related field.

Applied economists are employed in both the private and public sectors, and are often involved in forecasting, market analysis, policy analysis and advisory activities.

Specific course requirements for degrees in economics include EC 721 and 722, along with nine additional credits taken at the 700 level, a total of at least 24 credits of graduate-level

courses, and six credits of thesis. The master of arts and master of science degrees both require a thesis, and the course work and thesis must be approved by a student's faculty advisory/examining committee. Each candidate's program of study must be approved by the student's departmental adviser and the director of graduate programs for the college. Students must also meet all university and college requirements for the master's degree.

For full admission into the M.A. or M.S. program in economics, a student should complete 18 credits in economics, including intermediate microeconomics, intermediate macroeconomics, and money and banking. Students may enter the graduate programs in economics in either the fall or spring semesters.

The master's program may be completed in three or four semesters if the student is full time in the program. A typical schedule is:

First Semester

	Credits
EC 721	3
700-level elective	3
Electives	6

Second Semester

	Credits
EC 722	3
700-level elective	3
Elective	3

Third Semester

	Credits
700-level elective	3
Thesis	6

Graduate Minor in Business Administration

Graduate students with majors outside the College of Business Administration who wish to minor in business administration should complete at least three of the following advanced core courses: B A 711, 721, 740, 742, 761, as well as any preparatory courses which may be necessary for prerequisites. For a minor in accounting, finance, management, or marketing, at least six credits of graduate work beyond Tier I, including the basic and advanced courses in that specific area, are required. For a minor in economics, a student at the graduate level must take at least 12 units in economics, including EC 721 and 722.

Inactive Graduate Programs

The master of science degree with majors in accounting, finance, management, and marketing are inactive.

Public Service

Advisory Board

There is an advisory board to the College of Business Administration, appointed by the board of regents. This board addresses itself to program issues, student needs, faculty recruiting, and community needs and interests. The following members served during the 1987-88 academic year: Michonne Ascuaga, vice president, administration and marketing, John Ascuaga's Nugget; John M. Bancroft, management consultant-adjunct faculty; R.C. Barnes, assistant dean and director of graduate programs; Frank Bender, chief executive officer, Bender Warehouse Co.; David B. Bianchi, district manager, Northwestern Mutual Life; Charles Bratton, account executive, Prudential-Bache Securities; Ed Chapin, president, Micro Sage; Joseph N. Crowley, president, University of Nevada-Reno; Kevin T. Day, vice president-corporate affairs, First Interstate Bank of Nevada; Allen Dunn, chief executive officer, Dunn Draper Glenn Marz; William Hartman, partner, Deloitte Haskins & Sells; Ronald S. Jeffrey, senior vice president and general manager, Harrah's; Cynthia Kelley, vice president, Kelley-Rose Inc.; Gregg Lambert, vice president, Bender Records Services; Larry J. Larsen, associate dean and director of undergraduate program; Bob J. Lewis, assistant vice president, Sierra Pacific Resources; David Line, branch manager, IBM Corporation; Luther Mack, proprietor, McDonald's Central; Donald McGhie, owner, McGhie Consulting Services; Theodore Moore, vice president/investments, A.B. Edwards & Sons, Inc.; G. Andrew Pearl, shareholder, Anderson & Pearl; Mike Rainey, business liaison officer, Truckee Meadows Community College; John F. Rhodes, partner, Grant Thornton; Frederic Schwab, executive vice president, finance and administration, Porsche Cars of North America, Inc.; Patricia S. Thompson, city manager, City of Sparks; Betty Vogler, secretary-treasurer, Barnard Vogler & Co. CPA's; Ron Zidek, managing partner, Grant Thornton.

College of Education

Frank D. Meyers, *Dean*

Departments of Instruction: counseling and guidance personnel services, curriculum and instruction, and educational administration and higher education.

The main goal of the College of Education is to prepare professional personnel to function effectively as teachers, guidance personnel, and administrators in the challenging and demanding field of education.

A second major goal of the college is to stimulate in the education profession and the public a deeper interest in the promotion of good teaching practices and sound educational policies.

A third major goal is to contribute directly to the redefinition of educational goals and policies through research and development.

Support for maintaining these objectives is provided through the college departments of instruction, the Center for Learning and Literacy, the Learning and Resource Center, Simulation-Demonstration Facility, Early Learning Center (grades 1-3), and the Research and Educational Planning Center.

Degrees Offered

The college offers two undergraduate degrees – the bachelor of arts in education and the bachelor of science in education. Master's degrees are offered with majors in: counseling and guidance personnel services, educational administration and higher education, and elementary, secondary, and special education. Education specialist degrees are offered in counseling and guidance personnel services, curriculum and instruction, and educational administration and higher education. Doctoral degrees are offered in counseling and guidance personnel services, curriculum and instruction (reading education option only) and educational administration and higher education.

Accreditation

The College of Education is accredited by the Northwest Association of Secondary and Higher Schools and Colleges for all teacher education, undergraduate, graduate curricula. It is also accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel, with the master's degree as the highest degree approved. These two accrediting bodies are recognized by the Council on Postsecondary Accreditation.

Certification

By law all certificates in Nevada are granted by the Nevada State Board of Education. Students in the College of Education enrolled in the integrated five-year course of study are at the same time meeting the specific certification requirements of the state board of education.

Elementary, special, or elementary/special education majors interested in participating in the interdisciplinary option in early childhood special education should refer to the home economics section of the catalog for a description of this program. This option leads to a Nevada endorsement to teach early childhood special education.

Admission to Teacher Education Program

Effective July 1, 1988, students accepted into a teacher education program are required to complete an integrated five-year course of study which begins in the freshman year and continues through the fifth year. Successful completion of this program leads to a bachelor's degree at the end of four years and a Nevada teaching credential at the end of the fifth year, which includes a combination of undergraduate and graduate coursework.

Also effective July 1, students are subject to new GPA requirements. Students must contact an adviser in the Department of Curriculum and Instruction regarding the course of study in the new program.

Students who plan on pursuing a program leading to initial certification must be formally admitted to advanced standing in a specific teacher education program prior to enrollment in specific upper-division professional education courses and student teaching. Students must meet these requirements:

1. Complete the advanced standing admission criteria and approval form and return it to the dean's office, Education Building, Room 101.
2. Provide ACT or SAT scores to be attached to the advanced standing admission form.
3. Successfully pass the Pre-Professional Skills Test in reading, writing, and mathematics. Students who do not pass the first administration of the PPST may retake the failed portion(s) at the next offering of the exam. After the second failure, the student must wait an academic year before taking the test for the third time. Students are encouraged to take the PPST before the end of the sophomore year.
4. Students seeking admission to elementary, special, or elementary/special education programs must have a 2.5 GPA or higher in all courses taken prior to receiving advanced standing. Those seeking admission to secondary education programs must earn a minimum 2.5 GPA or higher in the major teaching field and a minimum 2.3 GPA or higher in the minor teaching field.
5. Pass the speech and hearing test.

Students from colleges other than education seeking teacher certification must comply with the above requirements. They must also complete the requirements for student teaching.

Program Completion Requirements

Candidates for the bachelor's degree in education must satisfy these requirements:

1. Be admitted to the teacher education program.
2. Earn 128 credits or more in required and elective courses.
3. Complete 40 credits or more in courses numbered 300 or above.
4. Earn a 2.5 GPA or higher in the major teaching field, and a 2.3 GPA or higher in the minor teaching field.
5. Earn a 2.75 GPA or higher in courses taken in the College of Education.
6. Successfully pass exit examination(s) in the academic and/or professional major.
7. Meet all general university requirements: English, mathematics, U.S. and Nevada Constitution, total credits, GPA, and resident credit.
8. Meet requirement for instruction in Nevada school law. This requirement usually is met through EAHE 101.

A maximum of 30 semester credits may be earned with S/U grades subject to the approval of the assigned education adviser.

Secondary Teaching Field

Students who wish to prepare to teach in junior and senior high schools must complete one major and at least one minor teaching field. Two teaching minors are recommended, especially for students planning to teach in the junior high school.

Students must select major and minor teaching fields from the list below. In general, it is expected that students will make a choice in the sophomore year, although this decision may be made at the beginning of the freshman year. Each student is assigned an adviser for the major and minor field. Outlines of the departmental and interdepartmental curricula requirements are available for major and minor teaching fields given below.

Secondary Education

(Grades 7-12)

Major Teaching Fields

An outline of specific requirements should be obtained from the Department of Curriculum and Instruction.

Agriculture (vocational)[1]
Art
Biological Sciences
Business Education
Chemistry
English
French
General Science
German
Health Education
History
Home Economics (vocational)[2]
Industrial Education
Journalism
Mathematics
Music
Physical Education
Physical Sciences
Physics
Political Science
Social Studies
Spanish
Speech Communication
Theatre

(The student should secure adviser's approval before beginning a major.)

Minor Teaching and Supporting Fields

An outline of specific requirements should be obtained from the Department of Curriculum and Instruction.

Agriculture
Anthropology
Art
Biological Sciences
Business Education
Chemistry
Economics
English
French
General Science
Geography
German
Health Education
History
Home Economics
Industrial Education
Italian
Journalism
Latin
Mathematics
Music
Physical Education
Physical Sciences
Physics
Psychology
Political Science
Recreation
Russian
Social Studies
Sociology
Spanish
Special Education
Speech Communication
Theatre

Supervised Teaching

Supervised teaching experiences are provided in the public schools. Students are assigned to cooperating teachers employed by the school system.

Regular staff members of the College of Education are responsible for the supervision of student teachers, making regular visits to observe the student's teaching, and holding conferences with the student and the cooperating teacher concerning the student teaching.

Prerequisites for Supervised Teaching

Only those students who have demonstrated scholarship, dependability, and a commitment to the problems of education are accepted for supervised teaching. The failure on the part of the student teacher to meet any requirements may result in the immediate forfeiture of teaching privileges.

Applicants for supervised teaching must:

1. Have achieved advanced standing in a teacher preparation program.
2. Maintain an overall GPA of 2.75 or higher in professional education courses and a cumulative GPA of 2.5 or higher in all courses (elementary, special, or elementary/special education).
3. Maintain a 2.5 or higher GPA in the major teaching field and a 2.3 or higher GPA in the minor teaching field.
4. Provide negative results of a tuberculosis screening immediately prior to beginning student teaching.
5. Successfully complete the professional knowledge area of the National Teachers' Examination during the first student teaching experience.
6. Be qualified in the professional judgment of the College of Education faculty.

Admission to supervised teaching is secured through the director of laboratory experiences for either the elementary/special education or secondary teaching field. **Applications for the fall semester must be received by March 15 and applications for the spring semester must be received by September 15.** Normally a student must have completed a minimum of 15 semester credits at the university prior to admission to student teaching.

Requirements for Graduate Degrees

Master's Degree

Graduate students may major in counseling and guidance personnel services (with specializations in elementary, secon-

[1]Students must enroll in College of Agriculture.
[2]Students must enroll in School of Home Economics.

dary, college, community, marriage and family, and vocational); educational administration and higher education (with specializations in elementary or secondary principalship, school administration, and the superintendency); and elementary, secondary, and special education (with specializations in reading, early childhood education, computer education, computer education/media, media/library science, behavior disorders, learning disabilities, and mental retardation.

The specific requirements for the curriculum to be followed are adapted to the professional needs of the student. Students should not enroll in any course for graduate credit without first securing the approval of the department chair that such a course or courses are acceptable toward a major or minor.

General improvement courses for in-service education on the graduate level should also be considered by the student. These courses are also offered in extension or branch centers, workshops, short conferences, evening schools, and individual problem courses by appropriate arrangement. Inquiries are encouraged.

The master of arts and master of science degrees require 30 to 39 credits of approved course work with a major in education and a six-credit thesis, a total of 36 to 48 credits. High standards of research work are required. A nonthesis master of arts or master of science degree 36 to 45-credit option may be selected. Specific programs with emphasis on teaching, counseling, or administration and supervision are available on request. All candidates for these degrees are required to complete CAPS 700—Introduction to Educational Research, and two other core courses outside their fields of specialization (see adviser).

A maximum of six graduate credits of S/U grades may apply toward a master's degree requiring 36 semester credits or more.

All candidates for the education specialist certificate must complete all requirements and graduate by May 1990. The education specialist certificate will not be awarded after that date.

Each candidate for the master of education degree must have completed a minimum of two academic years of satisfactory teaching or administrative experience, or equivalent, and complete nine credit hours of acceptable core courses.

Education Specialist Degree

The education specialist degree is a 32 to 33-credit, sixth-year degree program beyond the master's degree. Majors are offered in counseling and guidance personnel services, curriculum and instruction, and educational administration and higher education. Any student desiring to pursue a program leading to the education specialist degree should consult the department in whose field the degree is offered.

A maximum of three graduate credits of S/U grades may apply toward the education specialist degree.

Doctor of Education Degree

Majors offered at the doctorate level are counseling and guidance personnel services, curriculum and instruction (reading education option only), and educational administration and higher education.

Applicants for the doctor of education degree must meet general university requirements for admission, Graduate School requirements, College of Education requirements, and department requirements.

The basic program includes a minimum of 90 semester credits beyond the baccalaureate degree, including 12 credits of dissertation. A maximum of six graduate credits of S/U grades may apply toward the doctor of education degree. A residency requirement of at least two full-time summer or regular semesters with a minimum of 12 graduate credits must be completed.

The doctor of education program provides an opportunity for personalized specialization in one of the approved departments in the College of Education, with an emphasis on improving leadership and breadth of knowledge for those individuals who are now employed in the various areas of education.

For detailed information, refer to the Graduate School section.

Those individuals interested in the doctor of education program should contact the office of the dean, College of Education.

COUNSELING AND GUIDANCE PERSONNEL SERVICES (CAPS)

Faculty: Baldwin, Downing, Fisher, Jenkins, Maples, Meyers, Pierce (Ch.)

The department offers graduate courses in counseling, guidance, educational psychology and school psychology for schools K to 12, in college student development, in adult vocational counseling, in community counseling and in marriage and family counseling. Adapted sequences exist to provide academic structure to meet all certification requirements for professionals within the pupil- and student-personnel team. Entrance requirements and program patterns are available by inquiry.

CURRICULUM AND INSTRUCTION (C I)

Faculty: Bancroft, Bear, Cheney, Cummings, Faltis, Johns, Lafer, Maddux (Ch.), Marshall, Robinson, Templeton, Tooke, Tower

Adjunct Faculty: Barone, Dugan, Kniseley, Langdon, Murphy, Pierce

Elementary and Special Education

Undergraduate majors are offered in elementary, special, and elementary/special education. Completion of the program qualifies students for K-6 teaching certification and a special education endorsement from the Nevada Department of Education. A master's degree student may major in elementary or special education. Master's degree graduates can also qualify to receive an elementary teaching credential or a resource room endorsement from the Nevada Department of Education.

Secondary Education

A major in secondary education is offered at the master's level only. Undergraduate majors and minors are provided by approved curricula in teaching fields listed in the College of Education section. Copies of requirements are available in the department office.

Members of the department will assist graduate students in planning balanced programs suited to their educational objectives.

Media and Library Science Minor

A minor in instructional media/library science is offered for those individuals who are concerned with the utilization, coordination and administration of media materials. The minor provides relevant training for pre- and inservice educational technologists, librarians, teachers, administrators, politicians, business, industrial and military personnel trainers, commercial artists, television presentors, photographers, salespersons and others concerned with the storage and utilization of learning/communication materials.

Note: This minor program is not designed to prepare teachers or other school personnel with certification in the media/library science specialty.

EDUCATIONAL ADMINISTRATION AND HIGHER EDUCATION (EAHE)

Faculty: Foldesy (Ch.), Holman, Krajewski, Matranga, Peltier

The department offers support for teacher preparation through its undergraduate program in the areas of legal, historical, social and philosophical foundations. Graduate courses are offered leading to the master of arts, master of education, education specialist, and doctor of education degrees with a major in educational administration and higher education. Appropriate selection of courses enables the graduate student to meet certification requirements for an administrative position in the public schools of Nevada.

Service Divisions

Center for Learning and Literacy

Faculty: Bancroft (Assoc. Dir.), Bear, Templeton (Dir.)

The fundamental purposes of the Center for Learning and Literacy are to serve as a center for teaching and research in literacy, provide opportunities for undergraduate and graduate students to develop and apply competence in diagnosing and remediating reading and learning disabilities, and provide diagnostic and tutorial services in reading and learning disabilities to individuals from the elementary to the adult level. Students with learning disabilities and reading problems are diagnosed and remediated in the facilities by certified teachers or prospective teachers. Fees are charged for the services to cover the cost of materials and operations. The center is equipped to demonstrate diagnostic and remedial techniques. Programs offered through the Center prepare teachers in remedial education and could lead to an advanced degree. For further information, contact the Center for Learning and Literacy, College of Education, 784-4951.

Learning and Resource Center

Faculty: Sawyer (Dir.)

Adjunct Faculty: Bullis

The Learning and Resource Center in the Education Building provides instructional media facilities in diverse areas. These include:

Media Library — course-related books and educational materials including resource files, audio tapes, filmstrips, study prints, film loops, slides, educational media kits, Apple II and Franklin microcomputers.

Graphics Room — drymounting, laminating, transparency production, photography, book binding, duplication, lettering.

Television — micro-teaching rooms, portable VCR units, color television recording capability and editing.

Audio — tape recording, dubbing.

Computer Laboratory — IBM-PC compatible microcomputers, mainframe computer access and video projection.

The Learning and Resource Center is open regularly from 8 a.m. to 8 p.m., Monday through Thursday and 8 a.m. to 5 p.m. on Friday. Audiovisual equipment is available for use in the College of Education. Graphics Room processes and materials are available to university faculty and students at nominal costs. For further information, contact the Learning and Resource Center, College of Education, 784-4971.

Research and Educational Planning Center

Faculty: Loesch-Griffin, D. (Dir.), Cline, D., Foldesy, E., Meyer, J.

Adjunct Faculty: Franklin, Lienau

The center conducts sponsored research, development and training projects of state and national significance in education and related social science areas. Other activities of the center include consultation and technical services to the school districts of Nevada and research-related technical assistance to the College of Education faculty as well as faculty from other university colleges and departments.

College of Engineering

Jon A. Epps, *Dean*

The College of Engineering offers undergraduate instruction in the fields of civil, computer science, electrical, and mechanical engineering, with a broader undergraduate program provided by the engineering physics curriculum. Graduate-level instruction is provided in civil, electrical and computer science, and mechanical engineering.

Objectives

Engineers apply a knowledge of science, mathematics and a logical discipline of decision-making to the creation of systems needed by society.

The various engineering curricula provide the necessary basic and advanced knowledge to prepare students for positions of responsibility and leadership in their fields of interest, both now and in the future. The students are prepared to meet the technical and ethical demands of the profession and to become informed citizens in the community.

Accreditation

The civil, electrical, and mechanical engineering programs for the baccalaureate degree are accredited by Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, Inc. (EAC/ABET). The members of the faculty maintain affiliations with their professional societies and various industrial and governmental organizations which keep them current in their fields, and also provide stimulation for both undergraduate and graduate research projects.

Cooperative Programs

Several cooperative programs are available, in which students may gain funds and experience during the summer and attend classes during the rest of the year. For details see the various baccalaureate sections and inquire at departmental offices.

Degrees Offered

Baccalaureate Degrees: Upon satisfactory completion of the prescribed curriculum the student in engineering becomes a candidate for the degree of bachelor of science in civil engineering, computer science, electrical engineering, engineering physics, or mechanical engineering.

Graduate Degrees: The degree of master of science may be earned in the departments of civil, electrical, and mechanical engineering subject to the general requirements of the university, the department concerned, and the Graduate School.

The interdisciplinary Ph.D. degree in engineering may be earned in many areas including potential field phenomena, information theory, system analysis and research, materials science, applied mechanics, computer integrated manufacturing systems engineering (CIMSE), energy systems, water resources, structural analysis, electronic devices, biomedical systems, and biomedical instrumentation subject to the university, college, and Graduate School requirements.

Minor in Engineering

(For baccalaureate engineering students only)

1. A minimum program for a minor outside the major department consists of at least 18 credits of formal courses in the minor department, 12 credits of which are upper-division courses approved by the chair of both the minor and major departments.
2. The 12 credits of upper-division courses in the minor department, alluded to in requirement 1, must be in addition to the credits in upper-division required courses in that department as specified by the curriculum of the major department.

Premajor Admission

New undergraduate applicants to the College of Engineering are admitted to premajor status rather than to a specific major. The college and departments establish curricula and criteria for the department premajor student which must be satisfied before a department will approve a student's acceptance into a specific major.

Mathematics and Science Entrance Requirements

In addition to the university requirements (see Admission section of this catalog) for admission to the baccalaureate programs, the College of Engineering specifically recommends three units of mathematics (one and one-half algebra, one geometry, and one-half trigonometry) plus three units of science, including physics, chemistry, and one-half year of computer literacy. In addition, it is helpful if prospective students can take additional mathematics courses while in high school.

Advisement

It is mandatory that all students receive advisement from a faculty member assigned by the department to assist each student in planning and maintaining the academic standards needed to complete the degree requirements for their chosen program. Students *are not* permitted to attend engineering classes without prior advisement from an engineering faculty representative.

Electives

All students attending the College of Engineering must follow the acceptable list of courses approved by the departments for humanistic social electives. Each student is cautioned to check the availability of courses desired since they may not

be offered every semester. A sequence of at least two humanities or social science courses where one is prerequisite for the other is required to satisfy the college criteria. Typically one of these courses is at the level of 300 or above.

Transfer Students

A student from outside the University of Nevada-Reno, who wishes to transfer to the College of Engineering and be accepted must follow general university policy for admission to advanced standing. Each such applicant is considered for admission based on their qualifications and the availability of space in the specific program for which application is being made.

Baccalaureate Degree Requirements

Each engineering student must complete specific university course requirements in constitution, English, mathematics, natural science, and social science or humanities to graduate with a bachelor's degree. To satisfy university requirements, engineering students must take ENGL 101 and 102 (ENGL 113 and 114 for international students) and a course(s) in Nevada and United States Constitution. Engineering students are strongly encouraged to enroll in either HIST 111 or P SC 103 to satisfy the constitution requirement with a single course. The university requirements for mathematics, natural science, and social science or humanities are satisfied by engineering core and departmental requirements.

A listing of courses which may be used to satisfy the social science or humanities requirement include AGEC 100, 202, 332, 460, 466, 472; ANTH all except 309, 400-405, 411, 414-416, 420, 431, 436, 444, 480, 499; ART 116, 117, 212-214, 256, 257, 314-316, 355, 357, 417, 418; B V 264; BIOL 405; CAPS 330, 431; C J 110, 120; EC all except 103, 261, 262, 431, 441, 490; ENGL all except 1, 11, 101, 102, 111-114, 181, 281, 291, 305-308, 311, 321, 322, 385, 405-408, 411, 414-416, 436-439, 495; ENV 101, 294, 457, 494; FFL all except the student's native language(s); GEOG 106, 109, 319, 370, 418, 421, 430-432, 461, 462, 471, 473, 476, 482, 485, 487, 488; HP 301, 401; HIST all except 309, 310; H EC 273, 274, 315, 353, 419, 430; HON all; JOUR 413; L SC 305; MGRS 462; MATH 301; MINE 472; MUS 121, 201, 202, 350, 407, 414, 422-424, 426, 428; PHIL all except 308, 465, 494, 499; P SC all except 300, 301, 341, 441, 442, 446, 450, 481; PSY all except 210, 275, 299, 301, 327, 375, 391, 392, 403, 412, 431, 451, 472, 475, 481-483, 499; RWF 490; RPED 402; R ST 101; SHR 220, 230, 320, 360, 370, 372-376, 378, 450; SOC all except 210, 327, 392, 497, 499; SPCM 427; THTR 100, 471-473; W S 101.

In any field of specialization, the degree requirements consist of the general university requirements, the engineering core, and the departmental requirements. This totals 129 to 132 semester credits.

Engineering students may register for a maximum of nine credits pass-fail (S/U) in any courses, except those courses specifically required by their curriculum program or which are classified as technical or science electives.

The freshman year is basically similar for all departments, thus transferring from one department to another in engineering during the freshman year can be done with minimal loss of credit or time. The specific departmental course requirements and suggested curricula to complete the requirements for the bachelor of science degree in the specific departments are presented on the following pages. The elective courses are selected by the student with the apptoval of the adviser and in general should be selected to broaden the student's education.

In addition to the general university requirement of a C average for graduation, the engineering student must also maintain a C average in the following courses: all engineering courses offered by the departments of the college; all basic science courses; all science electives; and all technical electives. Candidates for baccalaureate degrees from the College of Engineering may not use two-year technology courses in the determination of the average grade of C required in engineering courses. If a student is required to repeat a course, all recorded grades are considered in the computation. All engineering students must also take the national E.I.T. examination prior to graduation.

Field Trips: Any of the courses taught in the college may require field trips as an integral part of the educational experience. Field trips may be scheduled by the college's student organizations and they may be organized generally from within the college instructional structure in response to educational goals and needs.

Engineering Students on Academic Probation

Engineering students with academic records below the published minimum standards, in conformity with university policy, are placed on probation. A student on probation may not register for courses in the engineering college except to reenroll in those courses which the student has previously taken and received a grade less than C.

The only exception to this policy is by advance written petition approved by the department chairman and the dean.

Priority Acceptance in Engineering Courses

Should it become necessary, prioritized acceptance of students into those classes where demand exceeds availability is based upon the accumulative GPA's as established by academic performance in courses taken at UNR.

First semester transfer students from institutions other than UNR are accepted in engineering classes based upon the GPA as established in transfer by the Office of Admissions and Records.

Implementation of this policy is accomplished by GPA lists of students requesting space in courses at early (CARS) registration. Those students who do not obtain class space are identified by the instructor and/or chair and are notified.

Application for Graduation

Major program curriculum requirements make it necessary to offer many of the required courses in alternate semesters only. This requires advance time to assist students in planning properly for graduation. Therefore, all applications for graduation in the College of Engineering must be filed in the dean's office fourteen (14) months prior to the anticipated date of graduation. It is each student's direct responsibility to file the application by this date as exceptions are not granted.

CIVIL ENGINEERING (C E)

Faculty: Bergman, Bird, Douglas, Epps, Holcomb, Krenkel, Maragakis, Newcomb, Norris, Saiidi (Ch.), Siddharthan, Watts

Undergraduate Curriculum

The objective of the program of study in civil engineering is to give students an educational background from which they can enter the practice of the profession of engineering. Civil engineering includes the planning, analysis, design, and construction of physical systems involving structures, soils, mapping, water resources, transportation, hydrology, water supply, wastewater disposal, and water quality management. The curriculum is designed to give an introduction to these disciplines.

Attention is directed to the existence of two cooperative training programs available for civil engineering students. These programs are offered jointly with the Civil Engineering Department and the following sponsoring agencies: the Nevada Department of Transportation and the Associated General Contractors of Nevada. Both programs offer financial assistance to the student through summer employment with the cooperating organizations. For further information write to the director of Civil Engineering Cooperative Training Programs.

The Nevada Chapter of the Associated General Contractors supports a fractional chaired professorship in the department. This support broadens the area of construction engineering.

The curriculum for the bachelor of science in civil engineering degree is as follows:

Freshman Year
First Semester

	Credits
C E 101 — Engineering Graphics	2
C E 140 — Introduction to Civil Engineering	1
CHEM 101 — General Chemistry	4
ENGL 101 — Composition I	3
HIST 111 or P SC 103	3
MATH 215 — Calculus I	4
	17

Second Semester

	Credits
C E 141 — Engineering Measurements	3
ENGL 102 — Composition II	3
MATH 216 — Calculus II	4
PHYS 201 — Engineering Physics I	3
PHYS 204 — Engineering Physics Lab I	1
Humanistic-social elective[1]	3
	17

Sophomore Year
First Semester

	Credits
C E 241 — Statics	3
C E 243 — Computer Programming for Civil Engineers[2]	3
MATH 217 — Calculus III	4
PHYS 202 — Engineering Physics II	3
PHYS 205 — Engineering Physics Lab II	1
Humanistic-social elective	3
	17

Second Semester

	Credits
C E 246 — Construction Materials	3
C E 368 — Elementary Fluid Mechanics Lab	1
C E 390 — Water and Waste Treatment	3
M E 242 — Dynamics	3
M E 300 — Introduction to Engineering Mathematics	2
M E 367 — Elementary Fluid Mechanics	3
Designated communications course	3
	18

Junior Year
First Semester

	Credits
C E 364 — Engineering Hydrology	2
C E 366 — Highway/Transportation Engineering	3
C E 369 — Concrete and Asphalt Lab	1
C E 372 — Strength of Materials	3
C E 388 — Engineering Economy	2
C E 389 — Probability and Statistics for Civil Engineers	2
Restricted science elective[3]	4
	17

Second Semester

	Credits
C E 374 — Metals and Timber Lab	1
C E 381 — Structural Analysis	3
C E 471 — Mathematical Methods in Civil Engineering[3]	3
C E 489 — Water Resources Engineering I	3
C E 492 — Fundamentals of Geotechnical Engineering	3
E E 212 — Introduction to Network Analysis	3
	17

Senior Year
First Semester

	Credits
C E 484 — Structural Steel Design	3
C E 485 — Reinforced Concrete Design I	3
M E 371 — Thermodynamics I	3
Humanistic-social elective	3
Technical elective[3]	3
	15

Second Semester

	Credits
C E 491 — Contracts, Specifications	2
Humanistic-social elective	4
Technical elective[3]	6
	12
Total credits for B.S. in civil engineering	130

Students enrolled in civil engineering cooperative programs are required to take a one-credit seminar course (C E 250, 350, 450) at the appropriate level each summer they are enrolled in the program. These credits are in addition to the total required for other students.

Graduate Programs

Continuing education beyond the bachelor's degree is a necessity for those engaging in the practice of the profession of civil engineering. The master's degree programs are recommended for those who wish to engage in this profession.

The department offers programs leading to the master of science (M.S.) degree in civil engineering and participates in the interdisciplinary Ph.D. program in the College of Engineering. Detailed curricula in the general civil engineering field or with specialization in structures, soil mechanics and foundations, transportation, materials, or environmental engineering are determined in conference between the student and the adviser. Requirements for graduate degrees are stated in the Graduate School section. Both Plan A and Plan B are available for M.S. programs. Specific departmental requirements for the M.S. program may be obtained from the Civil Engineering Department.

The department also participates in the interdisciplinary master of science degree with a major in land use planning

[1]Humanities must include a minimum of two courses in a given area. At least one must be an upper-division course (300 or 400 level).

[2]C E 243 is a prerequisite for all 300-level civil engineering courses.

[3]Students electing to take the environmental option take CHEM 102 for the restricted science elective, BIOL 101 in place of C E 471 and CHEM 142 in place of one technical elective. The remaining technical electives are C E 497 and 499.

policy and hydrology/hydrogeology in cooperation with several other departments. For further information refer to the Interdisciplinary and Special Programs section of this catalog.

Additional information on graduate programs may be obtained by writing to the chair of the department. A limited number of teaching and research assistantships are available in civil engineering. Applications for assistantships are due by April 15 for the fall semester and by October 15 for the spring semester.

ELECTRICAL ENGINEERING AND COMPUTER SCIENCE (E E)

Faculty: Ahmad, Egbert, Etezadi-Amoli, Fadali, B. Johnson, W. Johnson, Kleppe (Ch.), Looney, Trzynadlowski

Adjunct Faculty: Toreson

Undergraduate Curriculum

The program in electrical engineering is designed to provide a broad scientific background coupled with training in original and logical thought so the graduate can continue intellectual advancement and make significant contributions to the field of electrical engineering. The fundamental nature of the required courses provides the basis for concentration in depth in communications, computer, control, electronics, and power engineering.

The departmental requirements for the bachelor of science in electrical engineering degree are included in the following curriculum. This curriculum meets all graduation course requirements.

The professional EIT examination, administered by a state board of engineering registration, must be taken by all electrical engineering students before graduation during the senior year of study.

Freshman Year
First Semester

	Credits
C S 183 – Introduction to Computer Science	4
CHEM 101 – General Chemistry	4
ENGL 101 – Composition I	3
MATH 215 – Calculus I	4
	15

Second Semester

	Credits
ENGL 102 – Composition II	3
Engineering communications	3
HIST 111 or P SC 103	3
MATH 216 – Calculus II	4
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
E E 202 or METE 350	3
MATH 217 – Calculus III	4
M E 241 – Statics	3
PHYS 202 – Engineering Physics II	3
Humanistic-social elective[1]	3
	16

Second Semester

	Credits
E E 212 – Introduction to Network Analysis	3
E E 231 – Computerized Matrix Algebra	2
M E 242 – Dynamics	3
MATH 320 – Differential Equations	2
PHYS 203 – Engineering Physics III	3
PHYS 206 – Engineering Physics Lab III	1
Humanistic-social elective[1]	3
	17

Junior Year
First Semester

	Credits
C S 333 – Computer Logic Design	3
E E 301 – Principles of Measurement	2
E E 311 – Circuits and Systems	3
E E 355 – Electric and Magnetic Fields	3
E E 372 – Introduction to Electronics	3
MATH 251 – Probability and Statistics	3
	17

Second Semester

	Credits
E E 302 – Electronics and Machinery Lab	2
E E 350 – Power System Fundamentals	3
E E 382 – Electrical Communications	3
E E 386 – Feedback and Control Systems	3
M E 371 – Thermodynamics I	3
Humanistic-social elective[1]	3
	17

Senior Year
First Semester

	Credits
E E 401 – Electrical Projects Lab	2
EC 101, 102, or 109 – (Economics course)	3
Humanistic-social elective	3
Technical electives	9
	17

Second Semester

	Credits
E E 462 – Engineering Design/Analysis	4
Science or technical elective	3
Technical electives	9
	16

Total credits for B.S. in electrical engineering degree 132

Areas of Concentration

Senior technical electives consist of six courses (18 credits). Of these, five courses (15 credits) must be chosen such that one course is from each of the areas of concentration. The remaining course may be any E E 400-level course.

Communication: E E 455, 482, 483, 490; *Computer:* E E 431, 435, 436, 437; *Control:* E E 485, 486, 490; *Electronics:* E E 424, 425, 432, 473, 481, 492; *Power:* E E 451, 460, 461, 464, 492

Engineering Physics

The program in engineering physics, administered by the Electrical Engineering and Computer Science Department, leads to the degree of bachelor of science in engineering physics. The program is designed for the student who desires a background in engineering science, based on a firm foundation of physics, as well as an introduction to computer science; or who would like to pursue graduate studies in physics. The curriculum allows the student 18 credits for humanistic-social electives to be in accord with accredited engineering programs.

[1] A sequence of at least two humanistic-social courses in the same area is encouraged to provide a greater depth of knowledge in one humanistic-social subject.

Freshman Year
First Semester

	Credits
CHEM 201 – General Chemistry for Scientists and Engineers	4
ENGL 101 – Composition I	3
C S 183 – Introduction to Computer Science	4
MATH 215 – Calculus I	4
Humanistic-social elective[1]	3
	18

Second Semester

	Credits
CHEM 202 – General Chemistry for Scientists and Engineers	4
ENGL 102 – Composition II	3
E E 231 – Computerized Matrix Algebra	2
MATH 216 – Calculus II	4
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
MATH 251 – Probability and Statistics	3
MATH 217 – Calculus III	4
C S 283 – Introduction to Computer Science II	3
PHYS 202 – Engineering Physics II	3
PHYS 205 – Engineering Physics Lab II	1
Humanistic-social elective	3
	17

Second Semester

	Credits
E E 212 – Introduction to Network Analysis	3
C S 333 – Computer Logic Design	3
MATH 320 – Differential Equations	2
PHYS 203 – Engineering Physics III	3
PHYS 206 – Engineering Physics Lab III	1
Humanistic-social elective	3
	15

Junior Year
First Semester

	Credits
E E 311 – Circuits and Systems	3
E E 372 – Introduction to Electronics	3
PHYS 351 – Mechanics	3
PHYS 361 – Light and Physical Optics	3
PHYS 363 – Optics and Spectroscopy Lab	1
Humanistic-social elective	3
	16

Second Semester

	Credits
E E 386 – Feedback Control Systems	3
PHYS 352 – Mechanics	3
PHYS 362 – Light and Physical Optics	3
PHYS 364 – Optics and Spectroscopy Lab	1
Humanistic-social elective	3
Science or technical electives	4
	17

Senior Year
First Semester

	Credits
PHYS 421 – Modern Physics I	3
PHYS 461 – Heat and Thermodynamics	2
PHYS 473 – Electricity and Magnetism	3
Humanistic-social elective	3
Science or technical electives	6
	17

Second Semester

	Credits
E E 462 – Engineering Design/Analysis	4
PHYS 422 – Modern Physics II	3
PHYS 426 – Introduction to Solid State Physics	3
PHYS 462 – Kinetic Theory and Statistical Mechanics	2
PHYS 474 – Electricity and Magnetism	3
	15

Total credits for B.S. in engineering physics degree 132

Computer Science

The new Bachelor of Science in Computer Science (BSCS) degree program is designed to satisfy the national guidelines of the Institute of Electrical and Electronics Engineers-Computer Society (IEEE-CS) and the Association for Computing Machinery (ACM). Freshmen and sophomore students who want to major in computer science are designated as precomputer science majors upon admission to the university. They may be accepted later into the computer science major based upon academic performance and the availability of resources. The program prepares the student in computer fundamentals, including microprocessors, digital system design, programming languages and techniques, data structures, operating systems and computer graphics. It also requires introductory level electrical engineering courses in such basic areas as communications, electronics and network analysis.

Freshman Year
First Semester

	Credits
C S 183 – Introduction to Computer Science I	4
CHEM 101 – General Chemistry	4
ENGL 101 – Composition I	3
MATH 215 – Calculus I	4
	15

Second Semester

	Credits
ENGL 102 – Composition II	3
HIST 111 – Survey of American Constitutional History	3
MATH 216 – Calculus II	4
MATH 251 – Probability and Statistics	3
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
C S 283 – Introduction to Computer Science II	3
MATH 217 – Calculus III	4
MATH 381 – Discrete Mathematics	3
PHYS 202 – Engineering Physics II	3
Humanistic-social elective	3
	16

Second Semester

	Credits
C S 285 – Introduction to Computer Systems	3
E E 212 – Introduction to Network Analysis	3
PHYS 203 – Engineering Physics III	3
PHYS 206 – Engineering Physics Lab III	1
Humanistic-social elective	6
	16

Junior Year
First Semester

	Credits
C S 333 – Computer Logic Design	3
E E 301 – Principles of Measurement	2
E E 311 – Circuits and Systems	3
MATH 320 – Differential Equations	2
MATH 330 – Matrix and Vector Algebra	3
Computer science elective	3
	16

[1] HIST 111 recommended to fulfill constitution requirements.

Second Semester

	Credits
C S 386 – Computer Programming Languages	3
E E 372 – Introduction to Electronics	3
E E 382 – Electrical Communication	3
E E 405 – Microprocessor Lab	1
E E 435 – Microprocessors	3
Economics	3
	16

Senior Year
First Semester

	Credits
C S 437 – Computer Graphics	3
C S 485 – Computer Data Structures	3
E E 431 – Digital Computer Design	3
Technical electives	6
Humanistic-social elective	3
	18

Second Semester

	Credits
C S 486 – Principles of Computer Operating Systems	3
Computer science elective	3
E E 473 – Digital Electronics	3
Technical electives	7
	16

Total credits for a bachelor of science in computer science 130

Graduate Curriculum

The practice of the profession of electrical engineering requires broad ability in both scientific thinking and the art of working with other people. As education for those who wish to engage in this profession with competence, four years of undergraduate study and at least one year of graduate study are strongly recommended. The undergraduate and graduate curricula at the university are planned to offer as much as possible of the breadth of education needed for leadership in the profession, as well as knowledge of the physical sciences and the basic professional techniques. There is no prescribed curriculum for the M.S. degree or the interdisciplinary Ph.D. degree in engineering; the student's program is individually selected in consultation with the adviser to meet the general requirements of the Graduate School as stated in that section. All candidates for an advanced degree are expected to have had a course, either at the graduate or advanced undergraduate level, in stochastic processes, and in nonlinear systems.

Both Plan A (thesis) and Plan B (nonthesis) are available for M.S. programs. Plan A is normal, but Plan B is available at the student's request if the faculty feels the student has already had experience after receiving the B.S. degree equivalent to that of a thesis and that the student will benefit more from additional course work than from completing a thesis. If Plan B is permitted, the student must successfully complete a 2-credit professional paper based on previously completed research or engineering experience.

The department also participates in an interdisciplinary program leading to a master of science degree with a major in computer science. For further information, refer to the interdisciplinary section of this catalog or contact the department chair.

A manufacturing systems engineering program has been developed and is pending final approval. The program, which will be jointly sponsored by the electrical engineering and mechanical engineering departments, will educate engineers to employ an integrated view of properties of materials, manufacturing process fundamentals, production system analysis, computer aided design and manufacturing, and robotics in systems design and synthesis. For further information, contact the department concerned.

MECHANICAL ENGINEERING (M E)

Faculty: Cengel, Chalhoub, Dandini (consultant to ERDC), Evrensel, Fashbaugh, Gordaninejad, Greiner, McKee, Muszynska, Snyder, Tracy, Turner, Wirtz (Ch.)

The mechanical engineering curriculum is broadly based to prepare its graduates for a wide variety of careers open to mechanical engineers in science and industry. As the name implies, mechanical engineers are basically creators of mechanical systems and machines, but their career interests range from air conditioning to aerospace, from basic research through design. The student is required to take a core program with a wide choice of technical electives chosen from areas such as aerospace, applied mechanics, bioengineering, computer applications, design engineering, computer integrated manufacturing systems engineering (CIMSE), robotics, and thermal sciences.

General Requirements

	Credits
University Requirements:	
ENGL 101, 102 (or 102 plus three humanistic-social or technical elective credits)	6
U.S. and Nevada Constitutions (included in humanistic-social sciences below)	
Basic Sciences:	
MATH 215, 216, 217; CHEM 101; PHYS 201, 202, 204, 205; M E 299 plus three credits basic science elective and three credits mathematics elective	33
Humanistic-Social Sciences:	
HIST 111 (or equivalent); 12 elective credits	15
Communications:	
Elective	3
Engineering Sciences:	
Required and elective courses selected from an approved list	32
Design:	
Required and elective courses selected from an approved list	16
Mechanical Engineering Requirements:	
Required and elective courses selected from an approved list	21
Undesignated elective	3
	129

Students enrolled in mechanical engineering cooperative programs may take a one-credit course (M E 198, 298, 398, 498) at the appropriate level each academic period they are enrolled in the program. These credits are in addition to the total required for other mechanical engineering students.

Freshman Year
First Semester

	Credits
✓CHEM 101 – General Chemistry	4
✓ENGL 101 – Composition I	3
✓MATH 215 – Calculus I	4
✓PHYS 201 – Engineering Physics I	3
✓PHYS 204 – Engineering Physics Lab I	1
	15

Second Semester

	Credits
✓ENGL 102 – Composition II	3
HIST 111 or P SC 103	3
✓M E 150 – Introduction to Mechanical Design	3
✓MATH 216 – Calculus II	4
✓PHYS 202 – Engineering Physics II	3
✓PHYS 205 – Engineering Physics Lab II	1
	17

Sophomore Year
First Semester

	Credits
M E 201 – Computer Program	3
M E 241 – Statics	3
MATH 217 – Calculus III	4
METE 350 – Materials Science	3
Communications elective	3
	16

Second Semester

	Credits
C E 372 – Structures Materials	3
E E 212 – Introduction to Network Analysis	3
M E 242 – Dynamics	3
M E 250 – Introduction to Computer Aided Design	3
M E 299 – Differential Equations	3
	15

Junior Year
First Semester

	Credits
M E 351 – Machine Design	4
M E 367 – Elementary Fluid Mechanics	3
M E 371 – Thermodynamics I	3
Electives	6
	16

Second Semester

	Credits
M E 310 – System Analysis and Design	4
M E 368 – Intermediate Fluid Mechanics	3
M E 391 – Instrumentation	3
Electives	6
	16

Senior Year
First Semester

	Credits
M E 461 – Heat Transfer	3
M E 491 – Mechanical Engineering Lab	2
Electives	12
	17

Second Semester

	Credits
M E 452 – Design Synthesis	3
M E 492 – Engineering Economics	2
Electives	12
	17

Total credits required for bachelor of science in mechanical engineering: 129

Graduate Curriculum

The department currently offers the master of science degree in mechanical engineering and participates in the interdisciplinary Ph.D. program in the College of Engineering.

The program of courses and research for both the master's and doctoral degrees is tailored to the background, the needs, and the interests of the individual student.

Candidates for the M.S. degree may satisfy the thesis requirement by original research. A candidate with acceptable professional engineering experience may substitute course work for the thesis upon approval of the department faculty.

Some of the areas of research currently in progress are laser anemometry, temperature control in electronic devices, mechanics of fiber reinforced composites, solar energy collection and systems, robotics, heat transfer augmentation, flexible automated manufacturing, and biofluid mechanics.

For details of the graduate programs, see the Graduate School section.

Sarah Hamilton Fleischmann School of Home Economics

Eva L. Essa, *Acting Dean*

Faculty: Casebier, Essa, Gunn, Haldeman, Hall, Harvey-webster, Kees Martin, Markee, Murray, Nissen, Pedersen, Peters, Read, Tripple

Objectives

Home economics as a field of study encompasses several subject matter areas united by a common focus of improving the quality of life for families. Through teaching, research, and public service, the School of Home Economics is actively engaged in applying scientific and humanistic principles to the problems faced by families.

The curricular offerings provide: (1) professional preparation for a career in home economics, (2) professional renewal for practicing home economists, (3) preparation for responsible leadership and effective participation in family and community life, (4) enrichment of the professional preparation of students in other departments, and (5) graduate study in home economics at the master's degree level.

Degrees Offered

The School of Home Economics offers opportunities for study at two levels: bachelor of science degree with majors in child and family studies, consumer science, textile and apparel merchandising, food and nutrition, and housing and interior design; and master of science degree with a major in home economics.

Since the educational program of the School of Home Economics emphasizes both breadth of knowledge and its application to the solution of human problems, its courses are highly suitable as a minor program of study or elective choices for students majoring in other departments on campus.

Accreditation

The School of Home Economics at the University of Nevada-Reno is accredited by the Council of Professional Development of the American Home Economics Association. The school's professional programs are child and family studies, consumer sciences, textile and apparel merchandising, food and nutrition, and housing and interior design.

Student Participation

Students are expected to play an active role in decisions relative to their educational programs. By counseling with their adviser once a semester, they can follow appropriate sequencing of courses, select electives to strengthen their academic preparation, and, in general, plan their course of study to facilitate meeting the degree requirements.

Students anticipating a transfer to the school are advised to take the required core courses in the humanities, social and natural sciences. These courses are prerequisites for the required home economics courses and are the most useful in meeting baccalaureate degree requirements.

Requirements for the Baccalaureate Degree

The bachelor of science in home economics requires a minimum of 128 credits in required and elective courses. At least 50 credits must be earned in courses numbered 300 or above. A maximum of 30 required or elective credits on an S/U basis may be utilized. If a student wishes to transfer in more than 30 credits on an S/U basis, each case is considered on an individual basis.

For a home economics program to be accredited, there must be a common body of knowledge containing concepts relevant to all majors. This common body of knowledge is the core, and at UNR consists of two components: required courses in the humanities, social, and natural sciences, as well as 20 credits in home economics. The core courses are selected to provide basic principles and concepts which serve as the foundation for synthesizing knowledge applicable to improving the quality of family life for the individual, the family, and the community.

Core Requirements	*Credits*
Humanities	6
Social sciences	12
EC 101 or 102	
PSY 101	
SOC 101	
U.S./Nevada Constitutions	
Natural science and mathematics	12
In foods and nutrition, dietetics option, CHEM 101, BIOL 101, and MATH 115 must be taken. A 100 level approved mathematics course is required of all majors.	
Communication skills	9
ENG 101, 102, and	
SPCM 113, 217, or 329	
Home economics	20
H EC 121—Human Nutrition	
H EC 172—Introduction to Home Economics	
H EC 274—Individual and the Family	
H EC 371—Family Resource Management	
H EC 375—Perspectives on the Near Environment	
H EC 472—Contemporary Family Issues	
H EC 475—Philosophies and Issues in Home Economics	

The program of study for the major is designed to provide additional professional education by combining specialized courses in home economics with those from related areas.

Child and Family Studies

The child and family studies major combines theory with a variety of supervised experiences to prepare students for work with children, adults and families through government and private agencies and other human service settings.

Subject area core: H EC 131, 132, 233 (3 credits), 333, 422 (1 credit), 430, 431, (4 credits), 433, 434, 436, 438, 458, 470, 6 credits of communication from ENG 321, SPCM 315, 329, 411, 435; plus 12 credits in approved support courses.

Minor in Child and Family – The number of credits to be taken is 18 to 24 depending upon the requirements of the college from which the student is receiving the baccalaureate degree. Nine upper-division credits are required.

Required: H EC 274.

Early Childhood Special Education Endorsement – Students interested in working with young children with special needs may be interested in completing the interdisciplinary courses which lead to a Nevada teaching endorsement in early childhood special education. Additional information and specific courses are provided in the interdisciplinary section of this catalog.

Consumer Sciences

The consumer sciences major provides three options for students who are interested in working with people and problem solving: communications, consumer affairs, and vocational home economics education.

Subject area core: H EC 341, 438, 445, 470, or 457 (8 credits). Vocational home economics education option requires 8 credits of H EC 457.

The *communications option* provides opportunities to develop the ability to present ideas through the use of a variety of media. Graduates are prepared for careers which combine creative talent in writing, oral communications, or photography with the ability to work with people.

Communications option: H EC 347a and b, 436, plus 15 credits in JOUR 101, 201, 203, 231, 341, 418 and/or SPCM 213, 315, 410, 411, 433.

The *consumer affairs option* prepares students for careers which require a combination of interpersonal and business skills. Course work is designed to help students develop the ability to solve problems consumers encounter in the marketplace and in the public policy arena. Graduates are prepared for careers in the financial planning industry, or as a consumer representative in business or government.

Consumer affairs option: H EC 451; MGRS 310, 312; EC 101; plus 21 credits from approved support courses.

The *vocational home economics education option* provides the opportunity to develop the skills required to plan educational programs for a variety of audiences, youth through adult. Graduates qualify for a Nevada teaching endorsement in vocational home economics. They may also enter careers in business and industry, and in the Cooperative Extension Service.

Vocational home economics education option: EAHE 101; H EC 270 (3 credits), CAPS 330, 400; H EC 347, 449; C I 404, 409; AGED 230; H EC 484 (3 credits) or AGED 497, and the following: H EC 131, 210, 216, 225, 233 (1 credit), 275. Students wishing to be certified in home economics occupational areas must verify two years of occupational employment in a position related to a career cluster to be taught. Students interested in Extension are to contact the home economics education adviser for course substitutions and elective selections.

Minor in home economics education – A teaching minor in home economics consists of 24 total credits, including H EC 347 (three credits). Students must elect at least one course from each of the five groups as listed under the minor in home economics. Nine upper-division credits are required.

A minor in home economics education enables an education major to teach home economics in a non-vocational program.

Minor in family financial management – The number of credits to be taken is 18. Nine upper-division credits are required.

Core: H EC 278, 341, 441, 451. Choose six additional credits from the following courses: H EC 333, 374, 436, 445, 458.

Textile and Apparel Merchandising

The textile and apparel merchandising major prepares students for entry into management positions related to the merchandising of apparel and other textile and/or fashion oriented goods. A minor in business administration is required.

Subject area core: H EC 210, 212, 216, 270, 315, 317, 414, 416, 419, 445, 470; plus 21 credits in approved support courses.

Minor in fashion merchandising – A minimum of 18 credits are required with nine or more in upper-division courses.

Required: H EC 210, 212, 216, 317, 414, one or more of: 202, 315, 416.

Food and Nutrition

Food and nutrition majors may be oriented to one of two major career emphases.

Dietetics leads toward an accredited internship and future employment as a clinical or administrative dietitian/nutritionist in hospital settings, private practice or community nutrition. The dietetics course work is an American Dietetic Association approved Plan IV curriculum.

Dietetics option: H EC 223, 225, 270, 320, 321, 420, 423, 426, 427, 438; CHEM 101, 102, 142, 143; B CH 400; BIOL 101, 251, 262, 263; MGRS 101; plus 3 credits in approved support courses.

Food and beverage management for the hospitality industry may lead toward employment in management positions in restaurants, hotels, institutions, schools; food display programs in industry; or catering.

Food and beverage management for the hospitality industry option: H EC 225, 270, 320, 321, 422 (2 credits), 423, 425, 438 (1 credit), 445, 470; CHEM 101; BIOL 101, 251; MGRS 310, 323, 367; ACC 201; MATH 115; plus 13 credits in approved support courses.

Corporate fitness leads toward employment as a director of wellness/fitness programs in business and community settings.

Corporate fitness option: H EC 121, 422 (2 credits), 424, 427, 428; RPED 221, 290, 302, 341, 342, 343, 370, 396, 403, 406, 408, 421, 492, and choose two from RPED 217, 221, 228, 232; SHR 354; MGRS 101; ACC 201.

Minor in nutrition – Select 18 credits from: H EC 223, 420, 421, 422, 426, 427, 428.

Minor in food and beverage management for the hospitality industry – A minimum of 18 credits are required with nine or more in upper-division courses. Student should note the various course prerequisites. Courses to select among: H EC 225, 320, 321, 423, 425, 470.

Housing and Interior Design

This major permits a student to focus on either housing or interior design.

Subject area core: H EC 151, 216, 275, 355, 470.

Housing management/planning requires a knowledge of the social, political, economic, and aesthetic aspects of housing and the near environment. Career opportunities include working in government agencies and businesses which have an interest in city and regional planning, home financing, design, environmental impacts and/or social issues affecting lifestyles.

Housing management/planning option: H EC 333, 436, 438, 445, 453, 458; P SC 341, 406, 443; MGRS 101.

Interior design combines courses in home economics with art, business, and historic preservation to prepare for a career in residential or commercial interior design, education, or retailing or wholesaling products related to the industry.

Interior design option: H EC 151, 216, 256 275, 350, 354, 355, 358, 452, 456, 459, 470.

Minor in housing – A minimum of 18 credits are required with nine or more in upper-division courses to be selected from the following: H EC 151, 216, 275, 333, 355, 445, 453, 458.

Minor in interior design – A minimum of 18 credits from: H EC 151, 256, 275, 350, 354, 355, 358, 452, 456, 459.

Minor in Home Economics

The number of credits to be taken is 18 to 24 depending upon the requirements of the college from which the student is receiving the baccalaureate degree. At least one course is to be taken from each group shown below. Remaining credits may be completed by choosing any home economics course(s) listed in the catalog. Nine upper-division credits are required.

	Credits
Group I:	
H EC 210—Apparel Product Analysis	3
H EC 212—Textile, Apparel, and Retail Industries	3
H EC 216—Textiles	3
H EC 315—Historic Costumes and Textiles	3
H EC 317—Fundamentals of Aesthetics and Fashion	3
Group II:	
H EC 121—Human Nutrition	3
H EC 225—Principles of Food Science	3
H EC 422a-f—Nutrition in the Life Cycle	3
Group III:	
H EC 151—Design	4
H EC 275—Housing	3
H EC 350—Space, Light, and Color	3
H EC 353—History of Interiors	3
H EC 355—Materials and Resources	3
H EC 452—Contemporary Design Concepts	3
Group IV:	
H EC 131—Child Development	3
H EC 274—The Individual and the Family	4
H EC 333—Adult Development and Aging	3
H EC 430—Human Sexuality	3
H EC 431—Advanced Studies in Human Development and Family	2
H EC 458—Families and Public Decision-Making	3
Group V:	
H EC 341—Personal Finance	3
H EC 371—Family Resource Management	3
H EC 445—The Consumer in Our Society	3

Graduate Study

Graduate work is available both for the person who wishes to earn a master of science degree and the person with a bachelor's or advanced degree who wishes professional updating via graduate courses of choice.

Graduate Special

The graduate special classification is for students who do not wish to pursue a program leading to an advanced degree but who are authorized to enroll in graduate courses, and for students who must complete additional undergraduate credits before they are eligible to apply for admission to graduate standing.

To gain admission as a graduate special, a student must file official transcripts, or a degree certification form, showing the applicant has a bachelor's degree from an accredited four-year college or university.

Up to nine graduate credits earned as a graduate special may be applied towards the advanced degree program.

Admission to the Graduate Program

A student applying for graduate standing must meet the following academic requirements:

1. A bachelor's degree from an accredited educational institution.
2. An undergraduate GPA of 2.75 or higher. If an applicant's GPA is below 2.75, special consideration is given to Graduate Record Examination scores.
3. A score of 400 or higher on the verbal part of the Graduate Record Examination.
4. A minimum of 18 credits of courses in home economics, in at least three different home economics subject matter areas.

Master of Science

A master of science degree is offered with a major in home economics. Students may specialize to a limited extent through the area chosen for the thesis/professional paper and the elective courses.

All students take: H EC 730—Seminar in Contemporary Families; 740—Family Economics and Management; 771—Research Methods in Home Economics; 790—Seminar; 795—Comprehensive Examination; 796—Professional Paper; 797—Thesis; statistics.

If the candidate selects the professional paper plan, 32 credits are required, including a minimum of 12 credits in home economics courses numbered 700 or above, excluding professional paper credits. As a part of the minimum requirements, a professional problem resulting in a professional paper must be completed. For admission to the professional paper plan, a candidate must have a minimum of two years of professional experience in home economics or an allied field.

If the candidate selects the thesis plan, 24 credits in graduate courses and six credits of thesis are required. The program must include a minimum of 12 credits in courses numbered 700 or above, excluding the thesis credits. A thesis may be undertaken in one of the areas in which faculty members have research experience. At present, these areas include clothing and textiles, family studies, human nutrition, family economics and management, housing, and home economics education.

The Final Examination

A written examination (H EC 795) is conducted by the graduate faculty of the School of Home Economics. The examination covers the in-common courses as well as courses taken toward a more individualized goal. The examination is taken when coursework is completed and at least two weeks before the date of the oral examination administered by the student's graduate committee.

If any part of the written examination is unsatisfactory, that part may be taken again at a time approved by the director of graduate education.

The oral examination covers the contents of the thesis/professional paper and facts and principles or theories related to or suggested by the thesis/professional paper. Final examinations may be scheduled only when university classes are normally in session.

Donald W. Reynolds School of Journalism

Travis Linn, *Dean*

Faculty: Adams, Conover, Coulson, Ellis, Highton, Howland, Land, Lerude, Linn, Padellford

Visiting Faculty: Frook, Laxalt, Morris

Journalists play a crucial role as they discover, analyze and report the events and trends that shape our society.

Professionals in the related fields of advertising and public relations provide equally important services as we rely upon them to inform us of the nature of products, companies, and public and private agencies that influence our lives.

The practice of these professions demands skill in writing and understanding of government, economy and society.

The objective of the Donald W. Reynolds School of Journalism is to help students acquire the combination of general education and journalistic skill that will enable them to pursue inquiry intelligently, treat issues fairly and communicate facts clearly.

Bachelor of Arts Degree

Students seeking the bachelor of arts degree from the Reynolds School of Journalism must complete at least 128 credits, 40 of which must be numbered 300 or higher.

The university requires the completion of courses in U.S. and Nevada constitutions as well as ENGL 102.

Of the 128 credits required for graduation, at least 90 credits must be in courses other than journalism and journalism-related skills courses, and at least 65 must be in the liberal arts. A minimum of 29 credits must be in journalism, including courses in the journalism core and one career option, as described below.

Of journalism courses, only JOUR 101, 201 and 203 may be taken during the freshman and sophomore years. Students are urged to enroll in liberal arts courses and to satisfy the requirements for ENGL 102, U.S. and Nevada constitutions and foreign language during the first two years of university-level study.

Journalism majors are urged to pursue a second major field of study, or at least a minor, in a substantive field.

To gain approval to major in journalism, a student must have junior standing and a GPA of 2.5 or higher. Freshmen and sophomores are considered as prejournalism majors.

Students majoring in journalism may count toward graduation no more than 15 credits taken for *S/U*. With the exception of journalism courses offered for *S/U* only, all courses satisfying requirements in the major, liberal arts, foreign language, business and university requirements must be taken for a letter grade.

The revised bachelor of arts degree program replaces the previously offered bachelor of arts in journalism degree which will not be awarded after May 1988.

Liberal Arts Requirements

Professional journalists must have a working knowledge of the nation's cultural, literary and artistic heritage, the nature of other societies, the organization of local, state, national and international government, the effects of economic transactions and the scientific and mathematical perceptions of the ecology.

Therefore, the curriculum for journalism majors includes a strong liberal arts education. The liberal arts include such subjects as anthropology, art, biology, chemistry, foreign languages, geography, geology, history, literature, mathematics, music, philosophy, physics, political science, psychology, religion and sociology.

Note: While skills courses in such fields as art, music and theater do not satisfy the liberal arts requirement, courses in the history and theory of such subjects do.

Students seeking the bachelor of arts degree from the Reynolds School of Journalism must complete at least 65 credits in the liberal arts, including at least three credits in economics, six credits in history, six credits in literature, six credits in philosophy *and* the fine arts, six credits in political science, nine credits in the natural sciences *and* mathematics (at least three in each), and three credits in sociology.

Note: Courses taken to satisfy the university requirements in English (ENGL 102) and U.S. and Nevada constitutions (HIST 111 or P SC 103) may not be counted toward the 65 required credits in the liberal arts.

Business Administration

Because of the importance of business and marketing, journalism majors are required to complete at least three credits in managerial sciences or accounting.

Language Requirement

The understanding of other cultures is important to the professional journalist. Journalism majors must demonstrate proficiency in one foreign language by successfully completing a fourth-semester course in that language or by passing an examination at that level. (This course may not be counted toward the requirement for 65 liberal arts credits, although other language courses may.)

GPA Requirement

As a professional school, the Reynolds School of Journalism expects students to demonstrate a solid commitment to performance and excellence.

To major in journalism, students must maintain a GPA of 2.5 or higher in all courses and specifically within the journalism curriculum. A student whose grade in a journalism course is lower than "C," and whose GPA within journalism courses is below 2.5, must repeat the course.

A student who does not satisfy the GPA requirements for two successive semesters may not register in additional journalism courses without advance written approval of the dean.

Journalism Courses

All journalism majors must complete the courses in the journalism core, which provides basic knowledge and skills for students seeking careers in print and broadcast journalism, advertising or public relations, plus the courses in one career option. Majors may also take journalism elective courses of their choice.

Completion of the core and one career option totals 29 credits.

The Journalism Core

The journalism core consists of the following courses:

Freshman Year	*Credits*
JOUR 101—Introduction to Journalism	3

Sophomore Year	*Credits*
JOUR 201—Basic Reporting	3
JOUR 203—Advanced Reporting	3

Junior and Senior Years	*Credits*
JOUR 303—Media Graphics	2
JOUR 401—Media Law	3

Career Options

Career option courses may be taken only by students who have junior standing, satisfy the GPA requirements and have successfully completed JOUR 101, 201 and 203. Career option courses should be taken in the sequence shown.

Print Journalism	*Credits*
JOUR 311—Assignment Reporting	3
JOUR 313—Photojournalism	3
JOUR 411—News Editing	3
JOUR 413—History and Ethics of Journalism	3
JOUR 499—Professional Internship	3

Broadcast Journalism	*Credits*
JOUR 321—Writing News for Broadcast	3
JOUR 323—Broadcast News Writing and Production	3
JOUR 421—Radio News Reporting	3
JOUR 423—Television News Reporting	3
JOUR 499—Professional Internship	3

Advertising	*Credits*
JOUR 331—Introduction to Advertising	2
JOUR 333—Advertising Media	2
JOUR 334—Advertising Copy	2
JOUR 431—Advertising Photography and Graphics	3
JOUR 433—Advertising Case Studies	3
JOUR 499—Professional Internship	3

Note: JOUR 333 and 334 must be taken concurrently.

Public Relations	*Credits*
JOUR 313—Photojournalism	3
JOUR 341—Public Relations Principles and Practice	2
JOUR 343—Public Relations Case Studies	2
JOUR 411—News Editing	3
JOUR 441—Public Relations Problems	2
JOUR 499—Professional Internship	3

Minor in Journalism

Students majoring in another field may minor in journalism by completing the following courses:

	Credits
JOUR 101—Introduction to Journalism	3
JOUR 201—Basic Reporting	3
JOUR 203—Advanced Reporting	3
JOUR 303—Media Graphics	2
JOUR 401—Media Law	3
plus at least four credits from one or more of the career options shown above	4-6

Journalism Teaching

Students may prepare for the teaching of journalism in high school through a combination of courses in journalism and education. This program is offered by the College of Education.

Accreditation

The Reynolds School of Journalism is accredited by the Accrediting Council on Education in Journalism and Mass Communications. Accreditation was first granted in 1970.

Master of Arts Degree

The master's program in journalism prepares students for careers of responsible media leadership. Graduate studies provide the opportunity to acquire research skills and to develop journalistic competence. In a competitive profession, such a program of study makes a valuable difference.

The program is designed to meet the needs of students of diverse academic and professional backgrounds and interests. The Reynolds School of Journalism encourages applications from those who hold degrees in other disciplines as well as those with journalism backgrounds who wish to continue their education.

Admission Requirements

Students are admitted to the graduate program each fall semester on a competitive basis, with notification of acceptance by April 1.

A completed application and supporting credentials must be submitted directly to the university office of Admissions and Records by March 1. Supporting credentials include:

1. Official transcripts from each college and university attended.
2. Graduate Record Examination scores (from a test taken within the past five years).
3. Application fee (nonrefundable).

In addition, each applicant must provide the following information directly to the Reynolds School of Journalism for consideration with the application:

1. Letter of intent explaining study goals.
2. Three letters of recommendation.
3. Other evidence of potential for success in graduate study.

In general, successful applicants are expected to have a 3.0 or higher GPA (based on 4.0 scale), a combined minimum GRE score (verbal, quantitative and analytic) of 1,500, and at least one letter of recommendation from an undergraduate adviser, major professor or department chair which appraises the applicant's capabilities for graduate work. Additional letters of recommendation from employers are acceptable. The applicant's statement of experience and interest in journalism

should specify what they expect to accomplish from pursuing graduate study in journalism. Finally, applicants are encouraged to submit evidence of journalistic ability.

Students entering the master's program should have demonstrated writing and editing skills and have satisfactorily completed courses in media law and the history and ethics of journalism. Depending upon a student's educational and professional background, the student may be required to complete courses in these areas. If the student's GPA in these courses is below 2.5, the student must retake courses with grades of "C" or below.

International Students

The Reynolds School of Journalism welcomes applications from international students, believing that mutual benefit is derived when students from other countries are in the program. The school also recognizes that journalism, more than many other fields, requires language skill. International students must be able to follow rapid speech both in the field and the classroom, as well as to deal with abstract ideas communicated in English. Completion of the master's degree in journalism attests to the student's proficiency in English.

The Test of English as a Foreign Language (TOEFL) and the Test of Spoken English (TOSE) are required of international students whose native language is not English. A score of 575 or higher on the TOEFL *and* a score of 215 or higher on TOSE are required for admission.

Plan of Study

Prior to a student's registration for the first semester of study, the director of graduate studies appoints a faculty adviser. The student and the adviser work out a plan of study that shows the direction of the student's course work and an anticipated date of completion. This plan of study becomes a part of the student's file and constitutes the terms and conditions that the student must meet for completing the degree requirements. Subsequent changes in the plan of study must be approved by the director of graduate studies.

Writing Proficiency Examination

A writing proficiency examination is administered during the second week of classes of the fall semester. Students take the examination their first fall semester of graduate standing. Students who score less than 80 percent take the test again during the twelfth week of the fall semester. Those who score less than 80 percent a second time are required to pass a prescribed undergraduate writing course with a grade of B or higher.

Graduate Assistantships

Graduate assistantships are available in the Reynolds School of Journalism each year. Graduate assistants teach laboratories and assist faculty in their courses and research.

Graduate assistants receive stipends of $5,000 for one academic year. Stipends are accompanied by grants-in-aid applied against tuition and out-of-state fees.

Students applying for assistantships should file their applications with the Reynolds School of Journalism no later than March 1. Graduate assistantships are awarded only to students who are officially admitted to graduate standing. Assistantships begin in the fall semester.

Degree Requirements

To qualify for the master of arts degree with a major in journalism, students must satisfy the following requirements:

1. Writing proficiency examination.
2. Undergraduate prerequisite, if any.
3. Foreign language requirement.
4. Core curriculum (12 credits).
5. Journalism electives (six credits).
6. Minor in an approved field of study (nine credits).
7. Maintenance of a GPA of 3.0 or higher.
8. Professional research project (four credits).
9. Project development course (two credits).
10. Oral defense of professional research project.

Of the 33 graduate credits required, at least 21 must be in courses numbered 700 or higher. Courses numbered lower than 600 are not counted toward the degree. With the exception of JOUR 797—Professional Research Project and JOUR 798—Project Development, no course may be taken for *S/U*.

Students with undergraduate degrees in journalism or mass communication or with extensive professional experience take nine credits in a minor field. Students without such backgrounds take journalism skills courses instead.

Core Curriculum

The following courses are required for all journalism graduate students:

Required Courses	*Credits*
JOUR 701—Mass Media Research	3
JOUR 703—Media Dynamics in Society	3
JOUR 705—Media Technologies	3
JOUR 707—Analytic Reporting	3

Maintaining Progress

Students are expected to maintain satisfactory progress toward the degree. A student's graduate record begins with the first course credited to the degree and includes all subsequent courses. Students must maintain a GPA of at least 3.0 within the core curriculum and a GPA of 3.0 or higher in all courses counted toward the degree. Students must complete all requirements within four years.

A student who is not enrolled in any course during a regular semester must pay a fee of $40 for use of university resources during that semester.

Foreign Language Requirement

Candidates for the master's degree must demonstrate competency in a foreign language in one of the following ways:

1. Complete a fourth-semester undergraduate course in the language with a grade of "C" or higher or pass an examination at that level.

2. Demonstrate that a similar foreign language requirement has been satisfied in obtaining the bachelor's degree.

Professional Research Project

Most decision-oriented positions in journalism require a general understanding of what research is and how it can help solve problems. Increasingly, decisions are based on research, and more news stories are about research. As a result, both applied and theoretical approaches to research have taken on more significance in the decision-making process of journalism and in our understanding of the media and their use.

Each student must complete a professional research project

designed to blend research with practice. It includes a consultancy or working relationship with organizations involved with media. Students identify a problem within the field, investigate it in a professional setting and apply appropriate research procedures. The project is the culmination of the student's graduate studies. Previous course work provides the basis for successful application of theory in the media workplace.

Students submit a written prospectus, outlining the purpose and approach of the research, to the director of graduate studies at least 60 days before their media affiliation. *(Note: The student must complete JOUR 701 before preparing the prospectus.)*

After the director of graduate studies accepts the prospectus, the student selects other members of an advisory committee. The committee consists of three or more members, one from outside the Reynolds School of Journalism. The director of graduate studies designates the chair of the committee who must be a graduate faculty member.

A consultative meeting is held between the student and the advisory committee to discuss revisions of and refinements in the prospectus. After the meeting, the committee votes to accept or reject the prospectus. Final approval of the prospectus is required before the student can begin working with a media firm. The student whose prospectus is approved works closely with the committee in the completion of the project. This includes submitting periodic progress reports to the committee adviser while working with the media.

Oral Defense

Upon completion of the professional research project, the master's candidate makes an oral defense of the project. It is evaluated as a measure of the student's conceptual, research and writing abilities.

The student schedules the defense, with the consent of the committee, for a date not later than three weeks before the end of spring or fall semester. All members of the committee must have adequate time to read the project document before the oral examination. The student is responsible for duplicating and distributing copies of the document to the advisory committee and making arrangements for scheduling the oral defense. Students also should make certain their academic progress sheets are filed with the director of graduate studies in journalism two weeks before the date of the oral defense.

A majority vote of the committee is sufficient to approve the project. The signatures of all the committee members must appear on the signature sheet.

The committee adviser decides whether final corrections (after the oral defense) have been made properly and checks the style and form of the final typed version. Procedures for the professional research project are the same as those for the thesis in the Graduate School section of this catalog.

Three copies of the professional research project document should be delivered to the Reynolds School of Journalism.

School of Medicine

Robert M. Daugherty, Jr., M.D., Ph.D., *Dean*

The University of Nevada School of Medicine is one of only 20 community based medical schools in the U.S. This means that the school uses already existent clinical facilities in its clinical training programs; it owns no teaching hospital, nor does it aspire to do so. The school is designed to train capable and caring physicians who will practice primary care medicine in a community rather than an academic setting.

In a state like Nevada, with a small and scattered population, limited resources and a need for primary care physicians, the university based and community integrated model has been determined to be both philosophically and pragmatically the most practical.

Important allied health programs overseen by the school include the medical technology/clinical laboratory sciences program and the Department of Speech Pathology and Audiology.

Baccalaureate Degree Programs

The School of Medicine offers a bachelor of science degree with majors in biochemistry, medical technology and speech pathology or audiology. The clinical training and practicum associated with these fields are fully integrated with the school's curricular structure, and students may earn their baccalaureate degrees by completing:

1. A total of 128 credits in required and elective courses. Of the 128 credits, a maximum of eight credits of combined courses in recreation and physical education and military science (below 300-level) may apply.
2. A minimum of 40 credits in courses numbered 300 or above.
3. The university course requirements in constitution (United States and Nevada), English, mathematics, natural science, and social science or humanities.
4. The general university requirements regarding minimum GPA and resident credit.
5. A minimum of six credits in the humanities.

The number of credits taken on an S/U basis may not exceed 30. These courses may not be taken within the required areas.

In addition, a bachelor of science degree with a major in medical sciences is offered for medical students who enter after three years of university level study. The major may be completed during the two year basic sciences curriculum provided all university and school requirements are satisfied during that time.

Biochemistry

An undergraduate major is offered in biochemistry through the School of Medicine. This program provides the student with a well-rounded general education that emphasizes the biological and chemical sciences and strong specific training in the major field through a sequence of standard biochemistry courses during the junior and senior years. A minor in biochemistry is also available.

The bachelor of science in biochemistry prepares students for graduate study, civil service positions, industry and professional fields related to life, health, agriculture, and the medical sciences.

The curriculum for majors is shown below. Students interested in the program should contact the Biochemistry Department for advisement.

Freshman Year

	Credits
BIOL 101, 102, 201 or 202	7
CHEM 201, 202 recommended; CHEM 101, 102 accepted	8
ENGL 101, 102	6
MATH 215	4
P SC 103 or HIST 111	3
Elective[1]	4
	32

Sophomore Year

	Credits
AGEC 270 or equivalent	3
CHEM 343, 344	6
CHEM 347, 348	4
MATH 216	4
PHYS 151, 152	6
PHYS 153, 154	2
SPCM 113	3
Elective[1]	4
	32

Junior Year

	Credits
B CH 400, 417	8
B CH 403, 404	4
CHEM 330	4
CHEM 353, 354 recommended; CHEM 357, 451 accepted	6
MINE 213 or equivalent	2
Biological science elective[2]	4
Elective[1]	4
	32

Senior Year

	Credits
B CH 407, 408	6
B CH 413	4
B CH 420, 421	2
Biological science elective[2]	4
Elective[1]	16
	32

Minor in Biochemistry

Students majoring in another field may minor in biochemistry by completing the following:

	Credits
B CH 400, 403, 404	8
B CH 413 or 417	4
An additional six credits in any course in the physical sciences (including additional biochemistry)	6
	18

Clinical Laboratory Science

The clinical laboratory science (CLS) curriculum is designed to provide the student with the knowledge and skills required

[1]Twelve credits must be in the humanities.
[2]Must be at 300 level or higher.

to perform diagnostic procedures in the clinical laboratory. The course of study includes a selected base of subject matter to give the student a broad background in physical, chemical, and biological concepts fundamental to the field of laboratory medicine. Emphasis is placed on the role of the clinical laboratory scientist in modern health care delivery.

Students who wish to pursue a career in clinical laboratory science are classified premajors upon admission to the university.

Students may select a two-year course of study at the University of Nevada-Reno, the completion of which allows them to enter the work force at the level of a medical laboratory technician (MLT), or they may elect to complete a bachelor of science with a major in CLS which provides greater upward mobility potential and responsibility. Years one and two at UNR include CLS courses which emphasize basic laboratory knowledge and skills required of MLT's and leads to a certificate of completion. Students may apply to the UNR program leading to a certificate after the first semester's requirements are completed. Admission criteria include a GPA of 2.50 or higher in required courses with a C grade or better in each of these courses. Completion of the two-year MLT required courses with an overall GPA of 2.00 or higher and a C grade or better in each required course culminates in a certificate of completion at UNR. A similar two-year MLT program leading to an associate degree is offered through Clark County Community College (CCCC). Further information concerning the CCCC MLT program may be obtained by contacting the clinical laboratory science program at UNR or the CCCC Science and Health Division.

Freshman Year
First Semester

	Credits
BIOL 101—General Biology	3
CHEM 101—General Chemistry	4
CLS 111—Medical Terminology	1
ENGL 101—Composition I	3
MATH 115—Algebra and Trigonometry	4
	15

Second Semester

	Credits
BIOL 102—General Biology Laboratory	1
BIOL 251—Microbiology	4
CHEM 102—General Chemistry	4
ENGL 102—Composition II	3
HIST 111—Survey of American Constitutional History	3
	15

Summer

	Credits
CLS 161—Medical Laboratory Principles I	1
CLS 162—Medical Laboratory Principles II	1
CLS 281—Parasitology/Mycology/Virology	1
CLS 282—Applied Parasitology/Mycology	1
CLS 291—Hematology	2
CLS 292—Applied Hematology	2
	8

Sophomore Year
First Semester

	Credits
BIOL 262—Human Anatomy and Physiology I	3
CHEM 142—Organic Chemistry	3
CHEM 143—Introductory Organic Chemistry Laboratory	1
CLS 216—Instrumentation Laboratory	1
CLS 221—Principles of Disease I	1
CLS 271—Clinical Microbiology	2
CLS 272—Applied Clinical Microbiology	3
	14

Second Semester

	Credits
BIOL 263—Human Anatomy and Physiology II	3
CLS 222—Principles of Disease II	1
CLS 241—Clinical Chemistry	3
CLS 242—Applied Clinical Chemistry	3
CLS 251—Immunology/Immunohematology	2
CLS 252—Applied Immunology/Immunohematology	2
	14

Summer

	Credits
CLS 296—Clinical Practicum	3

Students who wish to pursue a bachelor's degree with a major in CLS at UNR must earn a GPA of 2.50 or higher with a grade of C or better in each required course while completing 30 credits or more in major courses (CLS) during their first two years in the MLT major. Once admitted to the major, students must maintain a GPA of 2.50 or higher and must earn a grade of C or better in each major course to satisfy minimum graduation requirements. The CCCC MLT program fully articulates with the bachelor CLS program at UNR and students who successfully complete the MLT curriculum at either institution may enter the bachelor's program at UNR.

Junior Year
First Semester

	Credits
CHEM 330—Analytical Chemistry	4
PHYS 152—General Physics	3
CLS 317—Principles of Laboratory Supervision/Management I	1
CLS 323—Advanced Immunohematology Laboratory	1
Elective—humanities/social science	3
	12

Second Semester

	Credits
B CH 400—Introductory Biochemistry	4
CLS 301—Biometry	1
CLS 318—Principles of Laboratory Supervision Management II	2
CLS 335—Advanced Clinical Microbiology	2
CLS 336—Advanced Clinical Microbiology Laboratory	2
Elective—humanities/social science	3
	14

Senior Year
First Semester

	Credits
CIS 250—Introduction to Business Information Systems	3
CLS 313—Advanced Hematology	2
CLS 314—Advanced Hematology Laboratory	1
CLS 425—Instrumentation	1
Elective	6
	13

Second Semester

	Credits
CLS 426—Clinical Chemistry	3
CLS 427—Clinical Chemistry Lab	1
CLS 431—Immunology	3
CLS 432—Serology Lab	1
CLS 441—Pathophysiology	2
Elective	3
	13

Summer

	Credits
CLS 451—Clinical Practicum	15

During the course of study, all students in the program (certificate and bachelor's degree) are required to enroll in a clinical practicum and are assigned to affiliated hospital laboratories for practical experience. Students must successfully complete these rotations which include satisfactory perfor-

mance in all clinical laboratory disciplines. A passing score on a comprehensive examination given at the completion of the clinical practicum is required for all students wishing to graduate with a bachelor's degree.

Students who satisfactorily complete either program are eligible to take the appropriate generalist certification examination given by various certifying agencies. For further information concerning the CLS curriculum, contact the clinical laboratory science program, Room 300, Mackay Science Building.

Speech Pathology and Audiology

The baccalaureate degree program with a major in speech pathology (including an option in audiology) is a *preprofessional* program. A master's degree is considered essential for *professional* competence. A minimum of 38 credits in speech pathology and audiology and 125 clock hours of supervised practicum with individuals who present a variety of communicative disorders is required. In addition, 20 credits in related areas such as anthropology, nursing, psychology, special education, linguistics, sociology, or semantics must be completed, and each student must demonstrate adequate ability to work with children having articulation and language disorders.

Required Courses in SPA	*Credits*
SPA 259—Phonetics	3
SPA 310—Speech and Language Development	3
SPA 356—Survey of Speech Pathology	3
SPA 357—Communication Science	3
SPA 359—Assessment of Communication Disorders	3
SPA 360—Methods of Clinical Management	3
SPA 361—Articulation Disorders	3
SPA 362—Introduction to Audiology	3
SPA 363—Practicum in Speech Pathology	4-8
OR	
SPA 459—Seminar in Clinical Procedures	2
SPA 463—Internship in Speech Pathology and Audiology	6-8
SPA 466—Aural Rehabilitation	3
SPA 467—Language Disorders in Children	3

All majors are required to have their programs approved by a faculty adviser within the Speech Pathology and Audiology Department.

For additional information on the baccalaureate program in speech pathology, contact the department chair, Room 108, Mackay Science Building.

Graduate Programs

Master of Science Degree Programs

Biochemistry

The Biochemistry Department offers graduate degree programs through the College of Agriculture and the School of Medicine.

General Requirements for Admission

Applicants with a bachelor's degree in the physical or natural sciences having at least three credits each in biology and organic chemistry and meeting the requirements of the Graduate School may be accepted in biochemistry. Before completing the requirements for the master's degree, students must have completed the following courses or their equivalents: one year of physics; one year of biology, botany, zoology or physiology; and CHEM 243, 244, 247, 248, 330, 353, 354.

Course Work

A minimum of 30 credits, including six credits of thesis, is required. In addition, the candidate must submit a written thesis and pass a given number of written cumulative exams and an oral defense of thesis.

Required Courses	*Credits*
B CH 613, 617—Biochemistry of Macromolecules, Metabolic Regulation	8
B CH 701, 702, 711, 712—Experimental Biochemistry, Biochemical Techniques[1]	5
B CH 790—Graduate Seminar	2
B CH 731, 740 or 751, 752—Physical Biochemistry, Enzymology, Nucleic Acids[2]	3
B CH 722 or 752—Metabolism, Mitochondrial Structure and Function[2]	3
B CH 797—Thesis	6
Elective	3

All students must have their curricular programs approved by a supervisory committee. For additional information, contact the Biochemistry Department, Room 145, Howard Building, School of Medicine.

Cell and Molecular Biology

The cell and molecular biology program is an interdisciplinary program with participating faculty from the School of Medicine and Colleges of Agriculture and Arts and Science. The program consists of a variety of disciplines which involve research at a cell and/or molecular biology level. Programs of study are offered that lead to the master of science, doctor of philosophy, or a combined M.D./Ph.D. degree.

Specific information and course requirements are located in the Interdisiplinary and Special Programs section of the catalog.

Speech Pathology and Audiology

General Requirements for Admission

The master's degree program is designed to provide a professional level of competency in speech pathology and audiology. Each applicant must meet the general admission requirements for graduate standing as described in the Graduate School section. Each student is expected to complete a concentration of course work in speech pathology and audiology, subject to approval of the department, prior to admission to graduate standing.

Course Work

A minimum of 40 credits must be completed at the graduate level. The thesis program, Option A, requires a minimum of 27 course credits plus six credits of thesis, and a comprehensive oral examination covering the thesis and background information.

The nonthesis program, Option B, requires a minimum of 33 course credits. A comprehensive oral and written examination covering communication science, the normal speech and hearing processes, pathologies, and clinical procedures is given to each student early in the last semester of course work. A student completing the program with a master's degree must plan to acquire the background and experience necessary to pass the American Speech Language and Hearing Association national examination to be recognized and certified as a competent speech pathologist or audiologist. Graduate students must complete a minimum of 150 clock hours of supervised clinical experience at the graduate level.

[1]Select any combination for a total of at least five credits.
[2]One course from each of these lists.

An approved program in speech pathology and audiology (which meets national certification requirements) is developed by the graduate adviser, supervising committee, and the student, from the following courses:

	Credits
SPA 659—Seminar in Clinical Procedures	2
SPA 660—Aspects of Speech Pathology and Audiology	1
SPA 661—Advanced Speech Pathology	2
SPA 663—Internship in Speech Pathology and Audiology	6-8
SPA 664—Practicum in Audiological Testing	2
SPA 665—Medical Audiology	3
SPA 666—Rehabilitation for Hearing Handicapped	3
SPA 667—Language Disorders in Children	3
SPA 720—Introduction to Graduate Study	3
SPA 721—Craniofacial Disorders	3
SPA 751—Dysphasia	3
SPA 752—Stuttering	3
SPA 753—Communication Disorders in the Cerebral Palsied	3
SPA 754—Seminar in Physical Anomalies	2
SPA 757—Experimental Phonetics	3
SPA 759—Seminar in Clinical Procedures	2
SPA 762—Disorders of Voice	3
SPA 765—Advanced Audiology	3
SPA 767—Advanced Practicum	2
SPA 768—Seminar in Audiology	3
SPA 769—Seminar in Audiological Measurements	2
SPA 794—Workshops and Institutes	1-3
SPA 780—Independent Study	1-3
SPA 797—Thesis	1-6

All students must have their programs approved by a departmental graduate adviser.

For additional information on the graduate program in speech pathology and audiology, consult the department chair, Room 108, Mackay Science Building.

Early Childhood Special Education Endorsement—students interested in working with young children with special needs may be interested in completing the interdisciplinary courses which lead to a Nevada teaching endorsement in early childhood special education. Additional information and specific courses are provided in the interdisciplinary section of this catalog.

Doctor of Philosophy Degree Programs

Biochemistry

The Biochemistry Department offers the Ph.D. degree either in the College of Agriculture or the School of Medicine.

General Requirements for Admission

All applicants for admission as Ph.D. students must satisfy the general requirements of the Graduate School and must complete courses satisfying the prerequisites in chemistry, biology, and physics before they can be advanced to candidacy.

Course Work

A minimum of 72 credits, including 24 credits of thesis work, is required. In addition, students must pass a specified number of cumulative exams and an oral comprehensive exam in order to be advanced to candidacy. A ready knowledge of a foreign language or an approved substitute is required.

Required Courses	Credits
B CH 613, 617—Biochemistry of Macromolecules, Metabolic Regulation	8
B CH 701, 702, 711, 712—Experimental Biochemistry, Biochemical Techniques[1]	5
B CH 790—Graduate Seminar	3
B CH 731, 740 or 751, 752—Physical Biochemistry, Enzymology, Nucleic Acids[2]	6
B CH 722 or 752—Metabolism, Mitochondrial Structure and Function[2]	6
Electives	20
B CH 799—Dissertation	24

All students must have their curricular programs approved by a supervisory committee. For additional information, contact the Biochemistry Department, Room 145, Howard Building, School of Medicine.

Pharmacology

A master of science degree and a doctor of philosophy degree are offered with a major in pharmacology.

General Requirements for Admission

Candidates for admission to the graduate program in pharmacology must meet the criteria for admission to the Graduate School as well as certain additional program criteria. These include two semesters of biology, two semesters of physics, one semester of calculus, five semesters of chemistry including two semesters of organic chemistry and one semester of physical chemistry. Students lacking one or more of the above courses, but who otherwise meet the requirements may be admitted with the understanding that deficiencies will be rectified at an early date.

Course Work

Twenty-four credits of dissertation work plus a core curriculum of required courses and the opportunity for a variety of elective courses form the essential elements of the program. Considerable flexibility is built into the program to accommodate the needs of the students.

Additional Program Requirements

Students new in the program participate in a research rotation experience during their first year in the program. As their training progresses, students take part in a teaching practicum and further must pass a comprehensive examination in which the student proposes a research project in the form of a written grant proposal. Following acceptance of the proposal, the proposal must be defended orally before the examining committee. A reading knowledge of one foreign language or an approved substitute is required.

All candidates present a public seminar on their dissertations research and must pass an oral defense of the dissertation.

For additional information, contact the Department of Pharmacology, Howard Building, School of Medicine.

Combined M.D./Ph.D.

A combined M.D./Ph.D. degree program is offered with majors in anatomy, biochemistry, cellular and molecular biology, pharmacology, and physiology.

General Requirements for Admission

Candidates may be accepted to the M.D./Ph.D. program only after being accepted to the School of Medicine as a regular M.D. student and if they meet the criteria for admission to the Graduate School. Application to the M.D./Ph.D. program is made via the normal process for admission to the School of Medicine. An additional application must be submitted to the M.D./Ph.D. program committee and the Graduate School.

Additional information about the M.D./Ph.D. program can be obtained from the office of the Assistant Dean for Research,

[1]Select any combination for a total of at least five credits.
[2]Select any combination for a total of at least six credits.

Department of Pharmacology, Howard Building, School of Medicine.

Professional Degree Programs

Four-year Medical School Program

General Information

The School of Medicine was established in 1969 on the Reno campus as a two-year basic sciences program and was authorized to convert to a four-year, M.D. degree-granting school in 1977 by the Nevada State Legislature. In 1980, the school graduated the first class of physicians trained completely in Nevada.

The school emphasizes the development of primary care physicians who will provide comprehensive and longitudinal health care, meeting the needs of the individual, the family and the community. The school is dedicated to selecting and training individuals who will provide health care with both competence and compassion.

Classes, laboratories and clinical activities take place in a combination of on-campus buildings and community health facilities in northern, southern and rural Nevada. Affiliation agreements with hospitals located throughout Nevada provide students with access to clinical facilities totaling nearly 2,000 beds.

The School of Medicine is fully accredited by the Liaison Committee on Medical Education.

The primary goal of the school is to educate sensitive, caring, responsible physicians capable of delivering high-quality health care. Students are taught to be sensitive to their own needs as individuals and as physicians, to the needs of their families and friends and to the needs of their patients and their patients' families. The curriculum emphasizes interviewing and interpersonal skills that will heighten this sensitivity.

It is expected that Nevada's new physicians will feel a responsibility not only to treat the ill but also to become leaders in the efforts to promote and maintain health in the community in which they practice.

The four-year curriculum at Nevada is divided into two components: the basic sciences and the clinical sciences.

The Basic Science Years

During the first two years, students are provided with opportunities to learn the facts and concepts essential to the practice of medicine from seven basic sciences — biochemistry, behavioral sciences, anatomy, physiology, microbiology, pathology and pharmacology; the elementary skills necessary for entering the clinical years; and methods of integrating basic and clinical sciences.

This first goal is accomplished by providing basic science courses, two or three at a time, as depicted in the illustration.

A second goal, that of learning clinical skills, is accomplished in two ways. Four courses are offered to introduce students to the clinical setting. Students interact with patients within the first three weeks in medical school and continue such experiences throughout the first two years. Second, a four-week clinical preceptorship in primary care is required in the summer between the first and second years. This preceptorship is designed to acquaint students with clinical office procedures, as well as office design and management.

A third goal, that of integration, is an underlying feature throughout the curriculum. In addition to the integration which occurs during normal course work and examinations, a specific course entitled "Biomedical Problem Solving" is taught on a four-week cycle throughout years one and two. This course presents students with a number of common medical problems around which they learn to apply basic science content information and concepts. The biomedical problem-solving course is interdepartmental in nature and is taught by faculty whose content expertise most readily matches the problem for that week.

First Year

	Credits
B CH 601-602 – Human Biochemistry	9
ANAT 601 – Human Anatomy	6
ANAT 602 – Human Anatomy	3
ANAT 603 – Human Anatomy	4
PCHY 601 – Human Behavior I	3
PCHY 660 – Introduction to Clinical Medicine	3
PHSY 601 – Human Physiology	6
PHSY 602 – Human Physiology	5
MED 601 – Biomedical Problem Solving	4
MED 670 – Physical Diagnosis I	2
FCM 663 – Primary Care Preceptorship	4
	49

Second Year

	Credits
MICR 601 – Medical Microbiology	9
PHAR 601 – Medical Pharmacology	9
PATH 601 – General Pathology	4
PATH 602 – Systemic Pathology	6
PATH 603 – Laboratory Medicine	2
PATH 604 – Laboratory Medicine	2
PCHY 602 – Human Behavior II	4
MED 602 – Advanced Biomedical Problem Solving	4
MED 673 – Physical Diagnosis II	2
FCM 676 – Community Health	3
	45

At the end of the second year, students are required to take Part I of the National Board of Medical Examiners examination. Students must earn a passing score to continue the second semester of the third year.

The Clinical Years

The second two years of medical school are spent in Reno, Las Vegas and outlying areas in the clinical setting, i.e., in doctors' offices, the affiliated hospitals and university-operated ambulatory care centers. The school requires the following clinical rotations: family and community medicine, eight weeks; internal medicine, 12 weeks; obstetrics and gynecology, eight weeks; pediatrics, eight weeks; psychiatry, eight weeks; and surgery, 12 weeks.

Students are required to take the internal medicine and surgery rotations during the third year and must also select three of the four eight-week rotations during the third year. The remaining eight-week rotation is taken during the fourth year.

These rotations are conducted under close supervision of medical school full-time, part-time and volunteer faculty and residents.

Required Clerkships Third and Fourth Year

	Credits
IMED 451, 651 – Clerkship	12
SURG 451, 651 – Clerkship	12
OBGY 451, 651 – Clerkship	8
PEDI 451, 651 – Clerkship	8
PCHY 451, 651 – Clerkship	8
FCM 451, 651 – Clerkship	8
	56

Additional Required Clinical Courses

	Credits
FCM 461a	4
Electives	24
	28

In the fourth year, students choose (in addition to the final rotation) a number of elective courses, both in and out of state, to develop depth and breadth in their clinical training. These choices are based on their interests, potential strengths and desire to enhance clinical skills. Students also spend a required four-week rotation with a rural Nevada physician in order to become acquainted with the practice of medicine and the lifestyle in a small community, removed from the influences, facilities and contacts shared in an urban setting.

Also in the fourth year, Part II of the National Boards must be taken.

Requirements for Entrance

Since the medical school utilizes the centralized application service of the Association of American Medical Colleges (AAMC), students must submit their applications through the American Medical College Application Service (AMCAS). AMCAS applications may be obtained from the Health Career Advisement Office, Office of Medical School Admissions or the AAMC, 1776 Massachusetts Avenue, Northwest, Washington, D.C. 20036. On completion, the application must be returned directly to AMCAS. Deadline is November 1.

The Medical College Aptitude Test (MCAT) is required of all applicants. This exam is offered twice yearly, once in the spring and once in the fall. Registration packets for the MCAT may be obtained from the Counseling and Testing Office or from the Medical School Admissions Office. The MCAT must be taken within three years of the date of anticipated matriculation and no later than the fall prior to the year of anticipated entrance. In addition to the MCAT, a minimum of three years of college work (90 semester hours) is required. The Admissions Selection Committee strongly recommends completion of a baccalaureate degree.

Requirements for application include:

	Semester Credits
Chemistry (including organic)	16
Biology	8
Physics	8
Behavioral sciences (Three credits of the behavioral science requirement must be upper-division)	9

Students should utilize courses that deal with the psychological stages of the life cycle in fulfillment of the behavioral science requirement (i.e., human growth and development, adolescence, aging, human sexuality, abnormal psychology, family dynamics, or medically oriented sociology). Supplementary courses strongly recommended as useful to the study or practice of medicine *but not required* for admission, include history, literature, philosophy, ethics, and computer science.

A demonstrated competency in English composition and expression is required. Generally, students are expected to satisfy the English composition requirements of their undergraduate institution.

Selection Factors

Candidates are evaluated on the basis of academic performance, performance on the MCAT, the nature, breadth and depth of scholarly, extracurricular and health care related activities during college years, excellence and balance of the natural sciences, social sciences, and humanities; academic letters of evaluation, and the personal interview if requested by the Admissions Selection Committee. A high priority is given to legal residents of Nevada. A small number of out-of-state applicants are considered each year who have a strong residential tie to Nevada, or who are residents of Alaska, Idaho, Montana or Wyoming, which are Western, rural states without medical schools. Individuals who do not meet these residential requirements are discouraged from applying to the University of Nevada-Reno.

Departments and Faculty

The School of Medicine has seven basic science and seven clinical science teaching departments. Interaction among the sciences provides a well-balanced approach to health care education.

Anatomy

Faculty: Highison, Schneider (Ch.), Stratton, Tibbitts, Wakefield

Clinical Faculty: Fogel

Biochemistry

Faculty: Blomquist, de Renobales, Dreiling, Harrington, Heisler, Lewis, Miller, Pardini (Ch.), Pritsos, Reitz, Welch, Winicov, Woodin

Clinical Laboratory Science

Faculty: Kiehn, Maehara (Prog. Dir.), Wakayama

Clinical Faculty: Donahoo, Fisher, Hammon, Harvey, Lods, Nikolaisen, Verdi

Family and Community Medicine

Faculty: Bannister, Bernheimer, C. Brown, Carmichael, S. Daugherty, Knight, McKee, S. St. Jeor, Spogen, D. Wicker, M. Worby

Clinical Faculty: Althouse, Anderson, Antone-Knoll, Averback, Bargen, Basta, Berkley, Bloomfield, Bruce, Buckley, Carlson, Chamberlain, Clarke, Coughlin, Dankworth, Davis, Delionback, Dingacci, Eckert, Edgcomb, Elam, Evans, Fenwick, Gummer, Halasey, Hardy, Harkens, Harn, Harrison, Hess, Hoskins, Hogle, Hulse, Inskip, D. Johnson, G. Johnson, J. Johnson, M. Johnson, J. Jones, M. Jones, Kreisler, Lamberts, Lemieux, Levinger, Lewis, Mann, Mar, McBeath, McLennan, Merkel, Millman, Mirkil, Moren, Mushovic, Myers, Nevins, O'Shaughnessy, Panicari, Patterson, Pennelle, Peters, Pierczynski, Plunkett, Pohl, Pollock, Reimer, Rock, Rose, Rosenberg, Ross, Rothenberg, Rubin, Shreck, Silver, Simpson, Smith, Sonderegger, Stafford, Stoloff, Straus, Thompson, Tueller, Uhalde, Von Tobel, Van Dyken, Watson, Weisner, Weiss, B. Wilkin, J. Wilkin, Winch, Zumpft

Internal Medicine

Faculty: Albert, Baker, Bernstein, Blanchard, Boyer, Brookhyser, Brown, Me Budhraja, Mu Budhraja, Bumbaca, Busby, Carmichael, Cinque, R. Daugherty, D. Desai, K. Desai, Dodge, Eaton, Ellerton, Ferguson (Ch.), Fornes, Gillespie, Goodman, Goring, Graze, Graves, Greenhouse,

Hall, Hruska, Kaufman, Kurtz, Lardinois, MacKintosh, Marlon, Myers, Nemec, Newmark, Peacock, Peck, Pixley, N. Pokroy, Quinn, Raskin, S. St. Jeor, Speck, Starich, Stewart, Symonds, Toffel, Zanjani, Zell, Zweig

Clinical Faculty: Adams, Allen, Andrews, Anjum, Arger, Baggett, Barg, Barnet, Bentley, Berndt, Bigley, Boman, Bross, Brown, Browning, Buckley, Calvanese, Campbell, Cameron, Carmena, Chemplavil, P. Clark, R. Clark, Coker, Cole, Cunningham, Davis, DeBellis, Diedrichsen, Dieringer, DiFore, DiPalo, Drummer, Edwards, Evert, Evins, Falk, Fayad, Fazekas, Feld, Fischer, Fuller, Ganchan, Gansert, Gardner, Gross, Haikal, Hamlin, Handke, Hardwick, Harris, Held, Hill, Hogle, Homansky, Humphrey, Hunter, Jackson, P. Jacobs, T. Jacobs, Jorna, Joya, Kantor, Kroening, Lagstein, LaMancusa, Landow, Lund, Moore, Morrill, Myles, Newmark, Nielsen, Noble, Nogueira, Norman, O'Neill, Parker, Perer, Pimatukarna, Pitterman, Prabhu, Prupas, Qureshi, Read, Reagan, Roberts, Roth, Russell, Sage, Savran, Schiff, Seher, Shields, Smith, Soong, Spring, Standlee, Swarts, Thompson, Toussaint, Turer, Weigel, Williamson, G. Wilson, Young, Zebrack, Zumpft

Medical Library

Faculty: Lemon, Zenan (Dir.)

Microbiology

Faculty: M. Hall, Henry, Hudig, Kozel (Ch.), Lupan, Nichol, St. Jeor, Redelman, Winicov

Obstetrics-Gynecology

Faculty: Aberman, Boruszak, J. Clark, Eisenman, Glassman, Kelly, Rojas, Sheld (Ch.), Stapleton, Tayengco

Clinical Faculty: Allanson, Allen, Ames, Anes, Avery, Beck, Belliveau, Bennett, Berman, Bodensteiner, Bossak, Bowen, Bower, Braly, Butler, Carlson, Chotiner, Crandall, DiSaia, Drake, Erickson, Fortier, Glick, B. Hecht, F. Hecht, Huneycutt, C. Johnson, Key, Knutzen, Martell, Mullis, Novick, Naughton, Parker, Proctor, Ramos, Recine, Resnik, Rettenmaier, Robertson, Rueckl, Sher, Sherwood, Stewart, Stitt, Strimling, Trout, Turner, Van Buren, Voyevidka, Wagner, Wiig (Emeritus)

Office of Rural Health

Faculty: C. Ford

Pathology and Laboratory Medicine

Faculty: J. Malin (Course Coordinator), Parks (Vice Chairman), Sohn (Chairman), Laubscher, Mackey, O'Donnell, Ritzlin

Clinical Faculty: Anderson, Anes, Barker, Belliveau, Butler, Callister, Clark, Decker, Erling, Green, Hall, Hoffman, Manalo, Manilla, McCarty, McCusker, Molden, Mulkey, Salvadorini, Schrader, Slaughter, Small, Soloway, Stouder, Unger, Wilkes

Pediatrics

Faculty: Artman, Feldman, Frank, Kurlinski, Larson, Lazerson (Ch.), Missall, Monibi, Peele, Peterson, Pokroy, Salomon, Scott, Scully, Tetzlaff, Thompson,

Clinical Faculty: Addiego, Ahn, Batra, L. Bernstein, Berger, Buchanan, Cannon, Carlile, Carter, Cass, Chaney, Clift, Colletti, Coopersmith, Corrales, Cortez, Diedrichsen, Dinwiddie, Downey, B. Dudding, G. Dudding, Evans, Fantazia, Feusner, Flynn, Fontana, Foster, Fuller, Gharavi, Gordan, Greenwood, Haldern, Horsley, Hug-English, Lubin, Miller, Morris, Mousel, Neyland, O'Leary, Pemberton, Premsrirut, Rajnovich, Rothstein, Schoeffel, Shapiro, Stoker, Toth, Vichinsky, Zenteno, Wood, White, Zucker

Pharmacology

Faculty: Bjur, Bierkamper, Buxton, Ferguson, Gerthoffer, Sutko, Westfall (Ch.)

Physiology

Faculty: Hume, Keef, Kenyon, Lardinois, Peacock, Publicover, Sanders, Standish, Starich

Psychiatry and Behavioral Sciences

Faculty: Altrocchi, Antonuccio, Chappel, Chatham, Cole, Danton, Gruzenski, Harris, Henson, Johnson, May, Miller, Pauly (Ch.), Rahe, Roitman, Small, Smith, Taber, Veach, Worby, Young

Clinical Faculty: Adamski, Andrew, Baldwin, Bhoothalingom, Brandenburg, Cardillo, K. Clark, O. Clark, Dillon, Dudley, DuPraw, Foster, Gerow, Gould, Gutride, Horne, Howle, Irwin, Jensen, Kroening, Luke, Lynn, Mayville, Milbeck, Molde, Nims, O'Rourke, Orchow, Rasul, Rich, Sheehan, Stern, Tanenbaum, Terry, Warren, Weiher, Wyckoff, Young, Zappe

Visiting Faculty: D. Smith, Mauksch, Saslow

Department of Radiology

Faculty: Barcia (Dir.), Darrah

Clinical Faculty: Amante, Bandt, Biddle, Boyden, Christenson, Debardelaben, Golding, Isaac, James, Kremp, Lane, Laughlin, Learey, Martin, McNamara, Miercourt, Rubenstein, Sanders

Speech Pathology and Audiology

Faculty: Brinton, Fujiki, Golberg, Lyon, McFarlane (Ch.), Navarro, K. Watterson, T. Watterson

Clinical Faculty: Ahlstrom, Brophy, Stoker, West

Surgery

Faculty: Bomberger, Cafferata, Dales, Edmiston, Fisher, Follmer, Gwinn, W. Hall, T. Lewis, Marshall, McGregor (Vice Ch.), Rydell, Serfustini, Vitez, Yeaton

Clinical Faculty: Ahlstrom, Anderson, Banich, Baranoff, Bell, D. Berry, R. Berry, Black, Boyden, Boyers, Brady, Bradner, Braunstein, Brophy, Bruce, Buchwald, Bunch, Cammack, Capanna, Carr, Cavin, Cecchi, Chino, Chowdry, D. Christensen, G. Christensen, Christian, Clark, Clift, Colgan, Colquitt, Coppola, Cox, Cunningham, Curry, J. Daugherty, Dawson, Detmer, Dombrowski, Dooley, Doubrava, Dow, Dudek, Ebert, Ellis, Erculei, Ewing, Fathie, Feikes, Fleming, Foley, Fry, Gainey, Glass, Gott, Grace, Greenwald, Halvorson, Hamilton, Hammargren, Harris, Hastings, Hetter, Higgins, Hyde, Iliescu, Jain, Randall Jones, Roy Jones, Juell, Kaiser, Kahn, Kien, Knoop, Kollins, Kopf, Kozar, Levy, Lewin, Litton, Lurie, MacDonald, Mahon, Marrone, McClish, McCuskey,

McElreath, McMullen, Megquier, Merino, Millson, Moore, Morelli, Mortenson, Mousel, Neuman, Niebaum, Nielsen, Nitz, Noback, Olson, Orr, Owen, Ozobia, Parker, Perry, Pratt, Pretto, Prutzman, Ram, Reinkemeyer, Russell, Sande, Sargent, Schonder, Schultz, Scott, Seip, Selsnick, Shearing, Smith, Soper, Sparkuhl, Steadman, Stevens, Strand, Swanson, Swissman, Tappan, Tapper, Teipner, Thompson, Thornton, Tofigh, Twesme, Vowles, Walker, Walsh, Warpinski, Watson, West, Westfield, Williams, Winter, Winne, Yeaton, Young, Zivot

Mackay School of Mines

James L. Hendrix, *Interim Dean*

Departments of Instruction: chemical and metallurgical engineering, geological sciences, and mining engineering.

Objectives

A major part of the economy of Nevada is directly tied to mineral production in the state. Availability of strategic mineral and energy resources to the national industrial base is now a matter of universal concern. A national concern for preservation of environmental quality dictates the use of wise and efficient methodologies for development and production of nonrenewable resources. The main objective of Mackay School of Mines is to provide a comprehensive education for geoscientists and mineral resource engineers seeking professional careers in the mineral and energy industries. The school is also interested in developing highly select, competent research scientists who will develop new insights into the origin of mineral and energy resources and their distribution in space and time, and to produce a few outstanding geoscientists who will make major contributions to improving understanding of the origin and evolution of the solid earth.

The curricula of the Mackay School of Mines are rigorous and demanding. Students desiring to enter the school should be well prepared in mathematics, physics and chemistry. Although the emphasis is on preparation for professional fields, courses for a well-rounded general education are built into the curricula.

Auxiliary Organizations

The Mackay School of Mines' new $6.7 million building houses undergraduate and advanced laboratories for mining, chemical and metallurgical engineering and geological sciences. The laboratories are equipped with $4.4 million in the latest modern and sophisticated equipment. In 1986, Congress appropriated $14.5 million to construct a Center for Strategic Materials Research and Policy Study. The 80,000 square-foot research wing will be completed in 1988 and the policy center will be completed in 1990.

The Mackay Mining Research Library supports undergraduate studies and graduate research in all disciplines. The Mackay Mining Museum has rare collections of minerals, Nevada ores, and fossils which are extensively used in teaching and research by faculty and students. The Nevada Bureau of Mines and Geology, Seismological Laboratory and Mackay Mineral Resources Research Institute share facilities in the same building complex. New facilities are under construction for the Cooperative Institute for Aerospace Science and Terrestrial Applications and for the Center for Neotectonics Research. Teaching staff and laboratory facilities are augmented through programs conducted with the Water Resources Center and the U.S. Bureau of Mines which have large research centers on or near the campus. Close contact is also maintained with other state and federal agencies, as well as over 100 geological, geophysical, exploration, engineering, metallurgical, mining and petroleum companies having offices in the Reno area.

Degrees

The student may graduate in any of the curricula offered by the school as listed at the time of admission or graduation. The choice of electives must meet the approval of the department in which enrollment occurs, and in general, electives should be chosen to broaden the student's education in humanities and social studies or fields of study related to the major subject rather than to increase specialization in it. Undergraduate degrees are usually conferred within a field of concentration.

Required social studies or humanities electives must be selected from the prescribed list of courses.

Students desiring to pursue an academic minor follow the sequence of courses prescribed by the minor department and approved by the student's academic adviser.

A baccalaureate student enrolled in the school may earn and apply a maximum of 30 credits of S/U grades only in social studies, humanities, nontechnical electives, and a very few approved technical courses. These may be transferred in or taken at UNR and must be approved by the student's adviser.

The curricula leading to the bachelor of science degrees in chemical engineering, geological engineering, metallurgical engineering, and mining engineering are accredited by the Accreditation Board for Engineering and Technology, which is the agency accrediting engineering curricula throughout the U.S. and is recognized by the Council on Postsecondary Accreditation

The school offers study programs which enable students to earn the following degrees:

Bachelor of Science

Chemical engineering, geology, geological engineering, geophysics, metallurgical engineering, mining engineering

Master of Science

Geology, geological engineering, geochemistry, geophysics, hydrology and hydrogeology, metallurgical engineering, mining engineering

Doctor of Philosophy

Geology and related earth sciences, geophysics, hydrology and hydrogeology

Professional Degrees

Professional degrees of geological engineer (Geol.E.), metallurgical engineer (Met.E.), and engineer of mines (E.M.) may be conferred upon graduates of the Mackay School of Mines who have held positions of professional responsibility in industry or teaching and who submit an acceptable thesis of an advanced nature. (See Graduate School section.)

CHEMICAL and METALLURGICAL ENGINEERING (CH E, METE)

Faculty: Aguirre, Bautista, Chandra, Hendrix, Jones, Melkus, Reddy, Smith (Ch.)

Adjunct Faculty: Carnahan, Colombo

Bachelor's Degrees

Chemical Engineering

Chemical engineers apply the basic principles of chemistry, physics, mathematics and related engineering disciplines to the production of goods and materials for the needs of society. A new graduate in chemical engineering has the capability for contributing immediately to these needs in industry or for pursuing advanced academic training. Graduates of the chemical engineering program in Mackay School of Mines are highly sought after by the mineral industry. Research conducted by faculty and graduate students has promoted the mining industry in Nevada through development of new hydrochemical techniques for extraction of metals from Nevada ores and for safe disposal of mine wastes. In addition to the required 33 credits in chemical engineering, 29 credits in chemistry, 10 in physics, 16 in mathematics and computer programming, nine in related engineering, and 24 in social science, students may select 10 credits in technical and mathematical electives of special interest.

In addition to the general university requirement of a C average or higher, the student must have a C average or higher for all courses identified as CH E and METE for graduation.

Freshman Year
First Semester

	Credits
CHEM 201—General Chemistry (or CHEM 101)	4
CH E 101—Industry Orientation Lectures	1
ENGL 101—Composition I	3
MATH 215—Calculus I	4
P SC 103—Principles of American Constitutional Government	3
	15

Second Semester

	Credits
CH E 103—Computer Applications	2
CHEM 202—General Chemistry (or CHEM 102)	4
ENGL 102—Composition II	3
MATH 216—Calculus II	4
PHYS 201—Engineering Physics I	3
PHYS 204—Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
CH E 232—Principles of Metallurgical and Chemical Engineering	3
CHEM 343—Organic Chemistry	3
EC 101—Principles of Macroeconomics (or EC 102)	3
MATH 217—Calculus III	4
PHYS 202—Engineering Physics II	3
	16

Second Semester

	Credits
CHEM 344—Organic Chemistry	3
E E 212—Introduction to Electrical Engineering	3
M E 241—Analytic Mechanics for Engineers I	3
MATH 320—Differential Equations (or M E 300)	2
PHYS 203—Engineering Physics III	3
Social studies or humanities	3
	17

Junior Year
First Semester

	Credits
CH E 361—Thermodynamics	4
CH E 372—Chemical Engineering Laboratory I	1
CH E 373—Fluid Mechanics	3
CHEM 330—Analytical Chemistry	4
CHEM 353—Physical Chemistry	3
Social studies or humanities	3
	18

Second Semester

	Credits
CH E 330—Equilibrium Stage Operations	3
CH E 441—Chemical Engineering Lab II	1
CH E 443—Industrial Instrumentation	3
CH E 484—Heat Transfer	3
CHEM 354—Physical Chemistry	3
CHEM 355—Physical Chemistry Lab	2
Social studies or humanities	3
	18

Senior Year
First Semester

	Credits
CH E 440—Chemical Reactor Design	3
CH E 442—Chemical Engineering Lab III	1
CH E 450—Design I	2
CH E 451—Control of Process Systems	3
CH E 493—Mass Transfer	3
Technical electives[1]	3
	15

Second Semester

	Credits
CH E 482—Design II	3
C E 372—Strength of Materials	3
M E 342—Analytic Mechanics for Engineers II	3
Social studies or humanities	3
Technical Electives[1]	3
Mathematics technical elective[2]	3
	18

Total credits required, 134. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Metallurgical Engineering

Metallurgical engineers apply the principles of science, mathematics and engineering to the extraction, refining, and utilization of metallic and non-metallic substances from their naturally occurring ores. A new graduate in metallurgical engineering has the capability for contributing immediately to industry needs or for advanced academic training. In addition to the required 40 credits in metallurgical and related chemical engineering, 18 credits in chemistry, 10 in physics, 19 in mathematics and computer programming, 11 in related engineering and science, 24 in social studies, English, and the humanities, students may select 12 credits of technical electives of special interest.

In addition to the general university requirement of a C average or higher, the student must have a C average or higher for all courses identified as CH E and METE for graduation.

[1]Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chair.

[2]The courses in the mathematics technical elective category are: MATH 251, 321, 330, 353. M E 402, 403.

Freshman Year
First Semester

	Credits
CHEM 201—General Chemistry (or CHEM 101)	4
ENGL 101—Composition I	3
MATH 215—Calculus I	4
METE 101—Industry Orientation Lectures	1
P SC 103—Principles of American Constitutional Government	3
	15

Second Semester

	Credits
CHEM 202—General Chemistry (or CHEM 102)	4
ENGL 102—Composition II	3
MATH 216—Calculus II	4
METE 103—Computer Applications	2
PHYS 201—Engineering Physics I	3
PHYS 204—Engineering Physics Lab I	1
	17

Sophomore Year
First Semester

	Credits
CHEM 330—Analytical Chemistry	4
EC 102—Principles of Microeconomics	3
MATH 217—Calculus III	4
METE 232—Principles of Metallurgical and Chemical Engineering	3
PHYS 202—Engineering Physics II	3
	17

Second Semester

	Credits
E E 212—Introduction to Electrical Engineering	3
MATH 320—Differential Equations (or M E 300)	2
M E 241—Analytic Mechanics for Engineers	3
METE 350—Elements of Material Science	3
PHYS 203—Engineering Physics III	3
Social studies or humanities	3
	17

Junior Year
First Semester

	Credits
CH E 361—Thermodynamics	4
CHEM 353—Physical Chemistry	3
GEOL 211—Mineralogy	3
METE 373—Fluid Mechanics	3
METE 451—Physical Metallurgy	3
	16

Second Semester

	Credits
CHEM 354—Physical Chemistry	3
C E 372—Strength of Materials	3
METE 322—Mineral Dressing I	3
METE 324—Mineral Dressing Lab	1
METE 443—Industrial Instrumentation	2
METE 484—Heat Transfer	3
Social studies or humanities	3
	18

Senior Year
First Semester

	Credits
CH E 440—Chemical Reactor Design	3
METE 311—Metallurgical Analysis	1
METE 450—Design I	2
METE 493—Mass Transfer	3
Mathematics technical elective[1]	3
Social studies or humanities	3
Technical electives[2]	3
	18

Second Semester

	Credits
METE 301—Metallurgical Industry Seminar	1
METE 332—Unit Processes of Chemical Engineering I	3
METE 431—Unit Processes of Chemical Metallurgy II	3
METE 482—Metallurgical Engineering Design	3
Social studies or humanities	3
Technical electives[2]	3
	16

Total credits required, 134. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Advanced Degrees

The department offers individual programs leading to the degree of master of science in metallurgical engineering in the fields of extractive or chemical metallurgy and mineral dressing. The general university requirements for these advanced degrees are listed in the Graduate School section.

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in metallurgy, chemical engineering, and/or related science must have been completed. In addition, the student must qualify in at least one of the following requirements: (1) GPA of 2.75 in the four years of undergraduate work, (2) GPA of 3.0 for the last two years of undergraduate work, or (3) acceptable scores on the verbal and quantitative parts of the Graduate Record Examination aptitude test, with letters of recommendation from former instructors indicating capability for advanced course work and research.

Prospective students are advised to write directly to the chair, Department of Chemical and Metallurgical Engineering, with an outline of major interests, experience and transcripts. Formal application is completed through the Office of Admissions and Records.

The department has several graduate fellowships, research assistantships, and teaching assistantships. Requests for assistance should be submitted prior to March 15, but all applications will be considered regardless of date of submission.

In order to assure well-balanced training and experience, all graduate students are required to participate in teaching and research.

GEOLOGICAL SCIENCES (GEOL)

Faculty: Brune, Campana, Carr, Case, Cochran, Davis, Fenske, Firby, Hess, Hibbard, Hsu, Jacobson, L. Larson (Ch.), Noble, Priestley, Schweickert, Slemmons, Taranik, Trexler, Vetter, Watters, Wheatcraft

Bachelor's Degrees

The curricula leading to the degree of bachelor of science include geology, geological engineering, and geophysics.

Geology

The curriculum leading to the degree of bachelor of science in geology is offered primarily for those students who wish to obtain a broad education in geology and related basic sciences. The proper choice of electives permits the student to emphasize certain phases of geology, such as "hard rock," "soft rock," or environmental studies. These electives must be approved by the adviser.

[1]The courses in the mathematics technical elective category are: MATH 251, 321, 330, 353, M E 402, 403.

[2]Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chair.

Freshman Year
First Semester

	Credits
MATH 213 – Calculus for Science I (or MATH 215)	3-4
ENGL 101 – Composition I	3
Foreign language[1]	4
GEOL 101 – Physical Geology	4
	14-15

Second Semester

	Credits
MATH 313 – Calculus for Science II (or MATH 216)	3-4
ENGL 102 – Composition II	3
Foreign language[1]	4
GEOL 102 – History of the Earth	4
	14-15

Sophomore Year
First Semester

	Credits
CHEM 201 – General Chemistry for Scientists and Engineers	4
Foreign language[1]	2-3
GEOL 211 – Mineralogy	3
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
Compurer course	2-3
	15-17

Second Semester

	Credits
CHEM 202 – General Chemistry for Scientists and Engineers	4
Foreign language[1]	2-3
GEOL 212 – Elementary Petrology	3
Geology elective	2-3
PHYS 202 – Engineering Physics II	3
PHYS 205 – Engineering Physics Lab II	1
	15-17

Junior Year
First Semester

	Credits
GEOL 332 – Structural Geology	4
GEOL 468 – Sedimentology	3
P SC 103 – Principles of American Constitutional Government or HIST 111 – Survey of American Constitutional History	3
Social studies or humanities	5
	15

Second Semester

	Credits
EC 101 – Principles of Macroeconomics I (or EC 102)	3
GEOL 341 – Geomorphology	3
GEOL 450 – Field Methods	1
GEOL 469 – Principles of Stratigraphy	3
Statistics course	2-3
Social studies or humanities	3
	15-16

Summer Camp

	Credits
GEOL 451 – Summer Field Geology	6

Senior Year

	Credits
GEOL 425 – Advanced Mineralogy	4
GEOL 461 – Invertebrate Paleontology	4
Electives	6-9
	14-17

Second Semester

	Credits
Economic Geology (GEOL 471, 482, or 484)	3-4
Geology elective	3-4
Electives	6-9
	12-17

Total credits required, 128. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Geological Engineering

The curriculum leading to the degree of bachelor of science in geological engineering is designed to develop professional abilities in both engineering and the geological sciences. The program provides instruction in both geology and engineering before specialization in the senior year. A geotechnical option in the civil, mining petroleum, and consulting engineering fields, or a resources and environment option, allied to the mineral industries, and environmental planning, may be selected. Technical electives approved by the adviser provide flexibility within either option.

Seniors are required to take the engineers-in-training examination.

Freshman Year
First Semester

	Credits
CHEM 101 – General Chemistry	4
ENGL 101 – Composition I	3
GEOL 101 – Physical Geology	4
GEOL 106 – Introduction to Geological Engineering	1
MATH 215 – Calculus I	4
	16

Second Semester

	Credits
CHEM 102 – General Chemistry	4
GEOL 102 – History of the Earth	4
MATH 216 – Calculus II	4
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	16

Sophomore Year
First Semester

	Credits
C E 388 – Introduction to Engineering Economics	1
C E 389 – Probability and Statistics for Civil Engineers	2
EC 101 – Principles of Macroeconomics (or EC 102)	3
GEOL 211 – Crystallography-Minetalogy	3
MATH 217 – Calculus III	4
PHYS 202 – Engineering Physics II	3
PHYS 205 – Engineering Physics Lab II	1
	17

Second Semester

	Credits
ENGL 102 – Composition II	3
GEOL 212 – Elementary Petrology	3
M E 241 – Analytic Mechanics for Engineers	3
M E 300 – Introduction to Engineering Mathematics	2
P SC 103 – Principles of American Constitutional Government	3
Social studies or humanities	3
	17

Junior Year
First Semester

	Credits
C E 372 – Strength of Materials	3
GEOL 332 – Structural Geology	4
GEOL 468 – Sedimentology	3
GEOL 483 – Geological Engineering: Slope Stability	4
MINE 213 – Computer Programming	2
	16

Second Semester

	Credits
C E 241 – Engineering Measurements	3
C E 367 – Elementary Fluid Mechanics	3
C E 492 – Soil Mechanics	3
GEOL 341 – Geomorphology	3

[1]Foreign language requirement is the same as the College of Arts and Science.

M E 371 – Thermodynamics I (or equivalent)	3
Technical electives[1]	3
	18

Summer Camp

	Credits
GEOL 451 – Summer Field Geology	6

Senior Year
(Geotechnical Option)
First Semester

	Credits
SPCM 113 – Fundamentals of Speech Communication	3
GEOL 479 – Earthquake Engineering	3
GEOL 484 – Groundwater Hydrology	3
Social studies or humanities	6
	15

Second Semester

	Credits
GEOL 485 – Geological Engineering: Support and Stabilization Techniques	4
GEOL 492 – Geophysical Exploration	3
Social studies or humanities	3
Technical electives[2]	7
	17

Senior Year
(Resources & Environment Option)
First Semester

	Credits
GEOL 425 – Advanced Mineralogy	4
GEOL 480 – Environmental Geology	3
Social studies or humanities	6
Technical electives[2]	3
	16

Second Semester

	Credits
SPCM 113 – Fundamentals of Speech Communication	3
GEOL 471 – Ore Deposits	3
GEOL 485 – Geological Engineering Support and Stabilization Techniques	4
GEOL 492 – Geophysical Exploration	3
Social studies or humanities	3
	16

Total credits required, 138. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Geophysics

The curriculum leading to the degree of bachelor of science in geophysics is offered because of a strong interest among students, industry, and research organizations for trained personnel in such fields as gravity, magnetic and electrical, seismic exploration, theoretical seismology and electromagnetic remote sensing. Basic skills in physics and mathematics, as well as geology and geophysics, are required for this major. Optional courses are offered for students planning to continue beyond the B.S. degree.

Freshman Year
First Semester

	Credits
CHEM 101 – General Chemistry (or CHEM 201)	4
ENGL 101 – Composition I	3
GEOL 101 – Physical Geology	4
MATH 215 – Calculus I	4
	15

Second Semester

	Credits
CHEM 102 – General Chemistry (or CHEM 202)	4
GEOL 102 – History of the Earth	4
MATH 216 – Calculus II	4
PHYS 201 – Engineering Physics I	3
PHYS 204 – Engineering Physics Lab I	1
	16

Sophomore Year
First Semester

	Credits
ENGL 102 – Composition II	3
GEOL 211 – Mineralogy	3
MATH 217 – Calculus III	4
MINE 213 – Computer Programming	2
PHYS 202 – Engineering Physics II	3
PHYS 205 – Engineering Physics Lab II	1
	16

Second Semester

	Credits
EC 102 – Principles of Microeconomics	3
GEOL 212 – Elementary Petrology	3
GEOL 290 – Elementary Geophysics and Geodynamics	3
MATH 320 – Differential Equations	2
PHYS 203 – Engineering Physics III	3
PHYS 206 – Engineering Physics Lab III	1
P SC 103 – Principles of American Constitutional Government	3
	17

Junior Year
First Semester

	Credits
GEOL 332 – Structural Geology	4
PHYS 351 – Mechanics	3
PHYS 355 – Physical Electronics	3
Social studies or humanities	3
Technical electives[3]	3
	16

Second Semester

	Credits
GEOL 450 – Field Methods	1
GEOL 492 – Geophysical Exploration	3
M E 403 – Partial Differential Equations in Engineering	3
PHYS 352 – Mechanics	3
PHYS 466 – Introduction to Microcomputer Interfacing	3
Social studies or humanities	3
	16

Summer Camp

	Credits
GEOL 451 – Summer Field Geology	3 or 6

Senior Year
First Semester

	Credits
Geology elective (469, 471, 482)	3-4
GEOL 455 – Physics of the Earth	3
GEOL 490 – Elementary Seismology	3
PHYS 473 – Electricity and Magnetism	3
Social studies or humanities	3
	15-16

Second Semester

	Credits
GEOL 456 – Physics of the Earth	3
GEOL 491 – Earthquake Seismology	3
GEOL 494 – Geophysics and Potential Theory	3
Social studies or humanities	3
Technical electives[3]	3
	15

Total credits required, 130. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

[1]Technical electives are to be selected from an approved list obtainable from each student's adviser.
[2]Technical electives common to both options: C E 493, GEOL 446, 493, MINE 241, 246, 301, 448. Additional technical electives for geotechnical option: GEOL 471, 480. Additional technical electives for resources and environment option: GEOL 479, 489, 484.
[3]Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chair.

Advanced Degrees

The department offers master of science and doctor of philosophy degrees in geology and related earth sciences, geophysics, hydrology and hydrogeology and master of science in geological engineering. The general university requirements for all advanced degrees are listed in the Graduate School section. Additional specific requirements are outlined in the four programs described below.

Foreign Language Requirements

There are no language requirements for the master's degree, but students are urged to begin preparation in languages if work beyond the master's is anticipated.

The Ph.D. degree requires that either the student demonstrate proficiency in one foreign language within which there is a respectable body of geologic-scientific literature, or, successfully complete with a grade of B or better two or more courses within one of several accepted alternative fields of study. These optional fields are on file in the departmental office.

In some instances, the student's adviser may require a demonstration of ability to read and comprehend the technical literature in a second foreign language.

General Admission Procedures

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in geology and/or related fields must be completed.

Minimum departmental requirements for *consideration of application* are: 1) an undergraduate four-year GPA of 2.75 or a 3.0 GPA for the last two years of undergraduate study; 2) GRE combined score of 1050 or higher in verbal plus quantitative sections; 3) Advanced GRE score of 580 or higher (applicants for advanced degrees in hydrogeology and geological engineering are not required to take the advanced examination). The applicant must fulfill all requirements of the Office of Admissions and Records and, in addition, must: 1) have three letters of recommendation sent to the chair of the department certifying the ability of the applicant to perform graduate-level work; 2) send the chair a brief letter specifying the area(s) of interest in the geological sciences in which study is desired. *Complete applications* (with letters of recommendation) must be received no later than March 15 for fall semester admission or October 15 for spring semester admission.

The Ph.D. program requires an overall GPA of 3.0 or higher. Provisional admission is permitted with GPA's below 3.0 in exceptional cases. Other requirements are the same as listed for the master's degree. For general requirements, the student is referred to the Graduate School section.

Detailed descriptions of the graduate programs, staff interests, and research facilities are available upon request from the chair of the Department of Geological Sciences. Prospective students are encouraged to write directly to the chair, and submit an outline of major interests, experience, and transcripts. Formal application is completed through the Office of Admissions.

The department has a variety of graduate fellowships, research assistantships, and teaching assistantships. Although most requests for assistance should be submitted prior to March 15, many assistantships are awarded at irregular intervals throughout the year and all applications are considered regardless of date of submission.

Master of Science and Doctor of Philosophy Degrees in Geology; Master of Science Degree in Geological Engineering

The student may work with either a major or major-minor program in geology or geological engineering, whichever is more appropriate to the individual's goals and basic training. In addition to advanced degrees listed below, specialization can include one or more of such fields as active tectonism, earth science, engineering geology, exploration geophysics, economic geology, geochemistry, hydrogeology, mineral exploration, mineralogy, ore deposits, paleontology, petrography and petrology of igneous and metamorphic rocks, sedimentation, seismology, stratigraphy, volcanology, etc. The location of the university campus at the edge of the Basin and Range and Sierra Nevada geological provinces gives it a unique advantage for field or regional studies. The exceptionally complete chemical, geophysical, hydrologic, petrographic, atomic absorption, paleomagnetic, DTA, X-ray, SEM and other facilities make it possible to undertake laboratory studies in geochemistry, geophysics, hydrogeology, mineralogy, mineralization, petrography, and petrochemistry.

Students enrolled in a master's program in geology or geochemistry are required to take the department's comprehensive examination no later than their third semester.

Master of Science and Doctor of Philosophy Degrees in Geophysics

Facilities for research in this area include an array of both permanent and portable seismographic stations, refraction and reflection seismic field equipment, instruments for gravity, magnetic, resistivity, self-potential studies, and equipment for field and laboratory studies with electromagnetic remote sensing data. Student support is available under a number of research assistantships. Graduate study in this field has centered on both theoretical and practical work in seismology, gravity, and other geophysical fields, taking advantage of the unique character of the Basin and Range and Sierra Nevada regions.

Master of Science and Doctor of Philosophy Degrees in Hydrology and Hydrogeology

The degrees of master of science and doctor of philosophy may be earned in hydrology and hydrogeology in an interdisciplinary program. Advanced degrees in hydrology and hydrogeology are offered in geology. Entering students should have a bachelor of science degree in geology, geological engineering or geophysics.

Depending upon the individual's specific goals, an interdisciplinary committee is appointed for each student to establish the appropriate program, which normally includes among the basic courses: hydrogeology, hydrometeorology, engineering hydrology, renewable natural resources, water resources projects, and advanced hydrology.

MINING ENGINEERING (MINE)

Faculty: Gaskell, Mousset-Jones, Patchet, Taylor (Ch.)

Adjunct Professor: Jucevic, Saint-Aubin

Bachelor's Degree

The department offers a bachelor of science in mining engineering degree which includes courses in mine design, mining technology, computer applications to operations control and management, environmental concerns, industrial safety and health, and mineral economics. The curriculum is arranged to provide a broad basic background for a modern mining engineer, as preparation either for industrial employment immediately after graduation or for further advanced study. The department maintains close liaison with state and federal bureaus of mines and with the mineral industry. Field excursions are arranged during the academic year, and students are required to take up paid employment in the minerals industry during at least one summer vacation. Some cooperative work-study programs are arranged for this purpose.

The Professional EIT examination administered by a State Board of Engineering Registration must be taken by all mining engineering students before graduation during the senior year of study.

Freshman Year
First Semester

	Credits
CHEM 101—General Chemistry (or CHEM 201)	4
ENGL 101—Composition I	3
GEOL 101—Physical Geology	4
MATH 215—Calculus I	4
MINE 101—Industry Orientation Lectures	1
	16

Second Semester

	Credits
CHEM 102—General Chemistry (or CHEM 202)	4
ENGL 102—Composition II	3
MATH 216—Calculus II	4
MINE 102—Mineral Map Making	2
PHYS 201—Engineering Physics I	3
PHYS 204—Engineering Physics Lab I	1
	17

Summer

	Credits
MINE A—Mineral Industry Employment (Report Required)	none

Sophomore Year
First Semester

	Credits
C E 241—Engineering Measurements	3
M E 300—Introduction to Engineering Mathematics	2
M E 342—Analytic Mechanics for Engineers II	3
PHYS 202—Engineering Physics II	3
PHYS 205—Engineering Physics Lab II	1
P SC 103—Principles of American Constitutional Government	3
Social studies or humanities	3
	18

Second Semester

	Credits
AGEC 270—Introduction to Statistics	3
GEOL 211—Mineralogy	3
MATH 217—Calculus III	4
M E 241—Analytic Mechanics for Engineers	3
MINE 210—Mining Methods	3
MINE 213—Computer Programming	2
	18

Summer

	Credits
MINE 343—Applied Mine Surveying	2

Junior Year
First Semester

	Credits
C E 367—Fluid Mechanics	3
E E 212—Introduction to Electrical Engineering	4
GEOL 332—Structural Geology	4
M E 371—Thermodynamics I	3
MINE 361—Operations Research Methods	3
	17

Second Semester

	Credits
MINE 448—Rock Mechanics I	3
EC 102—Principles of Microeconomics	3
METE 322—Mineral Processing I	3
METE 324—Mineral Processing Lab	1
MINE 310—Materials Handling	3
MINE 344—Mine Environmental Control	3
	16

Senior field trip required for graduation.

Senior Year
First Semester

	Credits
GEOL 471—Ore Deposits	3
MINE 411—Mine Economics	2
MINE 413—Mineral Inventory Estimation	2
MINE 425—Mine Power and Drainage	3
MINE 449—Rock Mechanics II	3
MINE 472—World Mineral Economics	3
Technical elective[1]	2
	18

Second Semester

	Credits
MINE 400—Mining Communication	1
MINE 418—Mine Feasibility	2
MINE 445—Drilling and Blasting	3
Social studies or humanities	6
Technical electives[1]	3
	15

Total credits required, 137. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Advanced Degrees

The department offers individual programs leading to the degree of master of science in mining engineering. The student can elect to specialize in fields such as computer application, analysis and design, rock mechanics, environment, management, or mineral economics. The general university requirements for these advanced degrees are listed in the Graduate School section.

To be accepted as a graduate student, a bachelor's degree from an accredited college or university is required. For full graduate standing, at least 30 credits of undergraduate work in mining engineering or related sciences must have been completed. In addition, the student must qualify in at least one of the following requirements: (1) GPA of 2.5 in the four years of undergraduate work, (2) GPA of 3.0 for the last two years of undergraduate work, or (3) acceptable scores on the verbal and quantitative parts of the Graduate Record Examination aptitude test, with letters of recommendation from former instructors indicating capability for advanced course work and research.

Prospective students are advised to write directly to the chair, Department of Mining Engineering, with an outline of major interests, experience, and transcripts. Formal application is completed through the Office of Admissions and Records.

The department has several graduate fellowships, research assistantships, and teaching assistantships. Requests for assistance should be submitted prior to March 15, but all applications will be considered regardless of date of submission.

A written comprehensive examination is required of all mining engineering graduate students. A passing grade is required for the exam and only two attempts are allowed. Failure to pass after two attempts results in suspension from the graduate program.

Orvis School of Nursing

Nellie Droes, *Acting Dean*

Faculty: Burgess, Chu, Droes, Ervin, Farnham, Harmon, Hatton, Hostetter, Kramer, Mentzer, Schorr, Svetich, Veach

The Orvis School of Nursing offers a bachelor of science in nursing degree and a master of science degree with a major in nursing.

The Baccalaureate Degree Program

The Orvis School of Nursing curriculum provides learning opportunities for students that enable them to develop and demonstrate the ability to: use the knowledge derived from the humanities and behavioral, physical, and natural sciences in order to assess, plan, implement, and evaluate the health care of clients—individuals, families, and groups; strive for productive health care delivery which is congruent with contemporary cultural, social, and scientific values; provide nursing care for clients in primary, secondary and tertiary health care settings; collaborate, coordinate, and consult with colleagues on the interdisciplinary health teams in the delivery of health care; accept individual responsibility and accountability for nursing interventions and their results; and strive for continuing personal growth and identity.

The baccalaureate program is designed to provide the high school graduate, as well as the graduate of a hospital diploma program or an associate degree program in nursing, the opportunity to obtain a baccalaureate degree in nursing.

This is the basic preparation for professional nursing practice and for advancing toward positions of leadership in nursing. Upon completion of the program the graduate is qualified for positions in public health nursing, school nursing, hospital and other health agencies, commissioned status in the military nursing services, as well as admission to graduate education. This program is approved by the Nevada State Board of Nursing and accredited by the National League of Nursing.

Curriculum Requirements

I. Total number of credits required for graduation, 128
Upper-division credits—64-68 required
Lower-division credits—60-64 required

II. Lower-division requirements for prenursing majors.

Natural Sciences	*Credits*
Inorganic and Organic Chemistry: CHEM 101, 142, and 143	8-9
Anatomy and Physiology: BIOL 262, 263	6
Microbiology: BIOL 251	4
Nutrition: H EC 223	3
Mathematics (MATH 105 or higher)	3
Natural science electives	3
	27-28

Behavioral Science	
SOC 101	3
PSY 101	3
H EC 274—The Individual and the Family	3
Cultural ethnic course[1]	3
Behavioral science electives	3
	15

Communication Skills	
ENGL 101, 102	6
SHR 234—Clinical Interviewing Skills	3
	9

Humanities	
HIST 111, or P SC 103	
If U.S. Constitution requirement met, may take HIST 217—Nevada History, or P SC 100—Nevada Constitution, through correspondence (1 credit course)	3
Electives[1]	6-9
	60-63

III. Upper-division requirements for nursing majors.

A. Nursing science, self-learning skills laboratories, and clinical practica: NURS 301, 302, 314, 315, 324, 325, 326, 401, 402, 414, 415, 416, 424, 425	53
B. Basic statistics course	3-4
C. Basic research methodology course — nursing research: NURS 444	3
D. Clinical pharmacology	4
E. Electives[1]	2-5
	65-68

IV. Progression Policies.

A. Progression to the junior nursing sequence requires:
1. Formal application due mid-spring semester.
2. 2.75 grade point average (GPA) on completion of all lower-division courses.
3. Only prerequisite courses, exclusive of general electives, are considered for selection to the upper-division nursing major. Grade point average is calculated from these prerequisite courses and this GPA is used for selection purposes.
4. A grade of C or better is required for all prerequisite courses, exclusive of general electives.
5. Completion of all lower-division course requirements by the end of spring semester of sophomore year in the prenursing major.
6. Junior standing at UNR by the end of spring semester of sophomore year in prenursing major (60 credits).
7. Students who complete the requirements during the summer session are considered on a space available basis at the discretion of the dean and selection committee. This process is instituted with the selection of those students meeting requirements identified in items 1 through 6.
8. All required prerequisite courses for progression to the upper division must be taken for a grade, not on an S/U basis. Transfer and change of major students' S/U credit is evaluated on an individual basis.

Note: Fulfillment of the above criteria does not imply automatic progression to the nursing major. Students are selected on the basis of academic achievement and therefore are ranked according to GPA. From the rank-ordered list of students and their GPAs, the predetermined number of student positions is filled. This procedure is used each year. Any student matri-

[1]Select from a variety of identified courses.

culating in the Orvis School of Nursing prior to 1985 has the option of using the new admission rules.

B. Progression within the nursing sequence:
   1. Maintenance of a 2.0 cumulative GPA and achieving a minimum grade of C in each nursing course.
   2. Regardless of the combined grade in either a theory or practice course, each student must achieve a minimum of a C grade in each specialty area.
   3. A grade of C or better is required in pharmacology, statistics and research for progression within the nursing sequence.
   4. A student in the upper division of nursing may have to withdraw from the program for academic or nonacademic reasons. The following criteria are used for allowing students to withdraw and reenter the nursing major.

      A student has three years from the date of admission to the upper-division nursing major to complete requirements for graduation.

      Reentry into the upper division following withdrawal for academic reasons is extended to only *one* time. Reentry for nonacademic reasons is at the discretion of the Admissions and Progressions Committee in consultation with the dean.

      Academic Withdrawal: The student who is: (1) failing a nursing course, (2) considered clinically unsafe, or (3) receives less than a C as a final grade will be given the option to return to the incompleted level the following academic year. This privilege is limited to *one* time.

      Nonacademic Withdrawal: The student who withdraws for "personal reasons" is requested to state, *in writing,* at the time of withdrawal: (1) the exact reason for withdrawal, (2) intention/nonintention of returning to the program, (3) expected date of reentry into program. Withdrawals due to financial difficulties, death or serious illness in the immediate family, or serious personal illness are considered valid reasons for return to the incompleted level. The student must be receiving a passing grade in clinical and theory at the time of withdrawal. The privilege to return is at the discretion of the Admissions and Progressions Committee, in consultation with the dean. Students with extraordinary personal circumstances are given individual consideration. All students must contact their adviser to discuss plans for withdrawal and to complete appropriate petitions.

      Readmission: Students seeking readmission to the upper division of nursing must do the following: (1) see their adviser to complete a readmission petition at least *four* months prior to the appropriate academic semester, (2) students who withdraw for nonacademic reasons must provide rationale that "personal reasons" have been resolved, (3) inform the Admissions and Progressions Committee of their intent to return to the upper division at least *four* months prior to return, and (4) any student returning to the upper division may be asked to demonstrate competency in nursing skills when returning to Level II, III or IV.
   5. Any student who withdraws and/or transfers from the upper division of the nursing major must apply directly to Orvis School of Nursing for consideration of readmission and placement into the upper division in nursing. Eligibility depends upon space available and meeting current OSN progression requirements to the junior year.
   6. Any student who withdraws from NURS 314, 325, 415, 424 must also withdraw from NURS 315, 326, 416, and 425 respectively.
   7. All nursing practice courses must be taken concurrently with nursing theory and skills laboratory courses.
      a. NURS 301, 314, 315
      b. NURS 302, 325, 326
      c. NURS 401, 415, 416
      d. NURS 402, 424, 425

      A generic student (has not completed the requirements for licensure as a registered nurse) who withdraws for *academic reasons* from any nursing course is required to withdraw from *all* concurrent nursing courses.

      A generic student who withdraws from a nursing course for *personal reasons,* but is passing at the time of withdrawal, may be permitted to waive the concurrency policy upon the discretion of the Admissions and Progression Committee and/or the dean.

      Registered nursing students are considered on an individual basis.
   8. Clinical pharmacology and statistics must be taken for a letter grade. Students who have taken these courses for S/U or pass/fail grading must submit a petition to the Admissions and Progressions Committee for review and evaluation.

C. Students, after consultation with their advisers, may petition for course substitutions or other considerations relevant to OSN curriculum requirements. Required courses completed more than 10 year previous to application to upper-division nursing must be evaluated on relevancy and currency of content. Those requests for course substitutions or waivers not covered by an adviser's approval must be submitted to the chairman of the Admissions and Progressions Committee.

D. Satisfactory/Unsatisfactory Grading:
   1. A baccalaureate student may earn a maximum of 30 semester credits in courses graded on an S/U basis.
   2. A transfer student who has taken a course on an S/U basis must submit the course for evaluation and placement within the curriculum.

E. Special Examination:
   1. Consideration is given to credit by special examination for individual students in accordance with the university policies.
   2. Registered nurse students may earn up to 31 credits by special examinations.

F. Independent Study:
   1. Opportunity is provided for individual students to pursue ideas of particular interests and needs through independent study courses.

SPECIAL NOTE: Students must provide their own tape recorders, bandage scissors, watches with second hands, stethoscopes, laboratory coats, uniforms, caps, name pins, liability insurance, transportation to clinical laboratories, and required textbooks.

Students must also provide documentation that they have had physical examinations and chest X-rays within six months prior to enrollment in both the junior and senior years of the program.

A rubella titer is required prior to matriculation in the junior year of the program.

Current CPR certification is required for all students during their junior and senior years.

Advanced Placement for Registered Nurses

Orvis School of Nursing has a program designed for registered nurses seeking the bachelor's degree. Lower-division requirements remain the same but 31 upper-division nursing credits may be earned by special examination. Please call the school for details.

Master of Science Program

The purpose of the master's program in nursing is to prepare nurses to function as family nurse clinicians in primary, secondary, and tertiary care. The program further provides opportunity to select administration as an alternative functional area. All students are expected to develop competence in using the research process.

The Master of Science program is accredited by the National League for Nursing.

The program requirements range from 44 to 50 semester credits with an option for thesis or professional paper.

The academic requirements to be considered for admission are:

1. Graduate Record Examination (GRE): Aptitude section, a minimum combined score of 1000 is required on the verbal and quantitative sections.
2. An undergraduate overall GPA of 2.75 or higher or a GPA of 3.0 or higher on the last half of the undergraduate program.
3. Completion of a bachelor of science degree with an upper-division major in nursing *from an NLN Accredited School of Nursing,* to include the following specific coursework:
   a. Statistics
   b. Growth and development (must cover life span)
   c. Basic research
   d. Physical-psycho-social assessment

Additional requirements for admission are:

1. Verification of current registration to practice nursing in the U.S. Evidence of registration in Nevada is required prior to actual registration in the program for those selected.
2. A personal statement of goals for graduate study.
3. Three letters of reference which address applicant's potential for success in graduate school: one from former faculty; one from employer or supervisor; one from an individual of choice.

Applicants must apply for admission through the university Office of Admissions and Records.

Prerequisites taken 10 years or more prior to entry into the graduate program are evaluated on an individual basis by the student's graduate adviser.

The total number of credits required varies according to the options selected. The *minimum* number of credits required for completion of the master's degree is 44 credits.

Graduate-level courses officially accepted in transfer to UNR may be considered to satisfy specific course requirements in the nursing program. The student must provide specific course information for department review to determine if the content is equivalent or comparable to the UNR requirement. If approved, such courses may be included in the official program of study to satisfy the degree requirement.

Satisfactory/Unsatisfactory Grading

Graduate students must achieve a grade of B or above in each required graduate-level nursing course. Students who receive less than a B in a required graduate nursing course may repeat that course one time only.

Prerequisites for 700-Level Courses in Nursing

A prerequisite for *all* 700-level courses in nursing is admission to the graduate program in the School of Nursing.

Objectives for the Master of Science Program

Clinician Option

Upon completion of the master's program, the graduate will:

1. Practice an advanced clinical nursing role within a theoretically based framework with patients and families in a selected health care environment.
2. Demonstrate competence in a selected functional area.
3. Use the process and method of scientific inquiry in the study of nursing.
4. Contribute to the development of nursing science.
5. Function as a change agent within a selected health care environment.
6. Acquire a foundation for doctoral study in nursing.

Program of study	*Credits*
NURS 706—Theoretical Foundations of Nursing	3
NURS 708—Nursing Theories and Family Health Patterns	3
NURS 710—Advanced Nursing Practice I	6
NURS 711—Advanced Nursing Practice II	6
NURS 720—Research in Nursing	3
NURS 730—Theoretical Foundations for Change	3
NURS 798—Advanced Nursing Practice III	3
	27
Advanced statistics (a graduate-level statistics course is required)	3
Clinical cognates (physiology)	3
Electives	5-8
Scholarly paper (thesis)	6
OR	
Professional paper and comprehensive examination	3

Students who select the clinician option may also elect a functional area in administration by completing the following courses in addition to the above program of study:

	Credits
NURS 701—Role of the Nurse Administrator	3
NURS 702—Practicum in Nursing Administration	3

Administration Option

Upon completion of the master's program, the graduate will:

1. Practice an advanced administrative nursing role within a theoretically based framework in a selected health care environment.
2. Demonstrate competence in a selected functional area.
3. Use the process and method of scientific inquiry in the study of nursing.
4. Contribute to the development of nursing science.
5. Function as a change agent within a selected health care environment.
6. Acquire a foundation for doctoral study in nursing.

Program of study	*Credits*
NURS 706 – Theoretical Foundations of Nursing	3
NURS 708 – Nursing Theories and Family Health Patterns	3
OR	
NURS 730 – Theoretical Foundations for Change	3
NURS 701 – Role of the Nurse Administrator	3
NURS 702 – Practicum in Nursing Administration	6
NURS 710 – Advanced Nursing Practice I	6
NURS 720 – Research in Nursing	3
NURS 798 – Advanced Nursing Practice III	3
	27
Advanced statistics (a graduate-level statistics course is required)	3
Administrative cognates (B A 720, 721)	6
Electives	2-5
Scholarly paper (thesis)	6
OR	
Professional paper and comprehensive examination	3

Students who select the administration option may also elect a functional area as clinician by completing the following course in addition to the above program of study:

	Credits
NURS 711 – Advanced Nursing Practice II	6

Graduate School

John E. Nellor, *Dean*

History

Graduate programming has been offered at the University of Nevada-Reno since 1887, and the first advanced degree was awarded in 1903. The administration of the graduate program developed from an initial faculty graduate committee to a director of Graduate Studies in 1953, and to the establishment of a Graduate School, headed by a dean, in 1955. In 1965, the graduate faculty was established with an elected Graduate Council responsible for the development and implementation of policies and programs in advanced studies. The Graduate Council is administratively responsible to the president of the university. In 1978, graduate faculty bylaws were approved defining the procedures for election of members of the graduate faculty and the Graduate Council and the responsibilities and functions of the Graduate Council in promoting quality graduate education and research programming.

Activities in scholarship and research by students and faculty members of the Graduate School reinforce the land-grant mission of the university in education, research, and public service for citizens of the state of Nevada, the nation, and society in general. To fulfill these objectives, the Graduate School best serves society by providing for the education of students in the scholarly methods of intellectual inquiry and critical analysis, by training them in the disciplinary and interdisciplinary skills necessary for problem-solving, and fostering in all students a dedication to creative thought and the search for knowledge.

Special services provided by the Graduate School include:

Statistical consulting: For graduate students and faculty regarding research and proposal development.

Assistance in sponsored programming: For graduate students and faculty including a computerized potential sponsor locator for fellowships, travel grants, and research support.

Assistance in proposal writing: Through the Getchell Library Learning Lab, the Graduate School has available "Winning Grants," a series of 10 audio-visual lectures dealing with all aspects of developing proposals and contracts to potential sponsors.

Graduate School Instructional Development (GSID): Provides training for national and international teaching assistants in various aspects relating to teaching skills, i.e., communicative, organizational, and testing.

Graduate Student Paper Competition: During the spring term of each year, the Graduate School coordinates the "Graduate Student Paper Competition," a program sponsored by the Honor Society of Phi Kappa Phi, the Research Society of Sigma Xi, and the Graduate Student Association. This involves submission of a scholarly and research document, and for finalists an oral presentation of research findings.

Advanced Degrees and Majors

Supported by a variety of research centers and institutes, research services and library holdings, the university offers graduate study leading to the advanced degrees of master of arts, master of arts for the teaching of English, master of arts for the teaching of mathematics, master of business administration, master of judicial studies, master of education, master of music, master of public administration, master of science, doctor of education, and doctor of philosophy. In addition, certain professional degrees are granted in the Mackay School of Mines.

Master's degrees are offered in agricultural economics, animal science, anthropology, atmospheric physics, biochemistry, biology, botany, cellular and molecular biology, chemistry, civil engineering, computer integrated manufacturing systems engineering, computer science, counseling and guidance personnel services, economics, educational administration and higher education, electrical engineering, elementary education, English, foreign language and literature (French, German, Spanish), geochemistry, geological engineering, geology, geophysics, history, home economics, hydrology and hydrogeology, integrated pest management, journalism, juvenile court judges, land use planning, mathematics, mechanical engineering, metallurgical engineering, mining engineering, music, nursing, pharmacology, phllosophy, physical education, physics, plant science, political science, psychology, public administration and policy, resource management, secondary education, sociology, special education, speech communication, speech pathology and audiology, trial judges, and zoology.

An educational specialist degree is offered in counseling and guidance personnel services, curriculum and instruction, and educational administration.

A combined M.D./Ph.D. degree program is offered with major emphasis in anatomy, biochemistry, cellular and molecular biology, pharmacology, or physiology.

The doctor of education program is offered in counseling and guidance personnel services, curriculum and instruction, and educational administration and higher education.

The doctor of philosophy degree is offered in anthropology, Basque studies, biochemistry, biology, cellular and molecular biology, chemistry, engineering, English, geochemistry, geology and related earth sciences, geophysics, history, hydrology and hydrogeology, mining engineering, pharmacology, physics, psychology, and social psychology.

Inactive advanced degree programs include the master's in accounting, finance, management, marketing, and theatre; and the doctor of philosophy in political science, and sociology.

Admission to Graduate School

Application Information

An applicant for admission to graduate-level study must file an application with the Office of Admissions and Records. Applications for graduate standing are subject to approval by the chair of the major department or program, the dean of the college which offers the major, and the dean of the Graduate School.

Applications for admission are accepted at any time; however, the admission application and all credentials must be received in admissions and records at least three weeks before registration day of any instructional period to insure processing by registration day.

GRE Examinations

Scores on the Graduate Records Examination (the aptitude tests and the advanced test, as required by the department concerned) or on the Graduate Management Admission Test must be submitted to the Office of Admissions and Records by all students prior to application for admission to graduate standing. The GRE scores submitted must have been earned within the five years preceding application.

International Students

Applications from international students are evaluated on an individual basis.

The minimum TOEFL score required for admission to advanced degree programs is 500. Departments may require TOEFL scores in excess of the minimum requirements.

An international student is required to have a TOEFL score of 550 or higher to be approved for a teaching assistantship.

International applicants must satisfy the medical examination and financial responsibility requirements prior to admission.

UNR Faculty

UNR personnel with the rank of instructor or above are not permitted to obtain a graduate degree at this campus.

Graduate Standing

Students may be admitted to graduate standing in the Graduate School upon completion of a baccalaureate degree or an advanced degree if they meet the requirements specified. Departments or colleges may have entrance requirements in excess of the minimal requirements of the Graduate School. Prior to submission of an application for admission to graduate studies, students should contact the department of anticipated study to obtain these requirements in writing.

Each department, with the approval of the academic deans, reserves the right to determine which students are accepted for graduate study, even though the applicant may satisfy the Graduate School requirements. The attainment of graduate standing is necessary before a student can pursue an approved program of study for an advanced degree. Admission to graduate standing permits the student to request the formation of an advisory-examining committee, to proceed with development and approval of a program of study, and to design a research program for thesis or dissertation studies.

Admission to graduate standing is the first of a series of progression requirements toward an advanced degree and does not constitute admission to candidacy for a higher degree.

Program of Study

During the first semester of matriculation and prior to establishment of the advisory/examining committee, the courses to be taken must be approved by the faculty adviser identified on the admissions certificate. It is the responsibility of the student and the advisory/examining committee to insure that the graduate courses and numbers submitted on a program of study are in accord with the requirements of the Graduate School.

The advisory-examining committees are formed no later than the completion of 12 post-baccalaureate credits for the doctoral degree.

Transfer Credits

Each graduate standing student who plans to apply graduate credit earned at another institution toward an advanced degree at UNR must complete a Graduate Credit Transfer Evaluation Request form available in Admissions and Records. Results of the evaluation are distributed to the student, adviser and graduate dean for reference in program planning.

Comprehensive Examinations

Comprehensive examinations are designed to assure departmental faculty of a reasonable acquisition, retention and integration of course work materials. At the master's level, they are administered by the department after completion of the course work in Plan B, and if not a separate examination, as part of the final examination in Plan A. Comprehensive examinations are administered by departments after completion of 75 percent of the course work in doctoral programs.

Departmental comprehensive examinations must be satisfactorily completed prior to filing for candidacy.

On advice of the major adviser, students must register for the comprehensive examination course for zero credit on an S/U basis. A grade of Unsatisfactory (U), or Incomplete (I) must be improved to a grade of Satisfactory (S) during the next semester or the student is dropped from graduate standing.

Candidacy

Advancement to candidacy implies that students have successfully completed departmental course requirements, university residency and GRE/GMAT requirements. Master's degree students on the A plan should file for candidacy as soon as possible after completion of 10 credits and approval of program; after completion of the comprehensive examination on the master's B plan and not later than eight months prior to graduation on doctoral programs.

Final Oral Examination

Departments have explicit requirements on the number of final oral examinations that may be taken. Where two final oral examinations are allowed, failure of the first examination results in the advisory-examining committee recommending that the student be placed on probation. Where only one final oral examination is allowed, a failure on this examination results in the advisory-examining committee recommending that the student be dropped from graduate standing. This recommendation is made to the graduate dean.

Master's Programs

Students are eligible for admission into master's degree programs under one of the following conditions:

1. An undergraduate overall GPA of 2.75 or higher on a scale of 4.0, or an average of 3.0 based on the last half of the undergraduate program. International applicants, who are not UNR graduates, must have a 3.0 GPA or higher.
2. The product of the overall GPA times the GRE (verbal

plus quantitative) exceeds 2,466, or the product of the GPA times the GMAT exceeds 1,366.

3. Students not meeting the above requirements but with a GPA above 2.3 may be considered for admission to graduate standing on a *prescribed program.* Continuation in graduate standing is contingent upon successful completion of a total of nine credits in one semester, or 12 credits over two consecutive semesters for those working full-time, with a grade of "B" or higher in each course taken. The number of students in prescribed programs cannot exceed 20 percent of the total graduate enrollment in a department or interdisciplinary program. While on a prescribed program, a student is not eligible for a teaching or research assistantship.

The minimum prerequisite for admission to graduate standing is 18 credits in the undergraduate major or at least 18 credits of undergraduate work in courses acceptable to the department; however, departments reserve the right to specify additional requirements. A student must make up any deficiencies in undergraduate requirements. These can often be removed while pursuing an approved program of graduate study.

Doctoral Programs

Upon recommendation from the major department and academic dean, graduates from accredited colleges and universities may be admitted to work toward a Ph.D. or Ed.D. (note exceptions under the Ed.D. section) degree in the Graduate School if they meet the following minimal requirements:

1. An overall GPA of 3.0 or higher on all undergraduate and graduate work.

2. Satisfactory completion of necessary prerequisites for work in a chosen major field.

3. A student with an overall grade-point average less than 3.0 may apply for admission to a doctoral program with provisional standing. Students approved for provisional standing must complete two consecutive semesters of full-time graduate study in a program approved by the department and the Graduate School. A student may not remain on provisional standing for more than two semesters. Successful completion of the two semesters, with a grade of B or better in each course comprising the 18 credits, qualifies the student to apply for graduate standing. Courses completed while on provisional status may be applied toward an advanced degree with approval of the advisory-examining committee.

Graduate Special

The graduate special classification is for students who wish to take graduate courses but do not plan to pursue a program leading to an advanced degree, or for students who do not meet the requirements for admission to graduate standing. Students may qualify for graduate special status by the filing of official transcripts with the Office of Admissions and Records showing that the applicant has a baccalaureate degree from a regionally accredited four-year college or university. Admission to graduate special status does not constitute admission to graduate standing in the Graduate School. With graduate special classification a student may enroll for undergraduate or graduate credit and may satisfy the teacher certification requirements. Admission to graduate special classification does not imply that students may take every course of their choice as departmental approval must be secured for each course desired. Each student must be able to demonstrate that the prerequisites are satisfied for each course in which enrollment is sought.

A student with graduate special classification may apply for regular graduate standing by meeting the minimal requirements of the Graduate School.

Students admitted to graduate standing can only apply nine graduate semester credits taken prior to admission to the program of study, whether graduate special credits and/or transfer credits. Credits earned during the semester a graduate special student is officially admitted to the graduate standing classification are exempted from the nine credit limitation.

International students who are on a student visa are not eligible for admission to the graduate special classification.

Registration

Each student who plans to register for graduate courses must be admitted to graduate standing or graduate special classification at the university *prior* to registration, except certain university seniors as authorized by policy.

Fees

Graduate students are required to pay the application fee, the per credit registration and capital improvement fees, specialized instruction expenses and tuition (for out-of-state students). In addition, there are fees for the Health Service, the Graduate Student Association, the Student Union operating costs and the recreation building use. The summer session fees are as specified in the Fees and Expenses section. Grants-in-aid to cover the per credit and capital improvement fees plus out-of-state tuition may be awarded to graduate assistants, trainees and fellows, provided such conditions are specified in their contracts.

Graduate Student Association

Graduate student participation in university affairs is encouraged and can be achieved through the UNR Graduate Student Association (GSA). The approval of a new GSA constitution in 1978 provides apportioned graduate student representation from each academic unit offering advanced degree programming. The GSA has voting representation on the Graduate Council, cooperates with the Associated Students of the University of Nevada (ASUN), and the GSA president attends University of Nevada System (UNS) Board of Regents meetings. While social activities are provided by the GSA, the major emphasis is placed on improving academic and service programs relating to the specific needs of graduate students. The GSA publishes the Graduate Student Handbook, sponsors invited speakers on a wide variety of topics, and promotes graduate student participation in campus and community affairs as well as regional and national scholarly meetings.

Undergraduate Students and Graduate Courses

An undergraduate student at the university who is within 14 or less credits of completing the requirements for the bachelor's degree may enroll in 500- or 600-level courses for graduate credit, provided that such credit is requested by the student and approved by the adviser and graduate dean at the time of enrollment and provided that the student is scholastically eligi-

ble for admission to graduate standing. The student must complete all requirements for the undergraduate degree in the same semester in which registration for the graduate courses occurs; otherwise, the courses revert to undergraduate credit. Undergraduates taking graduate credit may carry a combined load not to exceed the normal credit load in the department in which the student received the baccalaureate degree. Undergraduate students are not eligible to take 700-level courses.

Graduate Assistantships

The Graduate School is administratively responsible for approval of graduate student assistantships. Interested students should check with the appropriate department on the availability of assistantships. A graduate assistantship can only be offered after official admission notification of acceptance to graduate standing is received from the Office of Admissions and Records.

UNR Board of Regent's Award

This award pays for $11 per credit of the course credit fee. Each award is made for one semester and is renewable only following submission of a new application. Deadlines are July 15 for fall semester and December 15 for spring semester. Application forms are available from the Graduate School.

To be eligible for this award, a recipient must be a Nevada resident, be admitted as a regular graduate standing student, be enrolled in a minimum of nine graduate credits during the semester of the award, have maintained at least a 3.0 GPA on all graduate coursework previously taken, have an approved Graduate Advisory-Examining Committee, and have an approved program of study.

Academic Requirements

Advanced degrees are conferred by the university upon recommendation by the graduate faculty and the graduate dean following the completion of an approved program of study. The approved program of study of each student presents the specific plan of courses, research and related activities of the student. Each kind of advanced degree program has regulations and requirements presented in the description of the degree. The following requirements apply to all graduate programs at the university.

Students must register for an appropriate course load at least one semester or summer session each year, or obtain an *approved leave* from the department. Unless these approved leaves are part of the student's Graduate School records, extensions of the six- and eight-year requirements are not approved by the graduate dean.

Graduate Courses

Courses numbered 500 and above are for graduate credit (see Numbering System) and are open to only those who have been officially admitted to graduate study. A dual numbered course completed at the 400 level for undergraduate credit may not be retaken at the 600 level for graduate credit.

Academic Standards

Graduate students must assume an attitude toward scholarship that transcends merely passing courses, and they must also assume full responsibility for complying with the Graduate School's academic standards and must be aware of the consequences of substandard performance. Departments and graduate faculty are responsible for monitoring and documenting graduate student compliance with academic standards. Penalties for failure to meet standards include the following:

1. Graduate students placed on probation are not eligible for appointments as teaching or research assistants.
2. A student who remains on probation for two consecutive semesters is dropped from graduate standing.

Recommendations by departments or advisory-examining committees to place students on probation or to drop them from graduate standing must be submitted to the Graduate School. If approved, the Graduate School notifies the student of the action and, if appropriate, the Office of Admissions and Records that the student is dropped from graduate standing. Students dropped from graduate standing for reasons other than grade point deficiencies may register as graduate specials.

International students who are on a student visa are not eligible to register as a graduate special.

Students dropped from graduate standing because of grade-point deficiencies may enroll as a graduate special student in undergraduate courses. Enrollment in graduate-level courses requires the advance written approval of the department concerned and the graduate dean. A student may reapply for graduate standing by achieving a grade point average of 3.0 or higher in at least nine credits in graduate courses.

Grades and Credit

Each graduate course must be completed with a grade of C or above for the credit to be acceptable toward an advanced degree. Each candidate must earn a B average or above on all graduate courses taken, including any transfer credit. In addition, a B average or above must be obtained in all graduate credit attempted at the University of Nevada-Reno. Expiration of the time period for master's degrees does not eliminate course grades from the average, and grades of D or F are included.

Academic Performance

1. UNR overall graduate credit GPA of 3.0 or better ..... Good standing
2. UNR overall graduate credit GPA balance of one to six grade points below 3.0 ..... Probation
3. UNR overall graduate credit GPA balance of seven or more grade points below 3.0 . . . Dropped from graduate standing

Limitations on Courses for the Program of Study

A maximum of nine graduate semester credits on the master's degrees, and 24 on the doctor of philosophy degree, from any eligible graduate courses completed prior to admission to graduate standing, may be applied to the program of study.

1. S/U Grades: A maximum of three graduate credits for a master's degree (or nine graduate credits for a doctorate degree) of S/U grading, including transfer credits, is acceptable. A maximum of six graduate credits of S/U grades may apply to

the master and doctor of education degrees offered by the College of Education based upon the additional credits required.
2. **Thesis Credits:** Final credit for thesis or dissertation is not officially recorded until the candidate has been approved by the faculty for the graduate degree.
3. **Graduate Special Courses:** A maximum of nine credits for which the student registers while classified as a graduate special student may be used in satisfying requirements for any advanced degree.
4. **Off-Campus Courses:** A maximum of nine credits earned in off-campus courses may be applied toward any advanced degree.
5. **Workshop Courses:** A maximum of six credits of workshop or institute type, whether in residence or not, may be included in the total for the degree.
6. **Extension Courses:** Graduate credit earned through extension courses is not accepted for transfer credit.
7. **Correspondence Study:** Graduate credit is not allowed for correspondence study completed at the university or elsewhere.

Resident Credit

Resident credit on the Reno campus is defined as credit earned by a student who is physically present on the Reno campus for the entire duration of the scheduled instruction or training period, except in those specific cases (e.g., in agriculture, geology, or biology) where the field becomes, in fact, a campus laboratory and is the only place where adequate instruction and training can take place.

Student Credit Loads

A full-time graduate student may not register for more than 16 graduate credits in any semester, nor for more than six graduate credits in any six-week summer session. Registration for graduate assistants is limited to 12 graduate credits per semester.

If the graduate student's registration includes courses taken for undergraduate credit, the student's credit load is calculated on the basis of three undergraduate credits being equivalent to two graduate credits.

Registration in nine graduate credits or more in a semester is considered as full-time. For graduate assistants on a half-time contract, six graduate credits or more constitute full-time study.

Advisory and Examining Committee

An approved application for graduate standing identifies a temporary adviser. As soon as practical, the student selects a permanent adviser. The permanent adviser and the student arrange for appointment of the advisory-examining committee, who, with the adviser and department chair, supervise the student's courses of study and examinations.

For candidates for the master's degrees, the advisory-examining committee should be appointed at least by the end of the semester in which the twelfth graduate credit is completed. It consists of at least three members of the graduate faculty, two representing the area of specialization and one the university-at-large. If a major-minor program is elected, there must be one representing the major, one representing the minor, and one representing the university-at-large.

For a student going directly from the bachelor's degree to the Ph.D., the advisory/examining committee should be formed prior to the completion of 24 credits in graduate courses. For students entering a Ph.D. program with a master's degree, the advisory/examining committee should be formed the first semester of matriculation. A member of the faculty should be selected who will serve as chair of the committee and as a permanent adviser. The research adviser may be a different faculty member than the chair. The committee consists of at least five members: the adviser as chair, two or more members from the major department or area, one or more from departments in related fields, and at least one member of the graduate faculty representing the university-at-large.

Formal approval of a student's advisory-examining committee is made by the graduate dean who will assure that no conflict of interest exists and that the participation of the graduate faculty in graduate programming is maximized. Members of advisory-examining committees must be members of the graduate faculty, unless approved by the graduate dean.

The university-at-large members of committees are to represent the Graduate School, assure compliance to Graduate School regulations and procedures and report to the Graduate School any variations or irregularities of prescribed standards.

All committee members will be involved in the approval of the student's program and thesis/dissertation topics, and in the design and conduct of all examinations. Changes in the program may be made only with the approval of the entire committee and the graduate dean. When necessary, substitute members of the committee may be appointed by the graduate dean.

Application for an Advanced Degree

During the first two weeks of the student's final semester or Summer Session (check University Calendar for final dates), each candidate is required to submit an application for an advanced degree to the Graduate School. This application includes the expected date of the final examination, date of graduation, and the approval of the adviser, academic dean and the graduate dean. Applications filed after this date are charged a late fee. Applications for an advanced degree are not accepted after February 15, June 15 or October 15 in the respective final period in which graduation is sought.

An applicant who does not complete all the degree requirements by the specified deadline must update and resubmit the application during the next appropriate filing period.

Thesis and Dissertation Regulations

Each student must have an outline (prospectus) of the thesis/dissertation approved by the advisory-examining committee. Subsequent to this approval, students are expected to proceed in completing the thesis/dissertation in a manner satisfactory to the committee.

The candidate should develop the thesis or dissertation while in residence, as close and constant supervision by the director in charge is required. When considerable progress has been made while the candidate is in residence in collecting data and outlining the thesis or dissertation, the candidate may be permitted to complete it away from the campus under such arrangements as the research adviser of the thesis may specify and the graduate dean approve.

Registration for Thesis or Dissertation: A master's candidate who is on a Plan A thesis program must complete a minimum of six credits of thesis and a Ph.D. candidate, a minimum of 24

credits of dissertation. Students do not necessarily have to be registered during the semester within which they will graduate, if they have satisfied all course requirements and previously registered for the required number of thesis or dissertation credits. However, students should plan to have the required thesis and dissertation credits span their entire academic year, since many benefits, i.e., G.I. Bill, student loans and housing, visas, etc., require that a student register for at least one graduate credit during each eligibility semester. A department may require that students conducting resident research register for a minimum of one thesis/dissertation credit each semester.

Thesis and dissertation courses are not graded. At the close of each semester of registration for credit in thesis or dissertation courses, a dash is indicated in place of a letter grade on the student's permanent record. These courses are not counted in GPA computations. The completed thesis or dissertation, if accepted at the time of the final oral examination for the degree and by the graduate dean, is posted on the student's academic record for transcript purposes.

Dates for Submission of Thesis or Dissertation: A draft of the thesis or dissertation must be submitted to members of the examining committee not later than eight weeks before the final examination to allow time for corrections and suggestions to be incorporated before final typing. The completed, unbound thesis must be submitted to members of the examining committee at least one week before the date of the final examination, which must be held at least three weeks before the close of the semester or term. The final date for submission of the thesis or dissertation in final form is two weeks before the close of the semester or term. NO EXTENSION OF THIS TIME IS PERMITTED. Final approval of theses and dissertations is by the graduate dean.

Format: The thesis or dissertation is to be prepared according to specific directions available at the Graduate School Office. Capitalization, abbreviations, quotations, footnotes, bibliography, and other conventions should conform with good usage as set forth in standard manuals on research writing; practices must be consistent throughout the thesis.

Copies for Deposit: When the thesis has been approved by the advisory examining committee, two acceptable copies, signed by the chair of the major department and the thesis director, must be submitted unbound to the Graduate School Office.

Publication and Abstract: The library staff will arrange for microfilming each thesis and dissertation by University Microfilms, Ann Arbor, Michigan. Publication on microfilm does not preclude other forms of publication. The candidate for the Ph.D. must also submit an abstract, not exceeding 350 words in length, and the candidate for the master's degree must submit an abstract, not exceeding 150 words in length, which have been approved by the examining committee. These abstracts are published in full in *Dissertation Abstracts* or *Master's Abstracts*, journals with international circulation. The cost for copyright registration, if desired, and for the bound copy, except for the one paid for by the library, must be paid by the candidate.

Master's Degrees

The university offers the degrees of master of arts, master of arts for the teaching of English, master of arts for the teaching of mathematics, master of business administration, master of education, master of judicial studies, master of music, master of public administration, and master of science. Some departments offer only a Plan A, in which a six-credit thesis is required, and other departments offer, in addition to Plan A, a Plan B with no thesis required.

Residence and Credit Requirements

1. **Plan A Requirements:** On the thesis program, at least 30 credits of acceptable graduate courses must be completed, not less than 21 of which must be earned in on-campus courses at UNR. Any transfer of credits from another institution must be recommended in the Program of Study by the committee and officially accepted through the Office of Admissions and Records. At least 18 credits of the program of study must be at the 700 level. Six of the 30 credits must be thesis credits.
2. **Plan B Requirements:** In certain departments a nonthesis degree program may be undertaken. This requires the satisfactory completion of at least 32 credits of acceptable courses and satisfactory completion of a comprehensive examination. A minimum of 23 credits must be earned in on-campus courses at UNR. At least 15 of the above 32 credits must be at the 700 level.
3. **S/U Grades:** A maximum of three credits of S/U grades, including transfer credits, is acceptable.
4. **Limits on Transfer and Graduate Special Credits:** A maximum of nine graduate credits completed prior to admission to graduate standing may be applied toward the master's degree.
5. **Time Limit:** All requirements for the master's degree must be satisfied within the period of six calendar years immediately preceding the granting of the degree.
6. **Second Master's Degree:** A maximum of nine graduate credits earned in a master's degree program may later be applied toward a second master's degree.

Course Requirements

For the M.A., M.A.T.E., M.B.A., M.M., M.P.A., or M.S. degree, the following types of programs may be arranged:

Major-Minor Programs: In Plan A at least 12 of the 24 graduate credits must be in a major field of study, with at least six credits in a minor field. The minor may be in a different department, or it may be in a second division of the major department if it consists of two or more separate divisions. The minor department has the responsibility of approving the candidate's minor program. Any credits not required for the major or minor may be elected in any department by the student with the approval of the advisory committee. Normally they are chosen to support the candidate's thesis. In Plan B at least 15 of the 32 graduate credits must be in a major field of study, with at least eight credits in a minor field.

Major Programs: A minor is not required. In Plan A at least 18 of the 24 graduate credits must be in the major field of study and in Plan B 23 of the 32 graduate credits must be in the major field of study.

Area Programs: An advisory committee with the approval of the dean of the Graduate School may designate an area program which embraces the subject matter of several departments.

Education Programs: For the master of arts or master of science in secondary education, the Plan A program must include a minor field of study of at least eight credits in a subject-matter department in a department outside the College of Education, while in Plan B 10 credits are required.

Foreign Language Requirement: The Graduate School does not have a language requirement for master's degrees, but a department may require foreign language competencies.

Procedures Towards Master's Degree

Program of Study: The graduate student's adviser, the department head, and the advisory examining committee determine the program of studies for each master's degree, including the thesis and the courses acceptable toward the graduate degree program. All transfer credit must be evaluated and approved through the Office of Admissions and Records prior to admission. The program of study documents by name and number all the courses to be completed in fulfilling requirements for the graduate degree. Final approval is by the graduate dean. Subsequent changes may be made at any time but only with the approval of the committee and the Graduate School.

A student should not enroll in any course for graduate credit without first securing the approval of the chair of the major department and the dean of the college that such courses are acceptable toward a major or a minor.

It should be emphasized that, although formal requirements are expressed in a specified number of credits, the student should not think of graduate work as primarily the completion of a number of required courses. These courses are intended to give the student a comprehensive understanding of a whole area of study.

Comprehensive Examination: In the Plan B program a candidate must pass a written comprehensive examination in the field(s) of specialization to qualify for the degree. The chair of the department concerned is responsible for administration and evaluation of the examination. All committee members are permitted to review the examination. Results of the examination are certified on the application for admission to candidacy.

Admission to Candidacy: Advancement to candidacy implies that students have successfully completed department course requirements, university residency, and GRE requirements. Students file for candidacy shortly after completion of the comprehensive examination on the master's Plan B. Forms are available in the Graduate Office and require approval of the adviser, chair of the major department, and the dean of the Graduate School. Admission to candidacy requires the following:

1. The student must have a B average in all graduate work taken prior to admission to candidacy.
2. The student must have gained formal approval of the advisory committee for the program of study, including the approach to the thesis.
3. Submission of scores for the Graduate Record Examination.

A department may, at its discretion, impose additional requirements for admission to candidacy.

Thesis: Candidates for the M.A., M.S., and M.B.A. (Plan A) degrees must register for at least six credits of thesis work and must submit an approved thesis in order to qualify for the degree. As the thesis is considered the most distinctive characteristic of the graduate degree, great importance is assigned to it in determining the eligibility of the candidate for the degree. The thesis should demonstrate the ability of the student to select and delimit a specific problem or topic, to assemble the pertinent and necessary data, to do original research, to make a contribution to knowledge, to organize ideas and data acceptably, and to prepare a written report in clear and effective English.

For specific information on preparation and submission of the thesis, guidelines and specific information are available in the Graduate Office.

Final Examination: A final oral examination is conducted by the advisory/examining committee not later than three weeks before the close of the semester or term. The examination must be scheduled to suit the availability and convenience of all members of the committee. The candidate should arrange the examination well in advance; normally an examination is held during regular university sessions.

Approval of Thesis and Examination: A unanimous favorable decision of the examining committee on the thesis and the examination is required in Plan A. Final approval of the thesis is reported by the major adviser, the department chair, and the graduate dean. A unanimously favorable decision of the examining committee on the oral examination is required in Plan B.

Master of Education (M.Ed.) Degree

A candidate for the M.Ed. degree must meet all requirements of the master of arts or master of science degree except for the following:

1. The candidate should have completed a minimum of two years of satisfactory teaching or administrative experience, or equivalent.
2. The candidate must complete a minimum of 32 credits of acceptable graduate course work, but need not present a thesis. For details of the program consult the College of Education.
3. A minimum of eight credits is required in the area of specialization in the College of Education and must be approved by the chair of the department of specialization.
4. A minimum of eight credits is required in elective or cognate courses related to the degree specialization. Such courses may be taken from any graduate division where courses are available on the university campus and must be approved by the student's area of specialization chair.
5. A written comprehensive examination to be completed at least two weeks before the final oral examination, is required in the area of specialization in education for all candidates and in the cognate field of subject-matter teachers majoring in secondary education. The chair of the departments concerned are responsible for administration and evaluation of the examination. All committee members are permitted to review the examination. Results of the examination are forwarded to the dean of the College of Education and the dean of the Graduate School for official records at least two weeks prior to the oral examination.

Education Specialist (Ed.S.) Degree

The educational specialist (Ed.S.) degree is offered in each of the three departments in the College of Education—counseling and guidance personnel services, curriculum and instruction, and educational administration and higher education.

Entrance Requirements

1. Possession of an accredited and relevant master's degree.
2. Post-master's experience relevant to the earned master's degree.
3. A GPA of 3.5 overall or higher in the master's degree program.
4. Acceptable scores on either the GRE or the Miller Analogies Test.
5. Submission of a completed "Personal Data Form" and an example of a written academic effort previously composed as a part of the student's graduate work.
6. Departmental acceptance (standards may be higher than those stated in the university requirements).
7. College of Education Graduate Studies Committee and dean acceptance.
8. Graduate School acceptance.

Program Completion Requirements

1. A minimum of 32 graduate credits beyond the related master's degree is required.
2. Six post-master's or 15 post-baccalaureate acceptable credits must be obtained from outside the College of Education.
3. At least 16 of the total credits must be taken in the department offering the degree, and at least 16 of the total credits must be taken in courses at the 700 level.
4. A maximum of six post-master's credits taken prior to admission to the degree program may be applied to the program upon admission.
5. A maximum of six post-master's credits taken off campus or through continuing education may be applied toward the degree.
6. An Examining/Guidance Committee is appointed for each student in the Ed.S. degree program. The committee is comprised of four members of the graduate faculty: two are from within the department in which the student is pursuing the degree; one is from another department within the college; one is selected from a department outside the College of Education.
7. A research project or its equivalent must be completed. The form of the project may vary, but it must represent a contribution to the professional field in which the degree is obtained.
8. Requirements for the degree must be completed during a period not to exceed six years.

Doctor of Education (Ed.D.) Degree

The College of Education offers a doctoral degree in education designed primarily as a professional degree for practitioners. The program provides an opportunity for personalized specialization in one of the approved departments or divisions in the College of Education, with an emphasis on improving leadership and breadth of knowledge for those individuals who are now employed in the various areas of education.

Academic Requirements

Each applicant must satisfy the regular graduate admission requirements listed for doctoral programs and the following special requirements:

The applicant must:

1. Have completed at least two full years of successful professional experience in a field appropriately related to the chosen major.
2. Have an earned master's degree from a regionally accredited institution in an area appropriately related to the chosen major.
3. Provide the names and addresses of at least five individuals who are knowledgeable about the personal and professional qualifications of the applicant. The College of Education Committee for Graduate Programs contacts the references for an evaluation of the applicant's competencies.
4. Be recommended by the graduate faculty of the department in which the major is sought and approved by the College of Education Committee for Graduate Programs.

Degree Requirements

The regular doctorate graduate regulations apply with these modifications:

Full-Time Study: At least two full-time summer or regular semesters must be completed with a minimum of 12 graduate credits for each summer or regular semester. A maximum of three credits of dissertation, independent study or workshop credits may be applied per full-time term. This requirement must be satisfied *after* admission to the doctoral program.

Program: A minimum of 90 semester credits beyond the baccalaureate degree, including 12 credits of dissertation, must be completed. In addition to 30 graduate credits from the master's degree, a maximum of 16 relevant graduate credits in an accredited certification program beyond the master's degree to which the applicant was admitted may be applied to the approved Ed.D. program of studies for the candidate. There are specific course requirements and qualifying, comprehensive, and final examinations.

Dissertation: The dissertation must involve scholarly and practical consideration of a professional problem designed to contribute to the improvement of educational practices or to the body of educational theory. The topic may (1) evolve from practical educational experiences, (2) be based upon directed field experiences, (3) be a scholarly study of an educational problem involving theoretical implications, or (4) be a new interpolation or synthesis of existing research sources.

Foreign Language: None is required.

Miscellaneous: The details of the examining committee, adviser, appropriate calendar, and development of an individually structured program are made available after an applicant is admitted.

Fees: All credits are assessed at the regular fee in effect at the time of registration.

Doctor of Philosophy (Ph.D.) Degree

The doctor of philosophy (Ph.D.) degree is conferred only for work of distinction in which the student displays decided contributions of original scholarship, and only in recognition of marked ability and achievement. The basic requirements are twofold: 1. A student must exhibit unmistakable evidence of penetrating mastery of a rather broad major field. Such evidence is ordinarily provided by passing a general examination, after which the student may request admission to candidacy. 2. A student must prove ability to design and complete a significant program of original research by preparing a dissertation embodying creative scholarship and by passing a rigorous final examination. The dissertation must add to the sum of existing knowledge and evidence considerable literary skills.

Residence and Credit Requirements

Time Limitation: All requirements for the doctoral program excluding prerequisite graduate coursework or prerequisite master's degrees must be completed within a period of eight calendar years. The prerequisites required are explicitly defined by the departments concerned, and approved by the graduate council.

Residence: A minimum of six semesters of graduate study beyond the bachelor's degree is required. At least two successive semesters, excluding summer sessions, must be spent in full-time residence on campus at the University of Nevada-Reno.

Credits: A minimum of 72 graduate credits is required of which at least 48 must be in course work.

A maximum of 24 credits in course work with grades of B or better from a master's degree program or previous post-baccalaureate graduate studies program may be allowed toward the Ph.D. degree, with the approval of the major department, the graduate dean, and the Office of Admissions and Records.

700-Level Courses: A minimum of 30 credits of 700-level courses beyond the baccalaureate, exclusive of dissertation credits, is required for the doctoral degree. A maximum of 18 of these credits may be used from a master's degree.

Course Requirements

The following types of Ph.D. programs may be arranged.

Major-Minor Programs: At least two-thirds of the credits, including dissertation research, must be taken in the major field. A minor field, if selected, must be approved by the department offering the minor.

Major Programs: Major programs are allowed in which a minor is not required but in some cases may be taken in a second field within the major department.

Area Programs: An advisory committee consisting of members of several departments with the approval of the dean of the Graduate School may designate an area program which embraces the related subject matter of several departments.

Procedures Towards Ph.D. Degree

Qualifying Examinations: The qualifying exam aids in the assessment of the student's current knowledge for the purpose of defining the departmental requirements to be completed. Each department will provide explicit guidelines to entering students for taking these examinations. For students entering the Ph.D. program without a master's degree, qualifying examinations are to be completed prior to the completion of 24 graduate credits; for the student entering with the master's degree, the exams are to be completed during the first semester of graduate study.

Program of Study: As soon as practical after its appointment, the advisory examining committee should meet to approve the student's program of study and the prospectus for the dissertation, following the same procedures as those outlined for master's degree candidates (see above).

Final acceptance of a student's program of study, i.e., rejection of any courses taken or the assignment of new courses, must be completed by the Examining-Advisory Committee prior to the student's filing for candidacy. The student's advisory committee may accept or reject any course or other work the committee deems appropriate to the student's program.

Foreign Language Requirement: A current working knowledge of a foreign language is required for Ph.D. students with the exception of those departments which have course options as approved by the graduate council. Currency is determined by the student's completion of a fourth-level language course while a graduate student at UNR, or the successful passing of a language examination designed and administered by the UNR Department of Foreign Languages and Literatures. Course work and testing are offered at UNR in French, German, Russian and Spanish. Students should contact the Department of Foreign Languages and Literatures for advice on course offerings, or in regard to testing dates and fees. This competency must be demonstrated prior to admission to candidacy. Students who do not meet departmental requirements for satisfactory progression on foreign language requirements may be required to take a reduced course, teaching, or research load or be recommended for probationary status. If the alternative of taking approved course options is selected, these courses must be taken while a graduate student at UNR.

Comprehensive Examination: This examination should be taken as soon as possible after completion of the language and course requirements, but no later than eight calendar months before the date of graduation. It may be taken after a minimum of 75 percent of the student's required course work beyond the bachelor's degree is completed. This examination must be oral and written, and test the student's mastery of a broad field of knowledge, not merely the formal course work which has been completed.

The written examination is designed and administered by the department of the major, and the oral examination is conducted and evaluated by the advisory-examining committee.

If more than one negative committee vote is cast, the examination is failed. In case of failure, the examination may be retaken, provided the examining board feels that additional study is justified and the student continues such studies for an additional period as determined by the committee.

Candidacy: Application for admission to candidacy must be filed not later than eight calendar months before awarding of the degree, and not before completion of residence requirements, the comprehensive examination, any remaining G.R.E. requirements, and foreign language requirements.

Final Examination: After the dissertation has been accepted by the advisory committee, but at least three weeks before the date on which the degree is to be conferred, a final examination on the dissertation and related topics is conducted by the student's advisory and examining committee. This examination may be totally or partly oral, the oral portion being announced and open to interested faculty.

If more than one negative committee vote is cast, the examination is failed.

The Dissertation: Candidates for the Ph.D. degree must register for at least 24 credits of dissertation work and must submit a dissertation satisfactory to the examining committee. Any exception to the minimum 24 dissertation credits requires the advance written approval of the department of the major and the graduate dean. The dissertation must represent original and independent investigation which is a contribution to knowledge. It should reflect not only a master of research techniques, but also the ability to select an important problem for the investigation, study it competently, and express the findings in an acceptable manner. Final approval of the dissertation is by the graduate dean.

Professional Engineering Degrees

The professional engineering degrees, Geological Engineer (Geol.E.), Metallurgical Engineer (Met.E.), and Engineer of Mines (E.M.), may be conferred upon graduates of the Mackay School of Mines or upon graduates of other institutions who have obtained the master of science degree in engineering from the university. Applicants must have been engaged in successful engineering work in positions of responsibility for a period of at least five years in the case of holders of the B.S. degree or four years for holders of the M.S. degree, and must submit theses showing ability to conduct advanced engineering work. These are not considered when they are merely investigations in literature, compilations of routine laboratory tests, or presentations of the work of others.

Professional engineering degrees may also be conferred upon graduates of the Mackay School of Mines and upon graduates of other engineering colleges of equal standing, who, after graduation, have been engaged for a period of at least one year in successful engineering work in a position of responsibility and who subsequently complete successfully one year of graduate work in engineering, including thesis, at the university.

Formal application for graduation with a professional engineering degree must be filed with the registrar not later than the beginning of the second semester of the year in which the degree is sought, and must be approved by the faculty of the Mackay School of Mines and by the graduate dean. The application must be accompanied by detailed and satisfactory evidence as to the extent and character of the applicant's professional work. The thesis must have the general form prescribed for the master's thesis or must be a reprint of an article appearing in a reputable professional journal. The thesis or publication in final form must be approved by a committee appointed by the graduate dean and must be presented to the faculty of the Mackay School of Mines and to the graduate dean at least eight weeks before the date set for conferring the degree.

Course Information

Numbering System

The assigned letter or number following the departmental designation indicates the appropriate level of instruction for each course:

A,B,C, etc., are special noncredit courses.
1-99 are nonbaccalaureate-level courses.
100-199 are freshman courses.
200-299 are sophomore courses.
300-399 are junior courses.
400-499 are senior courses.
500-599 are graduate courses.
600-699 are graduate courses. Some are dual listed with 400-level courses having a graduate component.
700-799 are graduate courses.

NOTE: Each student is personally responsible for registration in the correct course number and class level as approved by the faculty adviser.

Symbols

An interpretation of the symbols which appear in the course listings follows:

a, b, c, etc. indicate successive terms of the same course which may be repeated for credit.

(3 + 0), (1 + 6), etc. show the number of 50-minute class periods of lecture (or recitation or discussion) plus the total number of periods of laboratory (or workshop or studio) per week. The number of class periods is not necessarily the same as the number of times the class meets. Thus (3 + 0) means the course meets for three periods of lecture per week and does not have any laboratory periods. Likewise, (1 + 6) means the course meets for one period of lecture and six periods of laboratory per week; the laboratory may meet twice a week for three periods each or three times a week for two periods each. For more specific information about a particular course, the student should consult the schedule of classes.

1, 2, etc. credits which appear after the parenthesis indicate the number of credits the course carries each semester.

S/U (in italics) means the course is graded Satisfactory or Unsatisfactory only.

Abbreviations

A SC—Animal Science
ACC—Accounting
AGEC—Agricultural Economics
AGED—Agricultural Education and Communications
AGRO—Agronomy
ANAT—Anatomy
ANTH—Anthropology
ART—Art
B A—Business Administration
B CH—Biochemistry
B V—Beliefs and Values
BASQ—Basque
BIOL—Biology
C E—Civil Engineering
C I—Curriculum and Instruction
C J—Criminal Justice
C S—Computer Science
CAPS—Counseling and Guidance Personnel Services
CH E—Chemical Engineering
CHEM—Chemistry
CIS—Computer Information Systems
CLS—Clinical Laboratory Science
E E—Electrical Engineering and Computer Science
E S—Ethnic Studies
EAHE—Educational Administration and Higher Education
EC—Economics
ENGL—English
ENGR—Engineering
ENV—Environment
FCM—Family and Community Medicine
FLL—Foreign Languages and Literatures
FR—French
GEOG—Geography
GEOL—Geology
GER—German
GK—Greek
H EC—Home Economics
H P—Historic Preservation
HIST—History
HON—Honors Study
HORT—Horticulture
IMED—Internal Medicine
IPM—Integrated Pest Management
ITAL—Italian
JAPN—Japanese
JOUR—Journalism
J S—Judicial Studies
LAT—Latin
L SC—Library Science
M E—Mechanical Engineering
MATH—Mathematics
MED—Medicine
MEDT—Medical Technology
METE—Metallurgical Engineering
MGRS—Managerial Sciences
MICR—Microbiology
MIL—Military Science
MINE—Mining Engineering
MUS—Music
NURS—Nursing
OBGY—Obstetrics and Gynecology
P SC—Political Science
PATH—Pathology and Laboratory Medicine
PCHY—Psychiatry and Behavioral Sciences
PEDI—Pediatrics
PHAR—Pharmacology
PHIL—Philosophy
PHSY—Physiology
PHYS—Physics
PSY—Psychology
R ST—Religious Studies
RPED—Recreation, Physical Education and Dance
RUSS—Russian
RWF—Range, Wildlife, and Forestry
SHR—Social and Health Resources
SOC—Sociology
SPA—Speech Pathology and Audiology
SPAN—Spanish
SPCM—Speech Communication and Theatre
SURG—Surgery
THTR—Theatre
V M—Veterinary Medicine
W S—Women's Studies

Course Offerings

Prerequisites

The prerequisites listed for each course must be satisfied prior to registration, or the advanced approval of the department offering the course must be obtained, for enrollment to be valid.

Inactive Courses

Certain courses are approved for offering as the need arises but due to their infrequent scheduling are listed as being inactive. Individuals desiring specific information about any inactive course should contact the chair of the department.

Changes

All courses are subject to change without advance public notice. In addition, the university reserves the right to cancel or limit enrollment in any scheduled class.

ACCOUNTING (ACC)

Graduate courses numbered 500 to 599 are not applicable toward an advanced degree in accounting.

201 INTRODUCTORY ACCOUNTING I (3 + 0) 3 credits
Purpose and nature of accounting, measuring business income, accounting principles, assets and equity accounting for external financial reporting.

202 INTRODUCTORY ACCOUNTING II (3 + 0) 3 credits
Forms of business organization; cost concepts and decision making; break-even analysis, fixed and variable costs, budgeting for internal reporting. Prerequisite: ACC 201.

UPPER-DIVISION COURSES: Business students must have satisfactorily completed the entire lower-division business core (see section on *Upper-Division Courses* in the College of Business Administration section).

303 INTERMEDIATE ACCOUNTING I (3 + 0) 3 credits
Theory and practice of accounting for cash, receivables, prepaid and accrued items, plant and equipment, intangible assets. Prerequisite: completion of lower-division business core, CIS 261.

304 INTERMEDIATE ACCOUNTING II (3 + 0) 3 credits
Shareholder's equity, dilutive securities, and investments; issues related to income determination, preparation and analysis of financial statements. Prerequisite: ACC 303.

307 GOVERNMENTAL ACCOUNTING (3 + 0) 3 credits
Fund and budget accounts of local governmental units, revenues, appropriations, disbursements, assessments, university, hospital and other fund applications. Prerequisite: completion of lower-division business core, CIS 261.

309 MANAGEMENT ACCOUNTING I (3 + 0) 3 credits
Cost analysis applied to decision-making. Materials, labor and overhead, relevant cost, joint and by-products, job order and process costing, budgeting and standard costs. Prerequisite: completion of lower-division business core, CIS 261.

310 MANAGEMENT ACCOUNTING II (3 + 0) 3 credits
Continuation of cost accounting concepts; nonmanufacturing costs, relevant costs, inventory valuation, joint and by-products and capital budgeting. Prerequisite: ACC 309.

313 FEDERAL TAX ACCOUNTING I (3 + 0) 3 credits
General concepts of federal income taxation, including research methods and planning techniques, with emphasis upon application to individuals as employees and proprietors. Prerequisite: completion of lower-division business core, CIS 261.

314 FEDERAL TAX ACCOUNTING II (3 + 0) 3 credits
Survey of income tax principles governing the formation and operation of corporations, partnerships and S-corporations, including liquidating and nonliquidating distributions. Prerequisite: ACC 313.

395-396 INTERNSHIP IN ACCOUNTING 1 to 3 credits each *S/U only*
Cooperative education wherein students apply knowledge to real situations in program developed by company official and faculty adviser to optimize learning experiences. Term paper required. Prerequisite: first semester seniors only.

405, 605 ADVANCED ACCOUNTING (3 + 0) 3 credits
Partnerships, joint ventures, installment sales, consignments, receiverships, estates, trusts, home office and branch, consolidated statements, actuarial science. Prerequisite: ACC 304.

411, 611 AUDITING I (3 + 0) 3 credits
Auditor's standards and legal responsibilities; statistical sampling and evidence gathering, internal control and audit programs for assets, liabilities, revenue and expenses; preparation of audit reports. Prerequisite: ACC 304.

420, 620 INTERNATIONAL ACCOUNTING (3 + 0) 3 credits
Role of accounting in a multinational context. Financial reporting, managerial and social aspects of international accounting are considered with an emphasis on conceptual matters. Prerequisite: completion of lower-division business core, CIS 261.

424, 624 COMPUTER-BASED AUDITING (3 + 0) 3 credits
Develop control techniques for security and integrity of computer systems and analyze computer audit methods for compliance and substantive testing in batch and online systems. Prerequisite: completion of lower-division business core, CIS 261.

470, 670 TAX PLANNING AND RESEARCH (3 + 0) 3 credits
Thorough analysis of the process of tax research. Tax planning concepts through the medium of problem-oriented investigation. Extensive use of library materials. Topical matter will be selected from relevant contemporary issues. Prerequisite: ACC 313, 314.

480, 680 ACCOUNTING SYSTEMS AND AUTOMATION (3 + 0) 3 credits
Accounting information systems with an emphasis on the computer's role in these systems. Topics include data bases, computerized control systems, computer crime and systems study work for a systems revision. Prerequisite: completion of lower-division business core, CIS 261.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

493, 693 ACCOUNTING THEORY (3 + 0) 3 credits
Review of accounting literature and contemporary accounting problems. Emphasis placed on the development of basic accounting concepts. Prerequisite: ACC 304.

494 SPECIAL TOPICS (3 + 0) 3 credits
Selected contemporary topics in the discipline of accounting. Prerequisite: ACC 304, 309, 313.

Inactive Courses

412, 612 AUDITING II (3 + 0) 3 credits
491, 691 CPA PROBLEMS I (3 + 0) 3 credits

AGRICULTURAL ECONOMICS (AGEC)

100 AGRICULTURE AND RESOURCES IN THE ECONOMY (3 + 0) 3 credits
Economic principles related to agricultural and natural resources. Topics: price determination, emphasizing demand; price searching and taking; sources of and prescriptions for fluctuating economy.

202 AGRICULTURAL AND RESOURCE ECONOMICS (3 + 0) 3 credits
Production principles affecting the allocation of scarce agricultural and renewable resources by individual firms and implications for aggregate supply and resulting price determination.

211 FARM AND RANCH BUSINESS ANALYSIS (2 + 2) 3 credits
Farm records, accounts, and budgets and their use in planning and analyzing farm and ranch business operations.

213 MICROCOMPUTERS IN AGRICULTURE (2 + 3) 3 credits
Introduction to the role of microcomputers in the farm or ranch business. Emphasizes the use of agriculturally related software, and the relationship of the computer to decision making and production records.

270 INTRODUCTION TO STATISTICS (2 + 3) 3 credits
Introduction to the principles of statistics and application to the fields of agriculture and life sciences.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in agricultural and resource economics.

310 AGRICULTURAL PRODUCTION ECONOMICS (3 + 0) 3 credits
Application of techniques and principles of economics to the problems of agricultural production with the emphasis on allocating resources on the ranch, farm and agriculture in general. Prerequisite: course in microeconomics.

312 INTERMEDIATE MICROCOMPUTER COMMUNICATIONS (1 + 0) 1 credit
Applications of communications software and wordprocessing for farmers in correspondence, using national data bases and accessing national and regional software sources such as AGNET and Ag Data. Prerequisite: AGEC 213.

313 INTERMEDIATE APPLICATIONS OF SPREADSHEETS (1 + 0) 1 credit
Use of electronic spreadsheets in the farm and ranch business with applications to financial, production and inventory records. Prerequisite: AGEC 213.

314 INTERMEDIATE DATA BASE MANAGEMENT (1 + 0) 1 credit
Applications of data base management software by farmers in the keeping of financial and production records. Prerequisite: AGEC 213.

315 AGRICULTURAL FINANCE (3 + 0) 3 credits
Fundamental principles of credit and finance applied to agriculture. Credit requirements, existing agencies, utilization, strength and weakness and proposals for reform. Prerequisite: AGEC 202 or EC 102.

316, 416 INTERNSHIP 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

322 COMMODITY FUTURES MARKET (3 + 0) 3 credits
Activities of commodity futures exchanges, mechanics of trading, hedging and forward pricing; analysis of commodity prices; regulation of trading. Prerequisite: EC 102 or AGEC 202.

332 AGRICULTURAL ECONOMICS POLICY (3 + 0) 3 credits
Agricultural economic policy in the U.S. Review of past and present policies and evaluation of these policies. Prerequisite: AGEC 202 or EC 102.

364 ECONOMICS OF OUTDOOR RECREATION (2 + 2) 3 credits
Application of economic principles to outdoor recreation problems and policies. Prerequisite: AGEC 202 or EC 102.

386 AGRIBUSINESS FIELD TRIP (0 to 3 + 6) 1 to 2 credits *S/U only*
Tours of agribusiness enterprises in Nevada or California. A one-week field trip during spring break to observe the management and marketing practices used in successful operations of different agribusiness structures. May be repeated once. Paper required for 2 credits. Prerequisite: AGEC 202 or EC 102.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest in agricultural and resource economics.

411, 611 AGRIBUSINESS DECISION ANALYSIS (2 + 3) 3 credits
Case study problems related to agribusiness, ranching and farming will be used to study methodologies of decision analysis. Linear programming and risk analysis will be introduced. Prerequisite: AGEC 211, 213 or equivalent.

421 GENERAL MARKETING (1 + 0) 1 credit
Concepts and theoretical framework for marketing agricultural crops and livestock. Applications of analysis emphasizes forecasting price and quantities of products. Prerequisite: AGEC 202 or EC 102.

422 LIVESTOCK MARKETING (1 + 0) 1 credit
Concepts and theoretical framework for marketing agricultural livestock. Applications of analysis will emphasize forecasting price and quantities of products. Prerequisite: AGEC 202 or EC 102, AGEC 421.

423 CROPS MARKETING (1 + 0) 1 credit
Concepts and theoretical framework for marketing agricultural crops. Applications of analysis emphasizes forecasting price and quantities of products. Prerequisite: AGEC 202 or EC 102, AGEC 421.

428 INTERNATIONAL AGRICULTURAL MARKETING (3 + 0) 3 credits
Discussion of international trade as it impacts U.S. agriculture. Review U.S. and foreign policies that affect trade and consequential impact on prices of domestic commodities. Prerequisite: AGEC 202.

450, 650 QUANTITATIVE MODELING FOR AGRICULTURAL ECONOMICS (3 + 0) 3 credits
Quantitative methods and models for analyzing resource allocation problems in agricultural economics. Prerequisite: MATH 265.

460, 660 ECONOMICS OF COMMUNITY RESOURCE DEVELOPMENT (3 + 0) 3 credits
Examination of the role of agriculture in the economy of communities and countries. Subjects include land use planning, growth, social goals, labor, income and trade. Prerequisite: AGEC 202, EC 102 or SOC 101.

463, 663 DISCRETE SYSTEMS SIMULATION (3 + 0) 3 credits
Analysis of discrete-event systems via computer simualation models. Emphasis on model building and the design and analysis of simulation experiments for complex systems. Prerequisite: CIS 250 or equivalent.

466, 666 ECONOMICS OF LAND AND WATER USE (3 + 0) 3 credits
Emphasizes interrelations of economic principles, legal and institutional factors and other basic concepts affecting use and value of land and water resources. Attention given to special problems of land and water use in the west. Prerequisite: AGEC 202 or EC 102.

470, 670 INTERMEDIATE STATISTICAL METHODS (3 + 0) 3 credits
Statistical topics including analysis of variance, simple and multiple regression and analysis of enumeration statistics. Emphasizes selection and application of statistical methods to realistic problems. Computers used to assist in statistical analyses. Prerequisite: one course in statistics.

472, 672 REGIONAL ECONOMIC ANALYSIS (3 + 0) 3 credits
(See EC 472 for description.)

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in agricultural and resource economics.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations and developments in agricultural and resource economics. Includes the areas of marketing, production, economics, regional development, resource development and recreation economics. Maximum of 6 credits.

705 ADVANCED STATISTICAL ANALYSIS (2 + 2) 3 credits
Advanced analysis of variance and covariance, multiple and curvilinear regression, nonparametric statistics and sampling finite populations. Emphasis is given to computer applications. Prerequisite: statistics course.

710 ADVANCED AGRICULTURAL PRODUCTION ECONOMICS (3 + 0) 3 credits
Production principles applied to allocation of land, labor, capital and management in agriculture. Prerequisite: AGEC 310.

720 AGRICULTURAL PRICES AND MARKETS (3 + 0) 3 credits
Examination of alternative market structures and determination of agricultural product prices. Prerequisite: AGEC 421.

730 ADVANCED AGRICULTURAL ECONOMIC POLICY (3 + 0) 3 credits
Analysis of the effects of alternative economic policies on production, resource allocation and welfare in the agricultural sector. Prerequisite: AGEC 332.

740 RESEARCH METHODOLOGY (1 + 0) 1 credit
Scientific method applied to research in agricultural economics. Survey of various schools of thought concerning use of economic theory and methods of measurement in research. Prerequisite: AGEC 310.

750 QUANTITATIVE METHODS IN AGRICULTURAL RESOURCE ECONOMICS (3 + 0) 3 credits
Application of quantitative methods such as mathematical programming, Markov processes and simulation to problems in agriculture, natural resources and rural development. The computer is used to solve problems encountered by resource managers and administrators.

755 EXPERIMENTAL DESIGN (1 + 2) 2 credits
Advanced techniques of statistical inference. Design and analysis of experiments in agriculture and related fields and use of computer programming in statistical analysis. Prerequisite: statistics course.

760 ADVANCED NATURAL RESOURCES ECONOMICS (3 + 0) 3 credits
Applications of economic principles to natural resource development, use, conservation and policy. Prerequisite: EC 321.

790 SEMINAR (1 to 3 + 0) 1 to 3 credits
Research work and reports on topics of interest in agricultural and resource economics.

793 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in agricultural and resource economics. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Required of all graduate students who wish to complete the master of science degree under Plan B.

797 THESIS 1 to 6 credits

798 INTERNSHIP 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

AGRICULTURAL EDUCATION AND COMMUNICATIONS (AGED)

All students taking laboratory courses are required to furnish their own safety glasses to meet O.S.H.A. requirements.

100 FUNDAMENTALS OF AGRICULTURAL AND EXTENSION EDUCATION (3 + 0) 3 credits
Introduction into methods and materials used in information transfer including vocational agriculture instruction and agricultural extension. Topics include historical development, current programs and trends.

105 AGRICULTURAL AND DOMESTIC STRUCTURES (2 + 3) 3 credits
Survey of integral components. Theory and operational analysis of structural, electrical, sanitation and environmental subsystems. No mechanical experience necessary.

110 BASIC WOODWORKING (2 + 3) 3 credits
Care and safe use of woodworking hand and power tools. Special projects to develop understanding and proficiency in the use of woodworking machines and processes.

115 SMALL EQUIPMENT MAINTENANCE (2 + 3) 3 credits
Familiarization with care, operation and maintenance of mechanical and electrical equipment used in rural and urban activities. Student must furnish engine.

120 PROFESSIONAL CAREER DEVELOPMENT (2 + 0) 2 credits
Survey of agricultural professions and career options. Emphasis on the history, philosophy, psychology and methodology of planning and decision making.

121 FUNDAMENTALS OF METALS (2 + 3) 3 credits
Basic principles and practices of metals identification, hot and cold metal workings, soldering, sheet metal working, tool fitting and plumbing.

144 INTRODUCTION TO AGRICULTURAL AND INDUSTRIAL EDUCATION (2 + 0) 2 credits
Operation, history and philosophy of the vocational agricultural and industrial mechanics programs.

153 FUNDAMENTALS OF AGRICULTURAL POWER UNITS (2 + 3) 3 credits
Principles of operation, preventive maintenance, operation, diagnosis and tune-up of gasoline and diesel multiple cylinder engines being used in the agriculture industry.

200 COMMUNICATION TECHNIQUES IN AGRICULTURE (2 + 0) 2 credits
Development of communication skills necessary for effective leadership in agriculture.

212 BASIC WELDING (2 + 3) 3 credits
Principles and practical experience in shielded metal arc welding, oxyfuel gas welding and cutting, metals identification and welding metallurgy.

230 ORIENTATION TO VOCATIONAL EDUCATION (3 + 0) 3 credits
Introduction to vocational education: organization and management of vocational classes, laboratories, shops, work experience, etc., youth groups and advisory committees.

240 MANPOWER NEEDS AND JOB ANALYSIS (3 + 0) 3 credits
Review and analysis of job market needs, developing and conducting local surveys, analysis of jobs and trades to determine training needed, determining performance objectives for skills to be taught and developing criteria for evaluation.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

305 VOCATIONAL SAFETY TECHNIQUES (1 + 0) 1 credit
Introduction to basic concepts of classroom safety strategies, area of emphasis including concerns for safety, responsibility and liability and preventing bodily injury.

316, 416 INTERNSHIP IN AGRICULTURE EDUCATION
1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of an adviser. Written progress reports are prepared periodically and at the conclusion of the internship. Maximum of 6 credits.

324 AGRICULTURAL MACHINE HYDRAULIC SYSTEMS (2 + 3) 3 credits
Theory, design, practical application and maintenance of hydraulic systems employed in mobile, agricultural machines. Prerequisite: AGED 150 or MATH 110.

331 TILLAGE AND PLANTING MACHINERY (2 + 3) 3 credits
Principles of operation, preventive maintenance, adjustment and repair of farm tractors, planters, primary and secondary tillage equipment and sprayers. Prerequisite: MATH 110.

332 HARVESTING MACHINERY (2 + 3) 3 credits
Principles of operation, preventive maintenance, adjustment and repair of farm tractors, hay and forage harvesting machinery and combines. Prerequisite: MATH 110.

333 MACHINE DESIGN AND CONSTRUCTION (2 + 3) 3 credits
Functional design and principles in the creation of equipment and machinery. Students design and fabricate major projects using drafting, metal and wood working skills. Prerequisite: AGED 121, 212.

341 AGRICULTURAL STRUCTURES (2 + 3) 3 credits
Building materials, planning structures, concrete forms, placement and finishing concrete block construction; framing and pole construction, roof structures and painting relative to agricultural structures. Prerequisite: MATH 110.

342 YOUTH PROGRAMS (1 to 3 + 0) 1 to 3 credits
Plan, conduct and evaluate the F.F.A. state contests and convention. Maximum of 6 credits.

356 RURAL ELECTRIFICATION (2 + 3) 3 credits
Planning and wiring the farmstead, electric motors, equipment and controls. Materials, code regulation, electrical materials and rates applications to agricultural applications. Prerequisite: MATH 110.

360 EXTENSION PROGRAMS IN AGRICULTURE AND HOME ECONOMICS (2 + 0) 2 credits
Principles and practice in methods used for cooperative extension work. History, organization and philosophy of extension service. Prerequisite: junior standing in agriculture or home economics.

370 CROP HANDLING AND STORAGE FACILITIES (2 + 3) 3 credits
Design and construction of handling and storage facilities for grain, hay and forage crops. Prerequisite: MATH 110.

371 LIVESTOCK FACILITIES (2 + 3) 3 credits
Design and construction of livestock and dairy facilities including barns, corrals, fences, as well as farmstead and ranch planning. Prerequisite: MATH 110.

410 AGRICULTURAL LAW (3 + 0) 3 credits
Examination of more important applications of laws and regulations in management of operations of farms and ranches and the agribusiness firms. Prerequisite: junior standing.

412 ADVANCED WELDING (2 + 3) 3 credits
New techniques and equipment in working metals. Inert gas welding, hard surfacing; welding tests and design of welding structures. Theories of welding and metallurgy stressed as well as the proper weldiment materials used with specialized metals and alloys. Prerequisite: AGED 212.

444 METHODS AND MATERIALS OF TEACHING AGRICULTURAL MECHANICS (2 + 0) 2 credits
Organization and administration of industrial and agricultural mechanics programs including objectives, course content, lesson planning and teaching methods. Prerequisite: AGED 212, 341, 356, 115 or 153, 331 or 332.

446, 646 PROGRAM DEVELOPMENT IN AGRICULTURAL AND EXTENSION EDUCATION (3 + 0) 3 credits
Youth groups, leadership training, supervised farming and cooperative work experience programs, advisory councils and community surveys for program development. Prerequisite: junior standing.

447 METHODS IN TEACHING VOCATIONAL AGRICULTURE (3 + 0) 3 credits
Course construction for all day, young and adult farmer classes; preparation of

teaching plans, reports, organization and evaluation of a vocational agriculture department.

455, 655 WORKSHOP IN VOCATIONAL EDUCATION (1 + 0 per credit) 1 to 6 credits
(See C I 484, 684 for description.)

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0 + 2 per credit) 1 to 8 credits
Major and/or minor teaching field. Provides opportunities in junior or senior high school. Prerequisite or corequisite: foundations for Secondary Teaching I, II, III or equivalent. Arrangements are made by teacher-trainer in agricultural education.

458 SUPERVISED EXTENSION EXPERIENCE (0 + 2 per credit) 1 to 8 credits
Provides opportunities for senior-level agricultural students in on-site training and work with the Nevada Cooperative Extension Service.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

481, 681 SPECIAL PROBLEMS IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 1 to 6 credits
(See C I 481, 681 for description.)

482, 682 FIELD STUDIES IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 2 or 3 credits
(See C I 482, 682 for description.)

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations, and developments in (a) agricultural and vocational education, (b) agricultural mechanics. Maximum of 6 credits.

497, 697 COOPERATIVE VOCATIONAL EDUCATION PROGRAMS (3 + 0) 3 credits
The role of cooperative vocational programs, organization, and implementation. Prerequisite: AGED 230.

728 PROBLEMS IN TEACHING (1 + 0 per credit) 1 to 6 credits
(See C I 728 for description.)

750 WORKSHOP IN AGRICULTURAL EDUCATION (1 + 0 per credit) 1 to 6 credits
Intensive study of a technical phase of (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

760 EXTENSION PROGRAM ANALYSIS (2 + 0) 2 credits
Analysis and development of cooperative extension programs in agriculture, home economics and rural areas development. Prerequisite: graduate standing in agriculture or home economcis.

763 INTERNSHIP IN CURRICULUM AND INSTRUCTION (0 + 2 per credit) 3 to 6 credits
(See C I 750 for description.)

793 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education, (b) industrial mechanics. Maximum of 6 credits.

Inactive Courses

381 MACHINE TOOL OPERATION (2 + 3) 3 credits
400 SEMINAR (1 + 0) 1 credit
460, 660 ADULT EDUCATION (1 + 0 per credit) 1 to 6 credits
700 SEMINAR (1 to 3 + 0) 1 to 3 credits
774 SEMINAR IN VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits

AGRONOMY (AGRO)

100 PRINCIPLES OF PLANT-SOIL-WATER RESOURCE USE (3 + 0) 3 credits
Introduction to plant, soil and water resources of the world. Use of these resources for the benefit of man.

205 PRINCIPLES OF PLANT PRODUCTION IN URBAN ENVIRONMENTS (3 + 0) 1 to 3 credits
Fundamental principles applied to the production and maintenance of plant material in modified urban environments. Topics include soil modification, species selection, water management, and pest control.

222 SOILS (3 + 3) 4 credits
Physical, chemical and biological properties of soils, soil genesis and classification, plant-soil-water relations. Prerequisite: CHEM 101, 102 or 104.

304 PRINCIPLES OF PLANT PRODUCTION (2 + 3) 3 credits
Principles underlying the creation and maintenance of a favorable environment for efficient production of plants. Prerequisite: BIOL 202.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

327 SOIL FERTILITY AND MANAGEMENT (3 + 0) 3 credits
Soil as medium for plant growth, essential elements, fertilizers and their use, amendments, salinity, soil fertility evaluation, cropping systems and soil management. Prerequisite: AGRO 222, CHEM 142.

344 IRRIGATION PRINCIPLES AND PRACTICES (3 + 0 or 3) 3 or 4 credits
Principals and practices underlying efficient use of water in irrigation, irrigation methods, land preparation, salinity, etc. Laboratory optional. Prerequisite: AGRO 222.

355 FORAGE CROPS (2 + 3) 3 credits
Physiological bases for management of forage crops. Quality and utilization of forages. Greenhouse or laboratory problems relating to production of forages. Identification of important forage seeds and plants. Prerequisite: BIOL 202.

357 CEREAL CROPS (2 + 3) 3 credits
Physiological basis for management of cereal crops. Quality and utilization of cereals. Greenhouse or laboratory problems relating to production of cereals. Identification of important cereal seeds and plants. Prerequisite: BIOL 202.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

406, 606 PLANT BREEDING (2 + 3) 3 credits
Methods of plant breeding and their application to various crops. Prerequisite: BIOL 290.

412, 612 ADVANCED PLANT PRODUCTION (2 + 3) 3 credits
Cultural practices and related physiological processes of economic crop growth and development. Physical, chemical and environmental control of crop production. Prerequisite: AGRO 304, BIOL 355, or B CH 412.

431, 631 BIOCLIMATOLOGY (2 + 3) 3 credits
Elements of climatology and microclimatology in relation to living organisms. Effects of man's actions on bioclimates. Equipment for bioclimatic investigations and methods of data summarization and interpretation. Prerequisite: MATH 110 or equivalent.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in bioclimatology, soils, crop production and water science.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations and developments. Includes areas of bioclimatology, crop science, drainage, irrigation, plant breeding or soil science. Maximum of 6 credits.

702 SOIL CHEMISTRY (2 + 3) 3 credits
(See RWF 702 for description.)

715 PLANT WATER RELATIONS (2 + 0) 2 credits
Integrated study of the role of water in plants in relation to their environment. Topics include soil water, root systems, water and salt absorption, and movement in plants, transpiration, effects of water deficits on plants and measurement of plant water stress. Prerequisite: BIOL 355.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

791 SPECIAL TOPICS 1 to 3 credits
Includes areas such as bioclimatology, crop science, drainage, irrigation, plant breeding or soil science. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 3 credits
Includes bioclimatology, crop science, drainage, irrigation, soil chemistry, soil classification or soil minerology. Maximum of 6 credits

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 or 2 credits *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP 1 to 2 credits *S/U only*
Directed experience in teaching in a classroom, laboratory or cooperative extension setting. Preparation, delivery and evaluation of instruction. Written report required. May be repeated in different settings for a maximum of 3 credits.

799 DISSERTATION 1 to 24 credits

Inactive Courses

424, 624 SOIL MICROBIOLOGY AND POLLUTANT DECOMPOSITION (3 + 0) 3 credits
444, 644 IRRIGATION SYSTEM MANAGEMENT (3 + 0) 3 credits
445, 645 FARM IRRIGATION SYSTEM DESIGN (3 + 0) 3 credits
446, 646 DRAINAGE OF AGRICULTURAL LANDS (2 + 3) 3 credits
711 RESEARCH METHODOLOGY (2 + 3) 3 credits

ANATOMY (ANAT)

490, 690 INDEPENDENT STUDY 1 to 4 credits *S/U only*

616 SEMINAR IN ANATOMY (1 + 0) 1 to 3 credits
Library research and presentation in seminar fashion of a selected topic in any subdiscipline of anatomy.

617 SELECTED TOPICS IN ANATOMY (0 + 3) 1 to 3 credits
Comprehensive study by dissection of a selected area or system of the human body.

618 READINGS IN ANATOMY (1 + 0) 1 to 3 credits *S/U only*
Readings on selected topics in anatomy; involves library research and discussions with the anatomy staff; may include preparation and submission of a paper.

619 RESEARCH IN ANATOMY (0 + 3) 1 to 3 credits
Individual or independent work on a special problem under the supervision of a member of the anatomy staff with whom the student's interests are closely related.

601 HUMAN GROSS ANATOMY AND EMBRYOLOGY (3 + 9) 6 credits
Presents concepts in gross anatomy and embryology. Laboratories employ use of models and cadaver dissection.

602 HUMAN HISTOLOGY (2 + 3) 3 credits
Presents concepts of human medical histology and ultrastructural anatomy. Laboratories employ use of microscope slides, models and electron micrographs.

603 HEAD, NECK, CENTRAL NERVOUS SYSTEM (3 + 3) 4 credits
Introduction to the central nervous system integrated with basic anatomy of the head and neck. Designed for medical students.

725 MEDICAL HUMAN ANATOMY (4 + 12) 8 credits
Schedule in anatomy comparable to that offered in ANAT 601, 602, 603. For students of medicine and graduate students in life sciences.

726 HEAD AND NECK ANATOMY I (2 + 3) 3 credits
Emphasis on clinical correlation and related aspects of oral biology. Prerequisite: a degree in medicine or dentistry.

727 HEAD AND NECK ANATOMY II (2 + 3) 3 credits
Continuation of ANAT 726. Detailed anatomy and dissection of the deeper head areas with emphasis on the oral cavity. Neurological implication of lesions of cranial nerves. Prerequisite: ANAT 726.

728 ADVANCED HUMAN NEUROANATOMY AND NEUROPHYSIOLOGY (2 + 3) 3 credits
Functional anatomy of fiber tracts and nuclear centers of the central nervous system, clinical neurology in terms of lesions of the central and peripheral nervous system; recent findings of neurophysiology in conjunction with neuroanatomy. Prerequisite: a degree in medicine or dentistry.

ANIMAL SCIENCE (A SC)

100 ELEMENTS OF LIVESTOCK PRODUCTION (3 + 0) 3 credits
Fundamental concepts in care, management and economics of food producing animals. Includes contributions of the Nevada and U.S. animal industries in providing food on an international basis.

162 BASIC HORSEMANSHIP (1 + 0) 1 credit
Elementary horse nutrition, health and management, including a study of the horse's anatomy and conformation as related to riding.

163 HORSEMANSHIP (0 + 3) 1 credit *S/U only*
Basic principles of English and western equitation. (Same as RPED 163.)

200 STABLE MANAGEMENT (1 + 2) 2 credits
Skill development in the management of a commercial stable including care of horses, budget planning, records, public relations and business considerations. Prerequisite: A SC 162, 163.

201 LIVESTOCK SELECTION (1 + 3) 2 credits
Evaluation of livestock with major emphasis on beef, swine and sheep. Prerequisite: A SC 100.

203 MEAT TECHNOLOGY (2 + 3) 3 credits
Principles of conversion of animals to muscle foods. Processing, packaging preservation and sensory evaluation of meat as it relates to the consumer and food service industry.

206 HORSE HUSBANDRY (2 + 3) 3 credits
Care and management of horses including breeding, disease, nutrition and selection. Prerequisite: A SC 100 or BIOL 201.

208 INTERMEDIATE HORSEMANSHIP (0 + 3) 1 credit
Advancement of skill levels in theory and practice to the intermediate stages of English and western riding, beginning dressage, equitation over fences, western riding patterns. Prerequisite: A SC 162, 163.

211 FUNDAMENTALS OF ANIMAL NUTRITION (3 + 0) 3 credits
Basic principles of nutrition including maintenance, growth, reproduction and lactation; Composition of feedstuffs and role of nutrients in the animal's body. Prerequisite: A SC 100, CHEM 101.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in animal science.

305 INTRODUCTION TO DEBOURRAGE (1 + 4) 3 credits
Schooling of the horse, gentling, longing, bridling, and preliminary and intermediate training at various gaits and movements. Prerequisite: A SC 162, 163, 206.

307 PHYSIOLOGY OF THE DOMESTIC ANIMAL (3 + 0) 3 credits
Physiology of the neuromuscular, central nervous, circulatory, respiratory, digestive, endocrine, reproductive and excretory systems with special reference to domestic animals. Prerequisite: BIOL 201.

309 PHYSIOLOGY OF REPRODUCTION (3 + 0) 3 credits
Reproductive organs and their functions, neural and endocrine interrelationships and responses to environmental influences. Prerequisite: CHEM 142, A SC 307 or BIOL 263.

315 ADVANCED HORSEMANSHIP (0 + 3) 1 credit
Advanced skill development for English and western riders. Combined training, dressage, jumping, flying lead changes, riding patterns, cattle work. Prerequisite: A SC 162, 163, 208.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

325 ANIMAL GENETICS (2 + 3) 3 credits
Mechanisms of heredity, variation, methods of selection, systems of mating with special reference to livestock. Prerequisite: BIOL 201.

400 SEMINAR (1 + 0) 1 credit
Reports on research work and topics of interest in animal science.

406, 606 ADVANCED NUTRITION MANAGEMENT (3 + 3) 4 credits
Interrelationships between feed composition and nutrient requirements; formulation of rations by computers; ration evaluation and avoidance of imbalances. Prerequisite: A SC 211, CHEM 142 or equivalent.

411, 611 TECHNIQUES IN LIVESTOCK REPRODUCTION (1 + 3) 2 credits
Evaluation and application of various techniques to control and determine reproductive functions in livestock. Prerequisite: A SC 309 or equivalent.

412 BEEF AND SHEEP PRODUCTION (2 + 3) 3 credits
Principles of beef and sheep production and the application of breeding, physiology and nutrition to their production under western ranch and farm environments. Prerequisite: A SC 100, BIOL 201.

413, 613 RANGE-LIVESTOCK INTERACTION (3 + 0) 3 credits
Emphasis on species and breed selection, physiological considerations and alleviating detrimental effects on livestock. Interactions among livestock, wildlife and plant communities. Prerequisite: A SC 100 or BIOL 101.

414, 614 ENDOCRINOLOGY (3 + 0) 3 credits
Structure and function of endocrine glands and how their secretions regulate biochemical reactions, integrate tissue and organ systems and control behavior. Prerequisite: A SC 307 or BIOL 385 or 386. (Same as BIOL 414, 614.)

422, 622 INSECT PESTS OF ANIMALS (3 + 0) 3 credits
(See IPM 422, 622 for description.)

423 HORSE PRODUCTION (2 + 3) 3 credits
Principles of equine production and application of breeding, physiology and nutrition to their production and marketing. Prerequisite: A SC 206.

424 DAIRY CATTLE PRODUCTION (2 + 3) 3 credits
Principles of dairy production including management, lactation, nutrition, physiology, milk and by-products. Prerequisite: A SC 100, BIOL 201.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in animal science. Maximum of 6 credits.

485 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits.
Presentation and review of recent research, innovations and development in various animal science areas including animal breeding, animal health, animal management, meats, nutrition and physiology. Maximum of 6 credits.

700 STATISTICAL METHODS (2 + 2) 3 credits
Techniques of statistical inference and their application. Prerequisite: AGEC 270.

782 ADVANCED TOPICS IN REPRODUCTION 1 to 3 credits
Intensive study of topics in (a) morphological and functional changes, (b) gamete development and functions, (c) early embryonic development and manipulation, (d) chemical messengers. Maximum of 6 credits.

783 ADVANCED TOPICS IN ANIMAL NUTRITION 1 to 3 credits
Intensive study of topics in (a) energy metabolism, (b) nitrogen metabolism, (c) mineral and vitamin metabolism, (d) laboratory techniques. Maximum of 6 credits.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest in animal science. Maximum of 2 credits.

791 SPECIAL TOPICS 1 to 3 credits
Intensive study of special topics in animal science. Maximum of 6 credits.

792 SPECIAL PROBLEMS (2 + 0) 2 credits
Recent research in various areas in animal science including nutrition, physiology, breeding, meats or animal health is discussed and evaluated. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Required of all graduate students who wish to complete the master of science degree under Plan B.

797 THESIS 1 to 6 credits

ANTHROPOLOGY (ANTH)

101 THE HUMAN EXPERIENCE (3 + 0) 3 credits
Introduction to human culture and society. Understanding human diversity through comparative study of politics, religion, economics, and kinship.

102 HUMAN ORIGINS AND EVOLUTION (3 + 0) 3 credits
Introduction to human biological evolution and cultural origins as reconstructed from fossil and archaeological records and studies of human and other primate biology and behavior.

103 HUMAN ORIGINS AND EVOLUTION LABORATORY
(0 + 3) 1 credit
Study of the fossil record; projects in primate behavior, anatomy, genetics, and human biology.

200 PEOPLES AND CULTURES OF THE OLD WORLD (3 + 0) 3 credits
Comparative survey of selected peoples of Asia, Africa and Europe, including a discussion of methods and concepts used to study and explain human cultural adaptation. Prerequisite: ANTH 101.

201 PEOPLES AND CULTURES OF THE NEW WORLD (3 + 0) 3 credits
Comparative survey of selected cultures of North and South America, the Pacific Islands and Australia, including a discussion of basic social and cultural institutions and processes of change. Prerequisite: ANTH 101.

202 INTRODUCTION TO ARCHAEOLOGY (3 + 0) 3 credits
Uses of archaeology to understand and interpret major stages of human cultural development from beginnings to first civilizations.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3 + 0) 3 credits
Ethnic relations in the U.S. and other societies where cultural and "racial" pluralism illustrates problems and processes of social interaction. Prerequisite: introductory course in one of the social sciences. (Same as SOC 205.)

210 FOLKLORE, MYTH, AND LEGEND (3 + 0) 3 credits
Anthropological analysis of the human experience as expressed in myths, legends, folktales, and oral tradition.

212 MALE AND FEMALE: ANTHROPOLOGICAL PERSPECTIVES
(3 + 0) 3 credits
Examination of male and female roles and family organization in human societies from the perspective of human evolutionary theory and comparative ethnographic evidence. Prerequisite: ANTH 101.

215 ANTHROPOLOGICAL FILM (2 + 2) 3 credits
Historical development and contemporary significance of documentary films about non-western peoples and cultures.

300 BEGINNING FIELD IN ARCHAEOLOGY (1 + 6) 3 credits
Practical experience in archaeological survey and excavation. Saturday lectures, exercises, and field trips.

309 MUSEOLOGY (3 + 0) 3 credits
History and philosophy of museums; their role in contemporary society; museum organization, management, program planning, funding, publications, guest speakers, supervised field trips to museums. (Same as ART 309, BIOL 309, GEOL 309, HIST 309, H EC 309.)

312 COMPARATIVE SOCIAL ORGANIZATION (3 + 0) 3 credits
Basic institutions of human society; examination of the variability of structure in social system and culture. Prerequisite: ANTH 101.

330 TECHNOLOGY AND CULTURE (3 + 0) 3 credits
Material culture and manufacturing processes in societies of differing scales and levels of complexity; factors influencing technological development and change.

345 AMERICAN INDIAN ART (3 + 0) 3 credits
The nature, function and history of American Indian art; formal and esthetic approaches; traditional and contemporary perspectives.

400, 600 FIELD SCHOOL IN ARCHAEOLOGY 6 credits
Summer instruction and practice in survey, excavation, and analysis. Prerequisite: special advance application.

401, 601 THEORY IN ARCHAEOLOGY (3 + 0) 3 credits
Past and current theories in archaeological interpretation. Prerequisite: ANTH 202.

402, 602 LABORATORY METHODS IN ARCHAEOLOGY (1 + 3) 2 credits
Techniques for cleaning, repairing and storing artifacts from archaeological collections. Management of archaeological laboratories and collections, including data retrieval systems. Prerequisite: ANTH 102, 202.

403, 603 COLLECTIONS RESEARCH IN ANTHROPOLOGY
(1 + 3) 2 credits
Practicum in anthropological theory and method. Ethnographic, archaeological or similar collections are described, analyzed and interpreted under close supervision. Prerequisite: ANTH 101.

405, 605 ANTHROPOLOGICAL LINGUISTICS (3 + 0) 3 credits
Distribution of languages of the world. Descriptive techniques and theoretical concepts in linguistics; their application to specific problems in anthropology. Prerequisite: ANTH 101.

409, 609 ARCHAEOLOGY OF THE OLD WORLD (3 + 0) 3 credits
Survey of current archaeological knowledge about a particular area of the Old World to be selected from Africa, Asia and Europe. May be repeated once. Prerequisite: ANTH 102 or 202.

411, 611 LINGUISTICS (3 + 0) 3 credits
(See ENGL 411 for description.)

414, 614 HISTORICAL LINGUISTICS (3 + 0) 3 credits
(See ENGL 414 for description.)

415, 615 PHONEMICS AND COMPARATIVE PHONETICS (3 + 0) 3 credits
(See ENGL 415 for description.)

416, 616 LINGUISTIC FIELD METHODS (2 + 3) 3 credits
Procedures in eliciting, recording and analyzing language. Students work with informants. Prerequisite: ANTH 305 or 411 or 415. (Same as ENGL 416.)

420, 620 AMERICAN INDIAN LANGUAGES (3 + 0) 3 credits
Classification of American Indian languages; history of research in this field, structural features of representative languages; survey of research problems. Prerequisite: ANTH 316.

423, 623 ARCHAEOLOGY OF NORTH AMERICA (3 + 0) 3 credits
New world prehistory with emphasis on North America; early man, influences from middle America and cultural sequences of western North America. Lecture and discussion of methodology and field problems. Prerequisite: ANTH 102.

424, 624 HISTORICAL ARCHAEOLOGY (3 + 0) 3 credits
European exploration and colonization of the New World, Africa, Asia, and the Pacific after 1492. Archaeology of shipwrecks, cities, and industry. Prerequisite: ANTH 101.

425, 625 ARCHAEOLOGY OF ANCIENT NEW WORLD CIVILIZATION (3 + 0) 3 credits
Comparative study of indigenous civilization in Mexico, Central America, and South America prior to the European conquest.

429, 629 LANGUAGE AND CULTURE (3 + 0) 3 credits
Nature of language in light of anthropological research, diversity of the world's languages, relation of language to social organization and world view. Prerequisite: ANTH 101.

431, 631 PRIMATE EVOLUTION (3 + 0) 3 credits
Detailed consideration of the record of primate and human evolution and paleobiology; review of contributions from paleontology, geology, behavioral biology, and ecology. Prerequisite: ANTH 102.

435, 635 PRIMATE BEHAVIOR (3 + 0) 3 credits
Behavior and social organization of the nonhuman primates; comparisons with human populations, implications for human evolution. Prerequisite: ANTH 101 or 102.

436, 636 PHYSICAL ANTHROPOLOGY (3 + 0) 3 credits
Variation, adaptation and evolution of human populations. Processes evolution, taxonomy and classification, human genetics, adaptation and acclimatization, mating systems and population dynamics and paleoanthropology. Prerequisite: ANTH 102.

440, 640 HISTORY OF ANTHROPOLOGY (3 + 0) 3 credits
Anthropological ideas about humanity and culture in Western social thought; comparison of contemporary theories of culture and society. Required of majors in senior year.

444 ORAL HISTORY: THEORY AND METHOD (2 + 4) 3 credits
(See L SC 444 for description.)

452, 652 POLITICAL ANTHROPOLOGY (3 + 0) 3 credits
Comparative study of the political organization of band, tribal and state-level societies. Analysis of the modernization of traditional regions and of peasant and primitive warfare, rebellion and revolutions. Pretequisite: ANTH 101.

455, 655 INTRODUCTION TO BASQUE LINGUISTICS (3 + 0) 3 credits
(See BASQ 455 for description.)

460, 660 SEMINAR IN CULTURAL ANTHROPOLOGY (1 to 3 + 0) 1 to 3 credits.
Consideration of selected topics in ethnology, ethno-linguistics or social anthropology. Topics vary from semester to semester. Maximum of 6 credits.

461, 661 INDIANS OF THE GREAT BASIN (3 + 0) 3 credits
Intensive study of indigenous cultures of the intermontane region of western North America; tribal distribution, problems in culture areas, social organization and change.

462, 662 INDIANS OF NORTH AMERICA (3 + 0) 3 credits
Culture areas of North America and related areas of Meso-America. Comparative culture institutions and material from representative groups; review of theoretical problems in North American ethnology. Prerequisite: ANTH 101.

463, 663 INDIANS OF SOUTH AMERICA (3 + 0) 3 credits
Culture areas of South America and related areas of Meso-America. Comparative cultural institutions and material from representative groups; review of theoretical problems in South American ethnology. Prerequisite: ANTH 101.

464, 664 CONTEMPORARY LATIN AMERICAN SOCIETY (3 + 0) 3 credits
Survey of the structural features of Latin American society from the time of Luso-Hispanic contact to the present; emphasis upon cultural pluralism within national structures, race relations and processes of social change. Prerequisite: ANTH 101.

466, 666 OLD WORLD BASQUE CULTURE (3 + 0) 3 credits
(See BASQ 466 for description.)

467, 667 PEOPLES AND CULTURES OF SOUTHEAST ASIA (3 + 0) 3 credits
Analysis of representative cultures of southeast Asia, their origins and development. Prerequisite: ANTH 101.

468, 668 PEOPLES AND CULTURES OF THE PACIFIC (3 + 0) 3 credits
Prehistory, recent cultures and problems of change among the peoples of Oceania. Prerequisite: ANTH 101.

469, 669 PEOPLES AND CULTURES OF EUROPE (3 + 0) 3 credits
Culture history and contemporary ethnography of European peasant societies. Pterequisite: ANTH 101.

470, 670 ANTHROPOLOGY AND ECOLOGY (3 + 0) 3 credits
Introduction to processes of biological and cultural adaptation to selected environments. Relevant topics include hominid ecology, resource exploitation, patterns of subsistence and the modes and rates of adaptation to changing environments.

480, 680 MUSEUM TRAINING FOR ANTHROPOLOGISTS (3 + 0) 3 credits
Apprentice curatorship in anthropology; processing and preservation of anthropological collections; design of exhibits; curatorial responsibilities; museum research; relationship to public, state and federal agencies.

488, 688 PEOPLES AND CULTURES OF THE MIDDLE EAST (3 + 0) 3 credits
Survey of the ethnic, religious and linguistic groups of the middle East with attention to historical development. Prerequisite: ANTH 101.

489, 689 PEOPLES AND CULTURES OF AFRICA (3 + 0) 3 credits
African culture history; analysis of social systems and cultural distributions; emergence of modern nations. Prerequisite: ANTH 101.

491, 691 ANTHROPOLOGY OF RELIGION (3 + 0) 3 credits
Nature and functions of religion in various societies, the development of theoretical concepts in the anthropological study of religious and magical phenomena. Prerequisite: ANTH 101.

492, 692 PROCESSES OF SOCIAL AND CULTURAL CHANGE (3 + 0) 3 credits
Methods and theories of anthropology identified and analyzed. Evolution, diffusion, acculturation, integration, revitalization, modernization and other social and cultural processes are examined. Prerequisite: ANTH 101.

493, 494 COMPARATIVE ART (3 + 0) 3 credits
Nature and functions of art and aesthetic values in various societies, the techniques and forms of art; esthetics and art in anthropological theory. Prerequisite: ANTH 101.

499, 699 SPECIAL PROBLEMS IN ANTHROPOLOGY (1 to 6 + 0) 1 to 6 credits.
Research or reading to be carried out with the supervision of instructor. Maximum of 6 credits.

701 INDIVIDUAL READING 1 to 6 credits
Supervised reading with regular conferences between student and instructor. Maximum of 6 credits.

702 GRADUATE RESEARCH 1 to 6 credits
Research projects in anthropology carried out under supervision. Maximum of 6 credits.

703 GRADUATE SEMINAR IN CULTURAL ANTHROPOLOGY (3 + 0) 3 credits
Close examination of basic concepts and theories of social and cultural anthropology.

704 GRADUATE SEMINAR IN PHYSICAL ANTHROPOLOGY (3 + 0) 3 credits
Selected reading and discussion of topics in human biological evolution.

705 GRADUATE SEMINAR IN ARCHAEOLOGY AND PREHISTORY (3 + 0) 3 credits
Selected reading and discussion of topics in archaeological methods and theory.

706 SEMINAR IN ANTHROPOLOGICAL PROBLEMS (3 + 0) 3 credits
Detailed examination of selected issues in cultural anthropology, physical anthropology, anthropological linguistics or archaeology. Maximum of 6 credits.

707 METHODS IN CULTURAL ANTHROPOLOGY (3 + 0) 3 credits
Examination of methods used to collect and analyze data in social and cultural anthropology.

713 PROBLEMS IN LANGUAGE (4 + 0) 4 credits
(See ENGL 713 for description.)

737 TEACHING METHODS IN ANTHROPOLOGY (1 + 0) 1 credit
Course objectives and organization, lecture, presentation, examination procedures and related problems in teaching the subject matter of anthropology.

750 REGIONAL STUDIES IN ANTHROPOLOGY (3 + 0) 3 credits
Selected topics focusing upon a particular region of the world. Maximum of 6 credits.

760 INTERNSHIP (0 + 9) 3 credits
Supervised professional work experience in archaeology or one of the other subfields in anthropology. Work in local governmental or private organizations under direction of professionals. Maximum of 6 credits. Prerequisite: admission to candidacy for the M.A. in anthropology.

780 GRADUATE TUTORIAL (1 to 3 + 0) 1 to 3 credits
Tutorial reading and discussion of selected topics in anthropological research, methods or theory. Prerequisite: admission to doctoral program and approval of department graduate program chairman. Maximum of 12 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Limited to students in the tutorial docroral program. Maximum of 9 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits *S/U only*
Required of all graduate students who wish to complete the master of art's degree under Plan B.

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

240 ANTHROPOLOGY OF FABLED PEOPLES, PLACES AND EVENTS (3 + 0) 3 credits
410, 610 ETHNOGRAPHIC FIELD METHODS (2 + 4) 4 credits
430, 630 PROBLEMS IN PHYSICAL ANTHROPOLOGY (3 + 0) 3 credits
450, 650 PEASANT SOCIETY (3 + 0) 3 credits
465, 665 CULTURE AND PERSONALITY (3 + 0) 3 credits
475, 675 ANTHROPOLOGY AND EDUCATION (3 + 0) 3 credits

ART (ART)

Many studio courses require special expenses for materials and equipment in addition to registration and laboratory fees.

100 VISUAL FOUNDATIONS (1 + 4) 3 credits
Explores visual forms and contemporary concepts through a variety of media, presentations and discussions.

ART 111 ART EXPERIENCES (½ + 1 or 2 + 2) 1 or 3 credits *S/U only*
Introductory lecture-studio course using art of the past and present as the basis for exploration of both traditional and experimental materials and techniques. Maximum of 6 credits.

116 SURVEY OF THE ART OF WESTERN CIVILIZATION I (3 + 0) 3 credits
Art of the western world from prehistoric times through the Gothic period.

117 SURVEY OF THE ART OF WESTERN CIVILIZATION II (3 + 0) 3 credits
Art of the western world from the Renaissance to the present.

121 DRAWING (0 + 6) 3 credits
Introduction to concepts of drawing based on visual observations.

135 PAINTING (0 + 6) 3 credits
Introduction to concepts of painting including color, form and composition.

150 BEGINNING PHOTOGRAPHY (1 + 4) 3 credits
Analytical and critical approach to the creative possibilities of photography including instruction in the basics of photographic techniques and materials.

163 SCULPTURE (0 + 6) 3 credits
Introduction to the concepts of three-dimensional composition.

175 CERAMICS (1 + 4) 3 credits
Introduction to ceramics emphasizing characteristics of various clay bodies.

185 PRINTMAKING (0 + 6) 3 credits
Introduction to processes emphasizing relief, intaglio and screen processes.

212 PORTRAIT IN WESTERN ART (2 + 0) 2 credits
Portrait painting and portraiture in sculpture from the Egyptian period through modern time.

213 INTRODUCTION TO CONTEMPORARY ART (3 + 0) 3 credits
Evolution of art in Europe and the U.S. since World War II. Special emphasis on the trends since the 1960's.

214 SURVEY OF AMERICAN ART (3 + 0) 3 credits
General survey of art and architecture of America from the colonial period to the present.

221-222 DRAWING (0 + 6) 3 credits each
Intermediate courses designed to develop expression and discipline in drawing with emphasis on materials. Prerequisite: ART 100, 121.

235-236 PAINTING (0 + 6) 3 credits each
Intermediate course in painting, emphasizing various materials and methods. Prerequisite: ART 100, 135.

250-251 INTERMEDIATE PHOTOGRAPHY (1 + 4) 3 credits
Lecture/study with emphasis on improving basic technical and conceptual skills. Prerequisite: ART 100, 150.

252 VIDEOGRAPHY (1 + 4) 3 credits
Lecture/studio study using broadcast quality video as a means of personal expression. Prerequiste: ART 150, 250.

256 CINEMA I/THE SILENT ERA (3 + 0) 3 credits
History of film from beginning to introduction of sound, emphasizing development of forms and techniques. Film showings, lectures and discussions.

257 CINEMA II/THE SOUND ERA 1 to 3 credits
History of the film from the introduction of sound with specific emphasis on particular time blocks and possible social/psychological relevance and/or influence. Maximum of 6 credits.

258-259 GRAPHIC DESIGN (1 + 4) 3 credits each
Design and production of camera-ready art. Emphasis on layout, mechanicals, illustrations, typography, trademark, packaging and product promotion. Prerequisite: ART 100 and a two-dimensional art course.

260 NEW MEDIA (1 + 4) 3 credits
Exploration of alternative concepts and media that may include video, performance art, audio and other experimental processes. Maximum of 6 credits.

263-264 SCULPTURE (0 + 6) 3 credits each
Intermediate emphasis on processes, concepts and materials. Prerequisite: ART 100, 163.

275-276 CERAMICS (1 + 4) 3 credits each
Intermediate emphasis on history, materials, methods and techniques with special attention to sculptural aspects. Lecture-laboratory method is employed with emphasis on research. Prerequisite: ART 100, 175.

285-286 PRINTMAKING (0 + 6) 3 credits each
Studio instruction concerned with professional printmaking processes including intaglio, relief and screen process. Prerequisite: ART 100, 185.

300 WALLWORKS (1 + 4) 3 credits
Making two and three-dimensional art designed for architectural installations. Murals and related art from cave painting to contemporary street art. Prerequisite: 6 credits of 200-level or above studio course work.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

314 MEDIEVAL ART (3 + 0) 3 credits
Detailed study of arts of the Middle Ages from 300 to 1400, including early Medieval art, Carolingian, Ottonian, Romanesque and Gothic. Prerequisite: ART 116.

315 RENAISSANCE ART (3 + 0) 3 credits
History of Western European art in the 15th and 16th centuries.

316 BAROQUE ART (3 + 0) 3 credits
History of Western European art from 1600 to 1750.

319 FIELD STUDY 1 to 3 credits
Student-faculty seminar including group travel to art centers within the U.S. and abroad for field study experience. Maximum of 6 credits.

321-322 ADVANCED DRAWING (0 + 6) 3 credits each
Continuation of ART 221-222 offered to develop maturity of expression in a broad range of media. Prerequisite: ART 222.

335-336 PAINTING (0 + 6) 3 credits each
Continuation of ART 235-236. Prerequisite: ART 121, 236.

337-338 WATERCOLOR (0 + 6) 3 credits each
Intermediate course involving comprehensive problems in painting with transparent and opaque watercolors. Prerequisite: ART 121, 135.

342 ART EDUCATION: ELEMENTARY SCHOOLS (2 + 2) 3 credits
Theoretical foundations of art education including a planned program of media investigation and experience in areas suitable for elementary and beginning middle school programming.

346 ART EDUCATION: SECONDARY SCHOOLS (0 + 6) 3 credits
Philosophical foundations and methods of curriculum planning and implementation for secondary art programming. A planned program of media investigation, classroom observation, and prestudent teaching experience. Pre-

requisite: senior standing and completion of art department major requirements.

349 ELEMENTARY ART EDUCATION/SPECIAL WORKSHOP 1 to 3 credits
Designed for the professional teacher in the field, emphasizing art and its relationship to the curriculum according to contemporary and current philosophy.

350 ADVANCED PHOTOGRAPHY I (1 + 4) 3 credits
Refinement of technical and visual skills. Lecture/study of historical and contemporary photographic processes and their creative possibilities. Prerequisite: ART 251.

351 COLOR PHOTOGRAPHY (1 + 4) 3 credits
Surveys studio and field work, investigating color light theory. Portfolio development and a study color as a means of creative expression. Prerequisite: ART 251.

352 ADVANCED VIDEOGRAPHY (1 + 4) 3 credits
Lecture/studio study designed for advanced work using broadcast video as a means of creative expression. Emphasis on producing a final project available for broadcast video as a means of creative expression. Emphasis on producing a final project available for broadcast. Prerequisite: ART 150, 250, 252.

355 HISTORY OF PHOTOGRAPHY (3 + 0) 3 credits
Survey of the historical, technical, and social foundations of photography including emphasis on individual photographers and their work.

357 CINEMA III/THE SOUND ERA 1 to 3 credits
Historical and critical development of specific genres, styles and directors; investigating film as a developing art form and means of mass communication. Maximum of 6 credits. Prerequisite: ART 256 or 257.

363-364 SCULPTURE (0 + 6) 3 credits each
Individual concepts of sculptural form with emphasis on personal development. Prerequisite: ART 264.

375-376 CERAMICS (0 + 6) 3 credits each
Continuation of ART 275-276 with emphasis on sculpture, pottery and independent investigation of the materials. Advanced technical and aesthetic aspects of clay, clay bodies and glazes. Prerequisite: ART 276.

381 HISTORY AND PRACTICE OF PRINTING (0 + 6) 3 credits
(See L SC 381 for description.)

384 HISTORY OF THE PRINT (2 + 0) 2 credits
Historical, technical and curatorial foundations of printmaking. Field trips to regional print collections.

385-386 PRINTMAKING (0 + 6) 3 credits each
Sustained exploration in one or more of the basic print processes with emphasis on technical problems related to inks, papers and presses. Prerequisite: ART 286.

403 POSTGRADUATE ORIENTATION (2 + 0) 2 credits
Orientation to career possibilities in the field of art. Required of all art majors.

404 GALLERY MANAGEMENT (1 + 2) 2 credits
Principles and practice of traditional and alternative fine art gallery operations. Directed experiences in gallery management, curatorial and exhibit preparation techniques. Field trips.

408, 608* INDIVIDUAL STUDIES 1 to 3 credits
Individual studies in areas of two- or three-dimensional work and art history. Maximum of 6 credits.

417, 617 19TH CENTURY ART (3 + 0) 3 credits
Detailed study of the Neo-Classic, Romantic, Realist and Impressionist movements in Western art including aspects of the architectural evolution. Prerequisite: ART 116, 117.

418, 618 20TH CENTURY ART (3 + 0) 3 credits
Detailed study of visual arts from 1880 to present time discussing major movements of the period. Attention also given to 20th century architecture. Prerequisite: ART 116, 117.

419, 619* PROBLEMS IN THE HISTORY OF ART 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser.

428, 628* PROBLEMS IN DRAWING 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser. Student exhibits work as part of course requirement. Maximum of 6 credits. Prerequisite: 12 credits in drawing.

435-436 ADVANCED PAINTING (0 + 6) 3 credits each
Integration of form, space and color in advanced problems using still life, figure and landscape as points of departure. Prerequisite: ART 335-336.

438, 638 PROBLEMS IN PAINTING 3 credits
Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of the course requirement. Maximum of 6 credits. Prerequisite: 18 credits in painting.

450 ADVANCED PHOTOGRAPHY II (1 + 4) 3 credits
Development of individual photographic expression. Exploration of a variety of manipulative photographic materials through lecture and experimentation. Prerequisite: ART 350.

451 ADVANCED COLOR PHOTOGRAPHY (1 + 4) 3 credits
Studio instruction and concentration with an in-depth emphasis on developing a visual concept/idea within a portfolio. Prerequisite: ART 351.

453 SEMINAR IN PHOTOGRAPHY (1 + 0 per credit) 1 to 3 credits
Scheduled sections deal with in-depth investigation of a specific aspect of photography. Maximum of 6 credits. Prerequisite: ART 150, 250.

458, 658 PROBLEMS IN PHOTOGRAPHY 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 21 credits in photography.

463-464 ADVANCED SCULPTURE (0 + 6) 3 credits each
Advanced concepts of sculptural form and individual problem solving. Prerequisite: ART 363-364.

468, 668* PROBLEMS IN SCULPTURE 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 18 credits in sculpture.

475-476 ADVANCED CERAMICS (0 + 6) 3 credits each
Continuation of ART 375-376 with special emphasis on clay compounds, glazes and glaze formulation, kiln firing and temperature control. Prerequisite: ART 375-376.

478, 678* PROBLEMS IN CERAMICS 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 18 credits in ceramics.

485-486, 685-686 ADVANCED PRINTMAKING (0 + 6) 3 credits each
Emphasis on development of individual graphic expression through experimentation and refinement of one or any combination of the print processes. Prerequisite: ART 385-386.

488, 688* PROBLEMS IN PRINTMAKING 3 credits
Tutorial on an independent basis arranged with tutor/adviser. Students exhibit work as part of the course requirement. Maximum of 6 credits. Prerequisite: 18 credits in printmaking.

490 INTERNSHIP (0 + 6) 3 credits
Supervised professional work experience in one of the following areas: (a) graphic design; (b) museum management; (c) arts administration; (d) studio operations. Prerequisite: ART 403 for all internships with addition of ART 259 for (a), ART 309 for b and 9 credits in art studio courses related to specific medium for (d). Maximum of 6 credits.

498, 698 SEMINAR IN VISUAL ARTS 1 to 3 credits
Encourages the student of art to synthesize their formal training and to integrate their specialization into the framework of liberal arts. Maximum of 6 credits.

Inactive Courses

115 ART APPRECIATION (2 + 0) 2 credits
191 CRAFTS (1 + 4) 3 credits
210 SURVEY OF MEXICAN ART (2 + 0) 2 credits
215 SURVEY OF PRIMITIVE ART (2 + 0) 2 credits
218 SURVEY OF ORIENTAL ART (2 + 0) 3 credits
293 JEWELRY (0 + 6) 3 credits
294 CREATIVE DESIGN WITH FABRIC (0 + 6) 3 credits
303-304 ART STRUCTURE AND PICTORIAL COMPOSITION (0 + 4) 2 credits each
318 SYMBOLIST ART (2 + 0) 2 credits
358-359 ADVANCED GRAPHIC DESIGN (0 + 6) 3 credits each
393 JEWELRY (0 + 6) 3 credits
394 ADVANCED CREATIVE DESIGN WITH FABRIC (0 + 6) 3 credits
416-616 HISTORY OF AMERICAN ART (3 + 0) 3 credits

*Registration within any independent study course is permitted upon written request to the department which includes three copies of a statement of objectives, the specific goals and indicates the scope of the student's plans. A paper, a full report or an exhibit of work produced is required.

BELIEFS AND VALUES (B V)

Inactive Course

264 SCIENCE AND RELIGION (3 + 0) 3 credits

BIOCHEMISTRY (B CH)

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem. Maximum of 6 credits.

400, 600 INTRODUCTORY BIOCHEMISTRY (4 + 0) 4 credits
Major metabolic pathways and control mechanisms for carbohydrates, lipids and amino acids, includes energetics, photosynthesis, vitamins, cell organization, carbohydrate and lipid structure, protein and nucleic acid structure and biosynthesis, enzyme kinetics and regulation of gene function. Meets requirements for a single semester survey of metabolism. Prerequisite: CHEM 102 or 104; 142 or 244 for B CH 400; CHEM 244 for B CH 600.

403, 603 BIOLOGICAL CHEMISTRY LABORATORY I (0 + 6) 2 credits
Selected experiments illustrating methodology used in investigating the chemistry of living systems. Prerequisite or corequisite: B CH 400.

404, 604 BIOLOGICAL CHEMISTRY LABORATORY II (0 + 6) 2 credits
Selected experiments illustrating methodology used in investigating the chemistry of living systems. Prerequisite or corequisite: B CH 403 or 603 and 413 or 417.

407 ADVANCED BIOCHEMISTRY LABORATORY I
(0 + 9) 3 credits
For biochemistry majors only. Senior thesis laboratory. Prerequisite: B CH 404.

408 ADVANCED BIOCHEMISTRY LABORATORY II
(0 + 9) 3 credits
For biochemistry majors only. Senior thesis laboratory. Prerequisite: B CH 404.

412, 612 PLANT BIOCHEMISTRY (3 + 0) 3 credits
Plant metabolism with emphasis on reactions unique to plants such as photosynthesis, alkaloid biosynthesis, nitrogen fixation. Prerequisite: B CH 400 or equivalent.

413, 613 BIOCHEMISTRY OF MACROMOLECULES (4 + 0) 4 credits
In-depth examination of the structure and function of lipids and membranes, proteins and enzymes, carbohydrates and nucleic acids. Includes molecular genetics and enzyme kinetics. Prerequisite: B CH 400, CHEM 244, 354 or 451 and a course in biology.

417, 617 METABOLIC REGULATION (4 + 0) 4 credits
In-depth examination of metabolism and regulation of carbohydrates, lipids, proteins, enzymes, nucleic acids, relationship of metabolism to the life processes of the whole organism. Prerequisite: B CH 400, CHEM 244 and a course in biology.

420-421 PROSEMINAR (1 + 0) 1 credit each *S/U only*
Emphasizes biochemical literature and provides practice in the oral presentation of scientific material. Prerequisite or corequisite: B CH 413, 417. B CH 420 is required for B CH 421.

432, 632 ENVIRONMENT TOXICOLOGY (3 + 0) 3 credits
Chemistry and toxicology of toxicants in the environment, particularly pesticides. Other topics include metals, food additives and hazardous wastes. Prerequisite: CHEM 101, 102, 142.

450 RADIOTRACER TECHNIQUES (1 + 3) 2 credits
Introduction to the use of radioactive materials as tracers with special reference to agricultural application. Prerequisite: CHEM 330.

480, 680 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem. Maximum of 6 credits.

601 HUMAN BIOCHEMISTRY I (4 + 6) 5 credits
Emphasis on application in medicine. Includes macromolecular chemistry, intermediate metabolism and biochemical regulatory mechanisms in health and disease. Prerequisite: limited to M.D. students only.

602 HUMAN BIOCHEMISTRY II (3 + 6) 4 credits
Emphasis on application in medicine. Includes macromolecular chemistry, intermediate metabolism and biochemical regulatory mechanisms in health and disease. Prerequisite: limited to M.D. students only.

701-702 EXPERIMENTAL BIOCHEMISTRY I and II (0 + 9) 3 credits each
Intensive laboratory in biochemical research methodology. Oral and written reports on each research project required. Prerequisite: biochemistry major, B CH 400, 404.

705 MOLECULAR GENETICS (4 + 0) 4 credits
Molecular view of procaryotic and eucaryotic genes. Structure, expression and regulation of genes. Genetic engineering and somatic cell genetics. Techniques used in study of genetic information. Prerequisite: CHEM 142 and 244, two semesters of general biology, B CH 400. Prerequisite or corequisite: B CH 413, 613.

710 RADIOTRACER METHODOLOGY (1 + 3) 2 credits
Use of radioactive materials as tracers. Prerequisite: CHEM 330. Recommended: B CH 400. Not available for students having completed B CH 450.

711-712 BIOCHEMICAL TECHNIQUES (0 + 4 or 8) 1 or 2 credits each
Introduction in depth to details of biochemical techniques and equipment. Prerequisite: B CH 400.

718 PLANT METABOLISM (3 + 0) 3 credits
Study of metabolic pathways unique to plants and to include currently significant topics. Prerequisite: B CH 400.

722 METABOLISM (3 + 0) 3 credits
Consideration at the molecular level of selected anabolic and catabolic processes. Prerequisite: B CH 417.

731 PHYSICAL BIOCHEMISTRY (3 + 0) 3 credits
Physical chemistry of biochemical systems. Prerequisite: B CH 413, CHEM 354.

740 ENZYMOLOGY (3 + 0) 3 credits
Enzyme kinetics, specificity, mechanisms, inhibition, structure, formation and control. Prerequisite: B CH 413.

751 NUCLEIC ACIDS (3 + 0) 3 credits
Structure, synthesis, isolation and biological role of DNA and RNA and enzymes relating to these compounds. Prerequisite: B CH 413.

752 MITOCHONDRIAL STRUCTURE AND FUNCTION (3 + 0) 3 credits
Respiratory chain, phosphorylation, compartmentation, metabolic control, ultrastructure, ion translocation, energy coupled changes in volume and structure and theories of biogenesis. Prerequisite: B CH 417.

790 SEMINAR (1 + 0) 1 credit
Report by students and faculty on topics of interest in biochemistry. Maximum of 3 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Independent study in a specialized area. Maximum of 6 credits.

794 COLLOQUIUM (1 + 0) 1 credit
Presentation and analysis of original research in (a) carbohydrate metabolism, (b) lipid metabolism, (c) bioinorganic chemistry, (d) bioenergetics, (e) polynucleotide chemistry, (f) supramolecular systems, (g) enzyme kinetics, (h) biocatalytic mechanisms, (i) natural products chemistry, (j) protein chemistry, (k) molecular genetics, (l) secondary metabolism, (m) nutritional biochemistry, and (n) bioactive compounds. Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
Thesis may be written in any area of biochemistry.

799 DISSERTATION 1 to 24 credits

Inactive Courses

760 MINERAL METABOLISM (3 + 0) 3 credits

BIOLOGY (BIOL)

100 BIOLOGY: PRINCIPLES AND APPLICATIONS (3 + 0) 3 credits
Basic biological principles and their applications. Can not be used for credit toward any field of concentration in biology.

101 GENERAL BIOLOGY I (3 + 0) 3 credits
Integrated treatment of biological principles common to all living organisms including life chemistry, cellular and molecular biology, reproduction, genetics, evolution and ecology. Unity of life emphasized.

102 GENERAL BIOLOGY LABORATORY (0 + 3) 1 credit
General concepts of experimental biology common to all fields of biology including investigative techniques, data analysis, report writing and use of research equipment. Prerequisite: BIOL 101.

103 GENERAL BIOLOGY (3 + 0) 3 credits
Principles of botany and zoology. Can not be used as a prerequisite for other botany and zoology courses. Primarily a correspondence course.

160 GENERAL ZOOLOGY (3 + 0) 3 credits
Dealing with the general principles of animal biology. Offered through correspondence only. This course does not meet the requirements for majors in biology.

201 ANIMAL BIOLOGY (3 + 0) 3 credits
Biology and diversity of the major groups including evolutionary relationships. Prior knowledge of general biological principles is strongly recommended.

202 PLANT BIOLOGY (3 + 0) 3 credits
Biology and diversity of the major groups including evolutionary relationships. Prior knowledge of general biological principles is strongly recommended.

205 PLANT BIOLOGY LABORATORY (0 + 3) 1 credit
An optional, investigative laboratory dealing with the morphology, anatomy, and physiology of plants. Prerequisite or corequisite: BIOL 102, 202.

208 CELL BIOLOGY (3 + 0) 3 credits
Cellular phenomena which provide the foundations of life. Cell chemistry, physiology, and anatomy. Structure and function of membranes, mitochondria, chloroplasts, nucleus and other organelles. Prerequisite: BIOL 101 and one semester of chemistry.

212 GENERAL ECOLOGY (3 + 0) 3 credits
Basic ecological principles; effects of environmental factors on plants and animals with their interactions considered in detail. Prerequisite: BIOL 101, 201 or 202.

251 MICROBIOLOGY (2 + 6) 4 credits
Bacteria and related microorganisms. Morphology, physiology, classification, economic and medical importance considered. Prerequisite: BIOL 101.

260 VERTEBRATE ZOOLOGY (3 + 0) 3 credits
Biology of vertebrates. Main emphasis on land vertebrates, amphibians, reptiles, birds and mammals. Prerequisite: BIOL 101, 201.

262 HUMAN ANATOMY AND PHYSIOLOGY I (2 + 3) 3 credits
The body as a whole. Integumentary, skeletal, muscular, circulatory-lymphatic and respiratory systems of man. Primarily for nursing, physical education and home economics majors. Prerequisite: BIOL 101, 102.

263 HUMAN ANATOMY AND PHYSIOLOGY II (2 + 3) 3 credits
Digestive, urogenital, nervous, sensory and endocrine system. Primarily for nursing, physical education and home economics majors. Prerequisite: BIOL 262.

290 PRINCIPLES OF GENETICS (3 + 0) 3 credits
Heredity and variation among plants and animals. Prerequisite: BIOL 101, 201 or 202, 208.

94 LABORATORY IN ECOLOGY (1 + 3) 2 credits
esearch techniques and investigative approaches in field and laboratory tudies in ecology. Prerequisite: BIOL 101, 102; prerequisite or corequisite: IIOL 212.

01 GENETICS LABORATORY (0 + 3) 1 credit
Optional course to accompany BIOL 290.

302 DISCUSSION IN GENETICS (1 + 0) 1 credit
mall group discussions of principles of genetics to accompany BIOL 290.

303 HUMAN GENETICS (3 + 0) 3 credits
Fundamentals of genetics and their application to biology and human welfare: chromosome related abnormalities, their medical and social implications; chromosome structure, identification and function. Prerequisite: BIOL 290; some training in chemistry and mathematics.

304 HUMAN GENETICS LABORATORY (0 + 3) 1 credit
Laboratory experiments using human genetic material; includes chromosome preparations, banding techniques, sister chromatid exchanges, chromosome aberration study, protein variants and population structures. Prerequisite or corequisite: BIOL 303.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

310 MUSEUM TRAINING FOR BIOLOGIST (1 + 6) 3 credits
Collecting, preparing and curating plant and animal specimens for museum collections and exhibits in Nevada State Museum and Biology Department Museum.

312 MUSEUM FIELD AND LABORATORY TECHNIQUES (0 + 4) 2 credits
Collecting, preparing, identifying and cataloging specimens for museum collections. Prerequisite: basic background in biology.

315 ORGANIC EVOLUTION (3 + 0) 3 credits
Chemical origin of life; history of evolutionary thought; fields of evidence; genetics and mechanics of evolution; speciation; evolution of major groups of organisms. Prerequisite: BIOL 101.

320 EXPERIMENTAL FIELD ECOLOGY (2 + 3) 3 credits
Intensive summer course in Little Valley. Introduction to the area's natural history and to techniques for field study of plants and animals; individual and group projects. Prerequisite: BIOL 212, 294.

325 COMPUTER ACQUAINTANCE FOR BIOLOGICAL SCIENCES (2 + 2) 3 credits
(See E E 337 for description.)

331 PLANT ANATOMY (2 + 6) 4 credits
Origin, growth and structure of plant cells, tissues, and organs; comparative anatomy of roots, stems, leaves and flowers. Prerequisite: BIOL 101, 202.

333 SYSTEMATIC BOTANY OF FLOWERING PLANTS (3 + 0) 3 credits
Morphology, taxonomy and evolution of the principal plant orders, families, and genera. Emphasis on morphological and evolutionary adaptations. Local flora recognition included. Prerequisite: BIOL 101 or 202.

334 SYSTEMATIC BOTANY OF FLOWERING PLANTS LABORATORY (0 + 6) 2 credits
Optional laboratory to accompany BIOL 333.

341 MYCOLOGY I (2 + 3) 3 credits
Phycomycetes, phycomycetes, ascomycetes and fungi imperfecti with emphasis on identification variation and life cycles as well as economic and cultural importance. Prerequisite: BIOL 101.

346 DESERT AND MONTANE ECOSYSTEMS 1 to 3 credits
Extended field trip to acquaint students with the biota of selected desert or montane areas. Maximum of 6 credits. Prerequisite: BIOL 101, 212.

347 PLANT ECOLOGY (3 + 3) 4 credits
Plant-environment interactions at the individual, population, community, and ecosystem levels. Prerequisite: BIOL 202, 212, 294.

355 PLANT PHYSIOLOGY (3 + 0) 3 credits
Basic physiological processes in plants, nutrition, metabolism, growth and development. Prerequisite: BIOL 101, 202 or CHEM 142.

356 PLANT PHYSIOLOGY LABORATORY (0 + 3) 1 credit
Optional laboratory to accompany BIOL 355.

360 GENERAL ENTOMOLOGY (2 + 3) 3 credits
Principles of insect biology. Prerequisite: BIOL 101 or 201.

364 EMBRYOLOGY (3 + 0) 3 credits
Major concepts of animal development from gametogenesis through metamorphosis. Prerequisite: three semesters of biology, one year of chemistry.

366 COMPARATIVE VERTEBRATE ANATOMY (3 + 3) 4 credits
Anatomy and evolution of major organ systems of vertebrates studied by laboratory dissection and lecture/demonstration using examples from selected animals. Prerequisite: BIOL 101 or 102.

368 PARASITOLOGY (3 + 0) 3 credits
Parasitic animals of medical, veterinary and wildlife importance.

372 ICHTHYOLOGY (2 + 0) 2 credits
Systematics, ecology and biology of fishes. Prerequisite: BIOL 101, 201.

373 ICHTHYOLOGY LABORATORY (0 + 3) 1 credit
Optional laboratory to accompany BIOL 372. Prerequisite: BIOL 101, 201.

376 ORNITHOLOGY (2 + 4) 3 credits
Principles of avian biology. Prerequisite: BIOL 101.

377 FIELD ORNITHOLOGY (0 + 4) 1 credit
Optional course to accompany BIOL 376. Bird identification, behavior and ecology in the field. Corequisite: BIOL 376.

378 MAMMALOGY (3 + 3) 4 credits
Principles of mammalian biology with standard laboratory experiments and preparation of museum specimens. Collecting and ecological studies in the field. Prerequisite: BIOL 101, 201.

380 ADAPTATIONS FOR DESERT AND MOUNTAIN LIFE (3 + 0) 3 credits
Morphologic, physiologic, ecologic and ethologic adaptations of animals living in deserts and mountains. Prerequisite: BIOL 101, 201.

381 ANIMAL ECOLOGY (3 + 0) 3 credits
Topics in physiological, behavioral, population and community ecology of animals. Prerequisite: BIOL 101 or 201.

383 INVERTEBRATE ZOOLOGY I (2 + 3) 3 credits
Extensive survey of physiology, morphology, taxonomy, phylogeny, ecology and behavior of the "lower" invertebrates. Prerequisite: BIOL 101 or 201.

384 INVERTEBRATE ZOOLOGY II (2 + 3) 3 credits
Extensive survey of physiology, morphology, taxonomy, phylogeny, ecology and behavior of the "higher" invertebrates. Prerequisite: BIOL 101 or 201.

401, 601 BIOLOGY JOURNAL SEMINAR (1 + 0) 1 credit
Survey of periodical literature of biology. Oral and written reports by the student will give experience in searching and interpreting literature. Maximum of 6 credits.

404, 604 POPULATION GENETICS (4 + 0) 4 credits
Genetics of populations and mechanisms of evolution. Includes equilibrium conditions and forces altering gene frequencies and polygenic and quantitative inheritance. Prerequisite: BIOL 290.

405, 605 HISTORY OF BIOLOGY (3 + 0) 3 credits
Concepts and contributors of major historical importance in biology. Prerequisite: at least two years of course work in biology.

408, 608 CYTOGENETICS (CHROMOSOMAL MECHANISMS) (2 + 3) 3 credits
Origin, transmissibility and effects of numerical and structural alterations of chromosomes; their role in understanding basic cytogenetic problems, evolution and practical breeding. Prerequisite: BIOL 290 or 303.

414, 614 ENDOCRINOLOGY (3 + 0) 3 credits
(See A SC 414, 614 for description.)

415, 615 MICROBIAL PHYSIOLOGY (2 + 6) 4 credits
Isolation of representatives of major bacterial groups and selected fungi from natural flora, their growth, tolerances, metabolism and nutritional characteristics. Prerequisite: BIOL 251 and a course in biochemistry.

420, 620 LIMNOLOGY (2 + 3) 3 credits
Biological, chemical and physical characteristics of aquatic environment with particular emphasis on application of limnologic principles to fisheries biology. Prerequisite: BIOL 201; CHEM 101, 201.

460, 660 COMPARATIVE PHYSIOLOGY (3 + 0) 3 credits
Comparative examination of the function of animal systems. Prerequisite: CHEM 142 or 344; BIOL 366.

464, 664 EMBRYOLOGY LABORATORY (0 + 3) 1 credit
Laboratory experiments relating to basic concepts of embryological development, utilizing embryos of various organisms such as the chick, amphibian and mouse. Prerequisite or corequisite: BIOL 364.

468, 668 HISTOLOGY (3 + 3) 4 credits
Microscopic anatomy of tissues and organs with emphasis on mammals. Prerequisite: BIOL 101, 201; a course in vertebrate or mammalian anatomy.

469, 669 PARASITOLOGY LABORATORY (0 + 3) 1 credit
Examines morphology of important parasites and pursues experiments demonstrating basic concepts concerning host-parasite interactions. Prerequisite or corequisite: BIOL 368.

475, 675 NEUROBIOLOGY (3 + 3) 4 credits
Basic neurosciences: characteristics of excitable tissues, central nervous mechanisms in sensation, neural control of movement, functional neuroanatomy. Prerequisite: a course in animal physiology or anatomy.

480, 680 DEVELOPMENTAL BIOLOGY (3 + 0) 3 credits
Developmental patterns, mechanisms of cellular differentiation and cell interactions. Prerequisite: BIOL 201, 208.

481, 681 PRINCIPLES OF ANIMAL BEHAVIOR (3 + 0) 3 credits
(See PSY 481, 681 for description.)

482, 682 ANIMAL BEHAVIOR LABORATORY (0 + 3) 1 credit
(See PSY 482, 682 for description.)

484, 684 INVERTEBRATE ZOOLOGY III 1 or 2 credits
Field oriented course studying invertebrates in selected habitats. Prerequisite or corequisite: BIOL 384.

485, 685 COMPARATIVE POPULATION ECOLOGY (3 + 0) 3 credits
Characteristics, dynamics and interactions of plant and animal populations. Prerequisite: BIOL 212; BIOL 347 or 381.

486, 686 COMMUNITY ECOLOGY (3 + 0) 3 credits
Characteristics, dynamics and interactions of communities of organisms. Prerequisite: BIOL 212; BIOL 347 or 381.

491, 691 SPECIAL PROBLEMS 1 to 3 credits
Special problems in (a) biology, (b) botany, or (c) zoology for investigation and report. Maximum of 8 credits.

492-493 RESEARCH 3 credits each
Directed research course for biology majors under the guidance of a faculty member. Design and conduct original research leading to the presentation of a paper. Prerequisite: recommendation of a biology faculty member.

495, 695 SEMINAR 1 credit
Presentation by students of reviews and discussion of assigned reports of research in (a) biological, (b) botanical, or (c) zoological literature. Maximum of 2 credits. Prerequisite: 9 credits of (a) biology, (b) botany, or (c) zoology.

702 SUPERVISED TEACHING IN COLLEGE BIOLOGY (1 + 0) 1 credit
Methods and creative approaches for improving quality of undergraduate teaching of biological science.

706 ADVANCED MICROBIOLOGY (1 + 6) 3 credits
Advanced study of bacteria, fungi and related microorganisms. Modern techniques and laboratory tests in fields of economic and medical microbiology stressed. Prerequisite: BIOL 251.

708 ADVANCED CYTOGENETICS (2 + 0) 2 credits
Structure, duplication and functioning of chromosomes and nucleolus. Emphasis is on spontaneous and induced chromosome aberrations as related to chromosome structure and reproduction.

710 CELLULAR PHYSIOLOGY (3 + 0) 3 credits
Includes consideration of structure and function of cellular membranes and associated transport systems, properties of intracellular physical and chemical systems and cellular environment. Prerequisite: BIOL 355 or 460.

712 SYSTEMS MODELING IN ECOLOGY (3 + 0) 3 credits
Structure and functions of natural ecosystems are simulated by models in a systems analysis approach to ecological problems. Prerequisite: BIOL 347, 381 or 485; a course in calculus.

713 TOPICS IN ECOLOGY (3 + 0) 3 credits
Critical analysis of selected ecological topics. Offered on a continuing basis; topics and instructors vary. Maximum of 6 credits. Prerequisite: BIOL 212.

717 SEMINAR IN ARID LANDS ECOLOGY (2 + 0) 2 credits
Presentation and analysis of original research by students, faculty and research guests on a variety of ecological topics related to arid lands. Maximum of 4 credits.

720 INSECT ECOLOGY (3 + 0) 3 credits
(See IPM 720 for description.)

760 VERTEBRATE REPRODUCTIVE BIOLOGY (3 + 0) 3 credits
Current research on morphology and physiology of reproductive systems in vertebrates, including reproductive cycles and their regulatory mechanisms. Prerequisite: BIOL 364, 366, 386 or equivalent courses.

762 ZOOLOGICAL SYMBIOSIS (3 + 0) 3 credits
Physiological and ecological study of symbiotic relationships among animals.

764 CURRENT RESEARCH IN DEVELOPMENTAL BIOLOGY (3 + 0) 3 credits
Review and discussion of recent literature concerned primarily with experimental analysis of problems in developmental biology.

766 UTERUS, PLACENTA, AND FETUS (3 + 0) 3 credits
Fetal-maternal association which exists during the intrauterine development of viviparous vertebrates.

769 CURRENT TOPICS IN ANIMAL PHYSIOLOGY (3 + 0) 3 credits
Selected topics dealing with current research in animal physiology. Subjects considered will depend on student interest. Maximum of 6 credits.

776-777 ADVANCED ORNITHOLOGY (2 + 3) 3 credits each
Recent developments in avian biology as described by current ornithological literature. The laboratory consists of an original research problem by each individual. Prerequisite: an introductory course in ornithology or equivalent.

781 ADVANCED ANIMAL ECOLOGY (2 + 3) 3 credits
Selected topics in physiological, community and ecosystem ecology in conjunction with related topics in bioenergetics. Prerequisite: BIOL 212, 381 or equivalent.

782 ADVANCED POPULATION ECOLOGY (2 + 3) 3 credits
Seminars and group or individual research projects in current problems of population ecology. Prerequisite: BIOL 381, 485 or equivalent.

783 ADVANCED WILDLIFE ECOLOGY (2 or 3 + 0) 2 or 3 credits
Seminars and/or lectures in current problems of wildlife ecology. Emphasis on current literature. Prerequisite: BIOL 212 or 381 or equivalent. Credit hours determined by department.

792 SPECIAL PROBLEMS 1 to 3 credits
Special problems for graduate investigation and report in (a) biology, (b) botany or (c) zoology. Maximum of 6 credits.

794 COLLOQUIA (1 + 0) 1 credit
Results of research and independent investigation by a variety of lecturers drawn from this campus, from numerous visitors to this department and from other science departments at this university and Desert Research Institute. Maximum of 2 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
(a) biology, (b) botany, (c) zoology

799 DISSERTATION 1 to 24 credits
(a) biology, (b) botany, (c) zoology.

Inactive Courses

135 LOCAL FLORA (1 + 3) 2 credits
210 BIOLOGICAL PRINCIPLES OF CONSERVATION (2 + 0) 2 credits
335 STUDY OF ALGAE (2 + 0) 2 credits
336 STUDY OF ALGAE LABORATORY (0 + 3) 1 credit
410, 610 ECOLOGY OF POLLUTION (3 + 0) 3 credits
765 TOPICS IN INVERTEBRATE PHYSIOLOGY (3 + 0) 3 credits

BUSINESS ADMINISTRATION (B A)

480, 680 SMALL BUSINESS INSTITUTE (SBI) (1 + 6) 3 credits
Students provide management assistance counseling to the small business community for qualified cases designated by the U.S. Small Business Administration.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

700 BUSINESS STATISTICS (3 + 0) 3 credits
Statistical inference and hypothesis testing; multivariate regression and analysis of variance; emphasis on applied methods and computer applications.

701 OPERATIONS MANAGEMENT AND RESEARCH (3 + 0) 3 credits
Quantitative methods and models for decision making. Topics include linear programming, dynamic programming, inventory models, simulation, and other related topics. Prerequisite: B A 700.

705 RESEARCH DESIGN AND ANALYSIS (3 + 0) 3 credits
Topics include experimental design, theory of sampling and sampling error, instrument design, data collection, non-parametric statistics, discriminant analysis, conjoint measurement, and factor analysis. Prerequisite: completion of Tier I.

706 QUANTITATIVE METHODS AND ECONOMETRICS (3 + 0) 3 credits
Advanced techniques for analysis of time series and cross sectional data. Topics include time series modeling, distributed lags, simultaneous equation models, forecasting, Logit/Probit models. Prerequisite: completion of Tier I.

710 CONCEPTS OF FINANCIAL AND MANAGERIAL ACCOUNTING (3 + 0) 3 credits
Basic structure of accounting, income determination, asset valuation, liability recognition, equity accounting, cost behavior analysis, and budgeting procedures.

711 ACCOUNTING FOR MANAGEMENT PLANNING AND CONTROL (3 + 0) 3 credits
Decision making uses of accounting information in national and international management. Prerequisite: completion of Tier I.

719 SEMINAR IN ACCOUNTING (3 + 0) 3 credits
Contemporary accounting literature and problems. Maximum of 6 credits. Prerequisite: B A 710.

720 MANAGEMENT AND THE BEHAVIORAL SCIENCES (3 + 0) 3 credits
Survey of behavioral science concepts needed to understand individual and group behavior in organizations. Psychological and sociological research findings are applied to models of change. Special attention is given to the interaction of the structural, technological and human resource components necessary to formal organizations.

721 MANAGEMENT THEORY AND ORGANIZATIONAL DEVELOPMENT (3 + 0) 3 credits
Strategies for studying organizations, organizational structure and design, the impact of the environment and related management problems. Examination of the functions of management from classical and behavioral viewpoints. Domestic and international cases. Prerequisite: completion of Tier I.

729 SEMINAR IN MANAGEMENT (3 + 0) 3 credits
Selected topics in management. Maximum of 6 credits. Prerequisite: B A 720.

730 ECONOMICS OF THE FIRM (3 + 0) 3 credits
Economic analysis of the business firm, particularly with respect to price, output and investment decisions; the effect of regulatory and business policy on business firm behavior.

740 FINANCIAL MARKETS AND THE ECONOMY (3 + 0) 3 credits
Interest rates, regulatory policy and financial markets, monetary/fiscal policy and financial markets, exchange rates, and international finance and policy coordination. Prerequisite: completion of Tier I.

741 FINANCIAL MANAGEMENT AND POLICY (3 + 0) 3 credits
Valuation of the firm, capital investment decisions, risk and return, sources of funds, capital structure, cost of capital, financing and dividend policy, liquidity management, financial analysis, planning and control. Prerequisite: B A 700, 710.

742 FINANCIAL MANAGEMENT THEORY AND PRACTICE (3 + 0) 3 credits
Theory of financial management with applications to problems of financial managers through analysis and discussion of case problems. Domestic and international cases. Prerequisite: completion of Tier I.

749 SEMINAR IN FINANCE (3 + 0) 3 credits
Selected topics in finance. Maximum of 6 credits. Prerequisite: B A 741.

750 COMPUTER INFORMATION SYSTEMS FOR MANAGEMENT (3 + 0) 3 credits
Management of computer-based information systems in organizations. Selection of computer hardware and software, system management, decision support systems, staffing, budgeting and implementation.

760 MARKETING MANAGEMENT (3 + 0) 3 credits
Analysis of the firm's decision-making procedures in the areas of market measurement, product development, pricing, promotion and distribution. The development of the marketing mix from a management perspective.

761 ADVANCED MARKETING MANAGEMENT (3 + 0) 3 credits
Problem-solving and decision-making from the viewpoint of the marketing executive; national and international perspective. Prerequisite: completion of Tier I.

769 SEMINAR IN MARKETING (3 + 0) 3 credits
Selected topics in marketing. Maximum of 6 credits. Prerequisite: B A 760.

770 LEGAL ENVIRONMENT OF BUSINESS (3 + 0) 3 credits
Role of legal rules in the business environment, including property, contracts, corporations, bankruptcy and their regulation by commercial codes, legislation and litigation.

780 BUSINESS AND PUBLIC POLICY (3 + 0) 3 credits
Relationship of public policy both nationally and internationally to business organizations. Development, current status and future outlook of specific public policy issues are considered. Prerequisite: completion of Tier I.

781 STRATEGIC MANAGEMENT AND POLICY (3 + 0) 3 credits
Management of strategy and policy in the business enterprise. Strategic management process and systematic analysis of complex organization-wide issues faced by general management. Case studies both national and international. Prerequisite: completion of 15 program credits beyond Tier I and approval of adviser.

791 SPECIAL TOPICS 1 to 3 credits
Advanced study in selected topics. Maximum of 6 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Advanced study and research in selected topics. Requires selecting topic, design of experimental approach and derivating specific conclusions. Maximum of 6 credits. Prerequisite: completion of Tier I or approval of adviser.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*
Comprehensive examinations will no longer be offered after May 1990.

797 THESIS 1 to 6 credits

CHEMICAL ENGINEERING (CH E)

101 INDUSTRY ORIENTATION LECTURES (1 + 0) 1 credit
Introduction to practices and careers in modern process engineering. Field trip required.

103 COMPUTER APPLICATIONS (2 + 0) 2 credits
Elementary theory and techniques used in solving chemical engineering problems on the digital computer using the structured FORTRAN-77 programming language. Use of the UNIX operating system is included. Prerequisite: MATH 215. (Same as METE 103).

232 PRINCIPLES OF METALLURGICAL AND CHEMICAL ENGINEERING (3 + 0) 3 credits
(See METE 232 for description.)

330 EQUILIBRIUM STAGE OPERATIONS (3 + 0) 3 credits
Basic concepts and calculation methods required for the design of continuous and batch stage-wise contacting devices. Prerequisite: CH E 103, 232.

332 UNIT PROCESSES OF CHEMICAL METALLURGY I (3 + 0) 3 credits
(See METE 332 for description.)

361 THERMODYNAMICS (4 + 0) 3 or 4 credits
Thermodynamic principles and their application to problems involving physical and chemical changes. Chemical and metallurgical engineering majors must take the course for 4 credits. Prerequisite: MATH 310, PHYS 203.

372 CHEMICAL ENGINEERING LABORATORY I (0 + 3) 1 credit
Experiments emphasizing fluid flow equipment and operations of chemical engineering. Practice in technical report writing. Corequisite: CH E 373.

373 FLUID MECHANICS (3 + 0) 3 credits
Fundamentals of momentum transport, incompressible and compressible flow, elements of non-Newtonian flow of fluids through commonly used chemical and metallurgical process equipment with applications to design. Prerequisite: CH E 232, MATH 320 or equivalent. (Same as METE 373.)

423 SURFACE CHEMISTRY IN MINERALS (3 + 0) 3 credits
(See METE 423 for description.)

434, 634 REAL TIME COMPUTING SYSTEMS (3 + 0) 3 credits
Principles of real time computing with applications to process control and laboratory data acquisition. Introduction to real time languages and operating systems. A number of computing projects are to be completed for credit using laboratory hardware and software. (Same as E E 434.)

440, 640 CHEMICAL REACTOR DESIGN (3 + 0) 3 credits
Reaction rates and the factors controlling them. Design of reactors for chemical processing is emphasized. Prerequisite: CH E 232, MATH 320, CHEM 353.

441 CHEMICAL ENGINEERING LABORATORY II (0 + 3) 1 credit
Experiments emphasizing heat transfer equipment and operations of chemical engineering. Provides practice in technical report writing. Corequisite: CH E 483.

442 CHEMICAL ENGINEERING LABORATORY III (0 + 3) 1 credit
Quantitative experiments emphasizing mass transfer unit operations commonly employed in chemical industries. Corequisite: CH E 451.

443 INDUSTRIAL INSTRUMENTATION (2 + 3) 3 credits
Analysis and specification of industrial instrumentation systems; elements of process control strategies and analysis. Experiments on industrial instruments and final control elements. Computer use in data logging. Prerequisite: CH E 373.

450 DESIGN I (2 + 0) 2 credits
Principles of chemical and metallurgical engineering process design. Economics and organization of process design, flow sheets, heat and mass balances, precedence ordering, optimization techniques applied to design, reliability and safety, ethics and law. Corequisite: CH E 493. (Same as METE 450.)

451, 651 CONTROL OF PROCESS SYSTEMS (3 + 0) 3 credits
Modeling and control of chemical and metallurgical processes, introduction to digital and analog process control, process control techniques and practices. Prerequisite: CH E 443 or E E 386. Corequisite: CH E 442.

462, 662 THERMODYNAMICS OF IRREVERSIBLE, PROCESSES (3 + 0) 3 credits
(See METE 462 for description.)

482 DESIGN II (1 + 6) 3 credits
Individual projects in the design of processes and plant components. Prerequisite: CH E 450. (Same as METE 482.)

484, 684 HEAT TRANSFER (3 + 0) 3 credits
Chemical engineering heat transfer with applications to design. Fundamentals of thermal transport, steady and unsteady state thermal conduction, convection and radiant heat exchange with applications to thermal recuperators and regenerators, computer methods in design. Prerequisite: CH E 373. Corequisite for CH E majors: CH E 441. (Same as METE 484.)

485 COMPUTER SOLUTIONS TO CHEMICAL AND METALLURGICAL ENGINEERING PROBLEMS (3 + 0) 3 credits
Theory and techniques of extended FORTRAN IV used in programming chemical and metallurgical engineering problems encountered in industry and research. Prerequisite: E E 131 or MINE 213. Corequisite: CH E 437.

493, 693 MASS TRANSFER (3 + 0) 3 credits
Diffusional processes, mass transfer coefficients, multiphase equilibris; design and specification of gas-liquid, liguid-liquid and solid-liquid operations; single and multistage operations. Prerequisite: CH E 484. (Same as METE 493, 693).

495 SPECIAL PROBLEMS 1 to 3 credits
Individual problems in chemical engineering. Maximum of 6 credits.

CHEMISTRY (CHEM)

Laboratory courses require special expenses for materials and equipment in addition to regular registration fees.

100 THE CHEMISTRY OF MAN'S ENVIRONMENT (3 + 0) 3 credits
Introductory lecture course for nonscience majors. Chemistry as a human endeavor in man's attempts to understand, control and modify his environment. Open only to students with no prior college chemistry.

101 GENERAL CHEMISTRY (3 + 3 or 4 + 3) 4 or 5 credits
Fundamental principles of chemistry including nomenclature, atomic structure, chemical bonding, molecular structure, states of matter and solutions. Students with no high school chemistry or with Math ACT scores 18 or less should register for 5 credits which includes recitation.

102 GENERAL CHEMISTRY (3 + 3) 4 credits
Fundamental principles of chemistry, properties and uses of the common metals, their compounds, elementary chemistry of carbon and introductory qualitative and quantitative analysis. Prerequisite: CHEM 101.

142 INTRODUCTORY ORGANIC CHEMISTRY (3 + 0) 3 credits
Fundamental principles of carbon chemistry. Prerequisite: CHEM 101 or 201.

143 INTRODUCTORY ORGANIC CHEMISTRY LABORATORY (0 + 3) 1 credit
Techniques employed in the preparation, separation and identification of organic compounds. Prerequisite or corequisite: CHEM 142.

201 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS (3 + 3) 4 credits
Fundamental principles of chemistry including stoichiometry, atomic structure, periodic table, chemical bonding, molecular structure, kinetic theory of gases, gas laws, solutions, colligative properties, equilibrium, electrochemistry. Prerequisite: 28 or above on the Math ACT examination and/or a year of high school chemistry. Credit allowed in only one of the following: CHEM 101, 201.

202 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS (3 + 3) 4 credits
Continuation of CHEM 201 including thermodynamics, thermochemistry, redox systems, chemical kinetics, nuclear chemistry, metals and non-metals, coordination compounds, qualitative and quantitative analysis, organic chemistry, biochemistry. Prerequisite: CHEM 201, or a grade of A or B in CHEM 101. Credit allowed in only one of the following: CHEM 102, 202.

330 ANALYTICAL CHEMISTRY (2 + 6) 4 credits
Principles and techniques of quantitative chemical analysis including an introduction to instrumental methods. Prerequisite: CHEM 102 or 202.

343 ORGANIC CHEMISTRY (3 + 0) 3 credits
Integrated treatment of aliphatic and aromatic compounds embracing nomenclature, structure, general methods of preparation and a mechanistic interpretation of typical reactions. Prerequisite: CHEM 102 or 202.

344 ORGANIC CHEMISTRY (3 + 0) 3 credits
Continuation of CHEM 343 including a more advanced treatment of synthetic procedures. Prerequisite: CHEM 343.

345 ORGANIC CHEMISTRY LABORATORY (0 + 6) 2 credits
Introduction to laboratory techniques, analytical and preparative methods, identification of organic compounds. Prerequisite: CHEM 343. Corequisite: CHEM 344. Credit allowed in only one of the following: CHEM 345, 347.

347-348 LABORATORY TECHNIQUES OF ORGANIC CHEMISTRY (0 + 6) 2 credits each
Develops laboratory skills and an understanding of the techniques and principles involved in the preparation, separation and identification of organic

compounds. Prerequisite or corequisite: CHEM 343-344. Laboratories must be taken in sequence. Credit allowed in only one of the following: CHEM 345, 347.

349 CHEMICAL APPLICATIONS OF SPECTROSCOPY (2 + 0) 2 credits
Interpretation of chemical spectra with an emphasis on applications to structure determination. Prerequisite: CHEM 344, 345 or 344, 348.

353-354 PHYSICAL CHEMISTRY (3 + 0) 3 credits each
Systematic treatment of the fundamental principles of physical chemistry. Prerequisite: two years of college chemistry, one year of college physics and MATH 216. Prerequsite to CHEM 354 is 353.

355 PHYSICAL CHEMISTRY LABORATORY (0 + 6) 2 credits
Training in physico-chemical laboratory techniques provided by experimental verification of the principles of physical chemistry. Prerequisite or corequisite: CHEM 353.

357 BIOPHYSICAL CHEMISTRY (3 + 0) 3 credits
Selected topics in physical chemistry for life and health sciences. Prerequisite: two years of college chemistry, one year of college physics, mathematics through MATH 265 or equivalent.

387 CHEMICAL LITERATURE AND UNDERGRADUATE COLLOQUIUM (1 + 0) 1 credit
Introduction to chemical information retrieval, includes oral and/or written reports. Recommended to be taken concurrently with CHEM 391 or CHEM 497.

391 SPECIAL PROBLEMS 1 to 3 credits
Laboratory and/or literature course giving training in a field not covered in scheduled courses. Maximum of 3 credits.

415, 615 ADVANCED INORGANIC CHEMISTRY (3 + 0) 3 credits
Atomic structure; types of bonding; periodic relationships between structure, physical properties, and reactivity of the elements; preparation and application of the elements and their compounds. Prerequisite: CHEM 354.

434, 634 INSTRUMENTAL ANALYSIS (2 + 3) 3 credits
Critical examination of the process of quantitative chemical measurement entailing a systematic treatment of instrument design and instrumental methods. Prerequisite or corequisite: CHEM 330, 354.

442, 642 ADVANCED ORGANIC CHEMISTRY (3 + 0) 3 credits
Organic reactions not generally covered in introductory courses in organic chemistry. Emphasis on both synthetic utility and reaction mechanisms. Prerequisite: CHEM 344, 354.

443, 643 MODERN METHODS OF ORGANIC ANALYSIS (2 + 3 or 6) 3 or 4 credits
Identification of unknown organic compounds by spectroscopic techniques (IR, NMR, UV, mass spectrometry) and wet laboratory methods; microtechniques; separations of mixtures (GLC, TLC, HPLC). Pretequisite: CHEM 344, 345 or 348.

450, 650 PHYSICAL CHEMISTRY (3 + 0) 3 credits
Selected topics (thermodynamics, kinetics, molecular structure, chemical statistics, etc.) at an intermediate level. Prerequisite: CHEM 354, 355, MATH 320 or equivalent.

451, 651 THE ELEMENTARY PHYSICAL CHEMISTRY OF MACROMOLECULES (3 + 0) 3 credits
Elementary physical chemistry and physical characterization methods applicable to synthetic and biological macromolecules in solution and in the bulk phase. Prerequisite or corequisite: CHEM 354 or 357.

456, 656 ADVANCED PHYSICAL CHEMISTRY LABORATORY (0 + 6) 2 credits
Interpretation of data from, and the basic theory behind, modern research instrumentation. Representative topics include optical spectroscopy, mass spectroscopy, and magnetic resonance. Prerequisite or corequisite: CHEM 354, 355.

461, 661 CHEMICAL SYNTHESIS (1 + 6) 3 credits
Advanced laboratory techniques used in inorganic and organic synthesis. Prerequisite: CHEM 345 or 348.

471-472, 671-672 GENERAL BIOCHEMISTRY (3 + 0) 3 credits each
Chemistry of constituents of living matter and their role in biochemical processes of living organisms. Prerequisite: CHEM 344, 348, 354, 355, or their equivalent, and a year of college biology, botany or zoology. The lower-numbered course is prerequisite for the second in each sequence.

473-474, 673-674 GENERAL BIOCHEMISTRY LABORATORY (0 + 6) 2 credits each
Introduction to experimentation with biochemical systems, processes and compounds of biochemical importance. Prerequisite or corequisite: CHEM 471-472. The lower-numbered course is prerequisite for the second in each sequence.

497 SENIOR PROBLEMS (0 + 6) 2 credits
Introduction to research methods using a problem chosen from inorganic, analytical, organic or physical chemistry. Problem director may be chosen by student. Prerequisite: three years of college chemistry. Maximum of 6 credits.

711 THEORETICAL INORGANIC CHEMISTRY (3 +.0) 3 credits
Atomic structure, chemical bonding and molecular structure; applications of group theory to inorganic spectroscopy. Prerequisite: CHEM 615.

712 THE LESS FAMILIAR ELEMENTS (3 + 0) 3 credits
Survey of the chemistry of the less familiar elements including the lanthanides and actinides with emphasis on periodic correlations. Prerequisite: CHEM 615.

713 ORGANOMETALLIC CHEMISTRY (3 + 0) 3 credits
Synthesis, properties and reactivity of organometallic compounds; applications to organic synthesis and homogeneous catalysis with an emphasis on mechanisms. Prerequisite: CHEM 615.

714 SPECIAL TOPICS IN INORGANIC CHEMISTRY (3 + 0) 3 credits
Selected topics of current interest. Prerequisite: CHEM 615. May be repeated only in different subject areas to a maximum of 6 credits.

740 ADVANCED ORGANIC SYNTHESIS (3 + 0) 3 credits
Survey of reactions of value in synthesis. Prerequisite: CHEM 642.

741 ADVANCED ORGANIC STRUCTURE ELUCIDATION (3 + 0) 3 credits
Methods used for structure elucidation. Prerequisite: CHEM 643 or equivalent.

742 THEORETICAL ORGANIC CHEMISTRY (3 + 0) 3 credits
Reaction mechanisms, reactivity, linear free energy relationships and intermediates. Prerequisite: CHEM 642.

743 SPECIAL TOPICS IN ORGANIC CHEMISTRY (3 + 0) 3 credits
Topics of current interest in organic chemistry. May be repeated only in different subject areas to a maximum of 6 credits. Prerequisite: CHEM 642.

744 STEREOCHEMISTRY AND CONFORMATIONAL ANALYSIS (3 + 0) 3 credits
Stereoisomerism, molecular symmetry, chirality, optical activity, torsional isomerism, conformations of cyclic and acyclic molecules, stereoselectivity and stereospecificity, chiral discrimination, stereochemical methods. Prerequisite: CHEM 642.

745 CHEMISTRY OF NATURAL PRODUCTS (3 + 0) 3 credits
Chemistry of naturally occurring compounds with emphasis on isolation, structure determination, synthesis, biogenesis and physiological importance. Prerequisite: CHEM 642.

750 ADVANCED PHYSICAL CHEMISTRY (3 + 0) 3 credits
Thermodynamics, kinetic theory of gases, quantum theory, statistical mechanics and related subjects. Prerequisite: CHEM 650 or equivalent.

751 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (3 + 0) 3 credits
Selected topics of current interest. Prerequisite: CHEM 650 or 750. May be repeated only in different subject areas to a maximum of 6 credits.

752 CHEMICAL KINETICS (3 + 0) 3 credits
Rate processes, factors influencing reaction rates and the correlation of kinetics and mechanisms of reaction. Prerequisite: CHEM 650 or equivalent.

753 PHYSICAL CHEMISTRY OF MACROMOLECULES (3 + 0) 3 credits
Advanced considerations in polymer chain statistics, structural and dynamical models. Solution and thermodynamic properties of nonelectrolyte and polyelectrolyte polymers. Advanced characterization methods. Prerequisite: CHEM 650.

755 STATISTICAL THERMODYNAMICS (3 + 0) 3 credits
Molecular approach to the study of fundamental thermodynamic energy relationships. Prerequisite: CHEM 750.

757 QUANTUM CHEMISTRY (3 + 0) 3 credits
Intensive study of the general aspects of quantum mechanics and its application to chemistry. Prerequisite: CHEM 750.

771-772 ADVANCED BIOCHEMISTRY (3 + 0) 3 credits each
Consideration of biological processes at the molecular level including bioenergetics, biosynthesis, degradative pathways, metabolic regulation, enzyme reaction mechanisms, biological specificity, genetic molecules, and related subjects. Prerequisite: CHEM 672. Prerequisite to CHEM 772 is 771.

773 EXPERIMENTAL TECHNIQUES IN BIOCHEMISTRY (1 + 6) 3 credits
Experiments in the isolation, purification and characterization of biological materials. Prerequisite: CHEM 672, 674.

774 SPECIAL TOPICS IN BIOCHEMISTRY (3 + 0) 3 credits
Selected topics of current interest. Prerequisite: CHEM 672.

790 SEMINAR (1 + 0) 1 credit
Maximum of 4 credits.

793 INDEPENDENT STUDIES 1 to 6 credits
Maximum of 12 credits.

794 COLLOQUIA (1 + 0) 1 credit *S/U only*
Presentation of original research in (a) inorganic chemistry, (b) organic, (c) physical. Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

171 LIFE SCIENCE CHEMISTRY I (3 + 3) 4 credits
172 LIFE SCIENCE CHEMISTRY II (3 + 3) 4 credits
250 PHYSICAL PRINCIPLES OF CHEMISTRY (3 + 0) 3 credits
271 PHYSIOLOGICAL CHEMISTRY (3 + 0 or 3) 3 or 4 credits
291 SCIENTIFIC GLASSBLOWING (0 + 3) 1 credit
435, 635 RADIOCHEMISTRY (2 + 0 or 3) 2 or 3 credits

CIVIL ENGINEERING (C E)

101 ENGINEERING GRAPHICS (0 + 6) 2 credits
Drafting and graphical presentation of engineering material. Use of graphs and maps. Aspects of descriptive geometry. Introduction to computer aided design. Prerequisite: trigonometry.

140 INTRODUCTION TO CIVIL ENGINEERING (1 + 0) 1 credit
History and overview of civil engineering including: environmental, geotechnical, materials, structural, transportation and water resources engineering.

141 ENGINEERING MEASUREMENTS (2 + 3) 3 credits
Introduction to the theory of engineering measurements and instruments used. Introduction to the theory of errors, statistics, field astronomy and topographic surveying. Prerequisite: MATH 115.

150, 250, 350, 450 SUMMER COOPERATIVE TRAINING (1 + 0) 1 credit
Preparation of written reports based on summer cooperative program assignments. Required of all students in civil engineering cooperative ttaining programs.

241 STATICS (3 + 0) 3 credits
Static force systems. Topics include resolution and composition of forces, equilibrium of force systems, friction, centroids, moments of inertia, cables, beams, fluid statics, work. Prerequisite: PHYS 201. Corequisite: MATH 216. (Same as M E 241.)

243 COMPUTER PROGRAMMING FOR CIVIL ENGINEERS (2 + 3) 3 credits
Use of computers in civil engineering. Programming principles of FORTRAN and BASIC. Applications. Prerequisite: C E 140, MATH 215.

246 CONSTRUCTION MATERIALS (3 + 0) 3 credits
Consideration of metals, wood, agregate, portland cement concrete and asphalt concrete. Prerequisite: C E 241.

342 ADVANCED SURVEYING (3 + 0) 3 credits
Modern surveying measurements for trilateration, triangulation, traverse and level nets. Adjustment of measurements by least squares and matrices. State plane coordinate system. Practical astronomy. Prerequisite: C E 141.

360 SEMINAR (1 + 0) 1 credit
Preparation of written reports and/or delivery of oral presentations. Guest lectures. Maximum of 3 credits.

364 ENGINEERING HYDROLOGY (2 + 0) 2 credits
Fundamental principles of hydrology for engineers. Quantitative hydrology; application of statistics to prediction of runoff; ground water flow. Corequisite: C E 367.

366 HIGHWAY/TRANSPORTATION ENGINEERING (3 + 0) 3 credits
Engineering problems encountered in the planning and design of highway transportation facilities. Prerequisite: C E 141. Corequisite: C E 388.

368 FLUID MECHANICS LABORATORY (0 + 3) 1 credit
Exemplifies the principles studied in M E 367. Prerequisite or corequisite: M E 367.

369 CONCRETE AND ASPHALT LABORATORY (0 + 3) 1 credit
Physical properties of aggregate, portland cement, portland cement concrete, asphalt and asphalt concrete. Prerequisite: C E 246.

372 STRENGTH OF MATERIALS (3 + 0) 3 credits
Effects of axial loads, temperature changes, torsion and bending on structural elements; analysis of stress and strain, beam deflections, introduction to buckling and statically indeterminate structures. Prerequisite: C E 241.

374 METALS AND TIMBER LABORATORY (0 + 3) 1 credit
Physical properties or metals and timber relevant to civil engineering practice. Prerequisite: C E 246, 372.

381 STRUCTURAL ANALYSIS I (3 + 0) 3 credits
Development of the principles and techniques of structural mechanics and their application to the analysis of statically determinate and indeterminate structures. Prerequisite: C E 372.

388 ENGINEERING ECONOMY (2 + 0) 2 credits
Consideration of various economic calculations such as present worth, benefit-cost and rate of return analyses in engineering decision making.

389 PROBABILITY AND STATISTICS FOR CIVIL ENGINEERS (2 + 0) 2 credits
Statistics, probability distributions and regression analysis with civil engineering applications. Prerequisite: MATH 217.

390 WATER AND WASTE TREATMENT (3 + 0) 3 credits
Water quality and contaminant characteristics; introduction to water treatment design and hazardous waste control. Prerequisite: CHEM 101.

410, 610 HYDRAULICS OF OPEN CHANNELS (3 + 0) 3 credits
Advanced study of the flow of water through open channels. Prerequisite: M E 367.

411, 611 ENVIRONMENTAL LAW (3 + 0) 3 credits
Examination of current federal laws, rules and regulations concerning the environment. Emphasis on court decisions and interpretations of the law. (Same as RWF 411.)

415, 615 WATER RIGHTS (3 + 0) 3 credits
Riparian doctrine and appropriation doctrine along with some of the federal aspects of water tights. Study to include both statutory law and case law.

420, 620 ADVANCED PORTLAND CEMENT CONCRETE (2 + 3) 3 credits
Detailed consideration of concrete mix design; study of the effects of aggregate characteristics, mix design variables, admistures and exposure of all types upon concrete properties; quality control and special problems related to use. Prerequisite: C E 369.

429, 629 TIMBER STRUCTURES (3 + 0) 3 credits
Fundamentals of design of timber structures and application to simple structures. Prerequisite: C E 381.

431, 631 PAVEMENT DESIGN, REHABILITATION AND MAINTENANCE (3 + 0) 3 credits
Stresses in flexible and rigid pavements, materials characterization, overlay design, interlayers, seals, maintenance materials, selection of rehabilitation alternatives, life cycle costing, pavement management. Prerequisite: C E 366, 369.

460, 660 CONSTRUCTION ENGINEERING (3 + 0) 3 credits
Construction practices and methods; job planning and scheduling; selection of equipment. Problems of management and related topics. Prerequisite: C E 366.

471 MATHEMATICAL METHODS IN CIVIL ENGINEERING (1 + 0 per credit) 1 to 3 credits
Application of the principles of higher mathematics to typical problems in the analysis and design of civil engineering projects. Prerequisite: C E 243, 372, M E 367, M E 300.

479, 679 EARTHQUAKE ENGINEERING (3 + 0) 3 credits
(See GEOL 479 for description.)

483, 683 STRUCTURAL ANALYSIS II (3 + 0) 3 credits
Classical methods of structural analysis for static and dynamic loads and structural stability including matrix formulation for application of electronic computers. Prerequisite: C E 381.

484, 684 STRUCTURAL STEEL DESIGN (3 + 0) 3 credits
Working stress design of steel structures including beams, columns, beam-columns, tension members and plate girders; welded and bolted connections. Introduction to load-resistance factor design. Prerequisite: C E 381.

485, 685 REINFORCED CONCRETE DESIGN I (3 + 0) 3 credits
Analysis and design of reinforced concrete members by the strength method and an introduction to the working stress method. Prerequisite: C E 369, 381.

486, 686 REINFORCED CONCRETE DESIGN II (3 + 0) 3 credits
Continuation of C E 485 with emphasis upon the total design of reinforced concrete structures. Prerequisite: C E 485.

487, 687 COMPUTER-AIDED DESIGN OF STRUCTURES (3 + 0) 3 credits
Application of microcomputer and main frame software in complete design of reinforced concrete, steel and timber structures. Prerequisite: C E 483, 484, 485.

489, 689 WATER RESOURCES ENGINEERING I (3 + 0) 3 credits
Principles for the design of municipal water systems and wastewater collection systems; introduction to water reuse and water conservation. Prerequisite: C E 364, 390.

490, 690 WATER RESOURCES ENGINEERING II (3 + 0) 3 credits
Conventional engineering economic analysis of multipurpose water resources projects and a study of components of systems which provide for principal beneficial uses of water. Prerequisite: C E 489.

491, 691 CONTRACTS, SPECIFICATIONS (2 + 0) 2 credits
Elementary presentation of engineering aspects of contracts, specifications, and supporting documents for materials and services associated with construction of private and public works. Prerequisite: senior standing in engineering.

492, 692 FUNDAMENTALS OF GEOTECHNICAL ENGINEERING
(3 + 0 or 3) 3 or 4 credits
Use of soil mechanics in engineering practice: weight-volume relationships and soil compaction; permeability and seepage; consolidation and settlement; shear strength and its application to lateral earth pressure, bearing capacity and slope stability. Prerequisite: C E 372.

493, 693 GEOTECHNICAL ENGINEERING: FOUNDATIONS
(3 + 0) 3 credits
Geotechnical analysis of footings, mats, piers, piles and related fill and excavation operations. Consideration of stress distribution, settlement, time rate of settlement and load capacity. Prerequisite: C E 492.

494, 694 GEOTECHNICAL ENGINEERING: RETAINING STRUCTURES
(3 + 0) 3 credits
Application of geotechnical theory to analysis of rigid and flexible earth retaining structures: retaining wall, anchored bulkhead, braced cut, tie-back cut, slurry trench wall, reinforced earth wall and coffetdam. Prerequisite: C E 492.

495 SPECIAL PROJECTS 1 to 3 credits
Study and/or experimentation in areas of special interest to the student. Maximum of 6 credits.

497, 697 INTRODUCTION TO ENVIRONMENTAL QUALITY AND ANALYSIS (2 + 3) 3 credits
Analytical and physical chemistry and microbiology applied to water quality and hazardous waste control. Laboratory includes gravimetric, electrometric, spectrophotometric, chromatographic and microbiological analyses. Prerequisite: BIOL 101, CHEM 102.

498, 698 WATER QUALITY MANAGEMENT (3 + 0) 3 credits
Water quality criteria for beneficial uses and methodology for establishing water quality standards. Changes in water quality attributes through beneficial uses and through natural and engineered systems. Systems analysis applications to models to provide optimal water quality management for selected water resources systems. Prerequisite: C E 390.

499, 699 HAZARDOUS WASTE MANAGEMENT AND CONTROL
(3 + 0) 3 credits
Hazardous waste sources, regulations, chemodynamics and toxicology; site assessment and pathway receptor analyses; treatment processes for spills, ultimate disposal and uncontrolled waste sites. Prerequisite: CHEM 102, C E 390.

704 APPLIED FINITE ELEMENT ANALYSIS (3 + 0) 3 credits
Basic concepts, formulation and application of finite element techniques for numerical solution of problems in structural and continuum mechanics, geotechnical and water resources engineering. Prerequisite: C E 243, M E 300 or MATH 320.

711 WATER RESOURCES SYSTEMS ANALYSIS (3 + 0) 3 credits
Application of systems analysis methods to the planning and management of water resource systems. Prerequisite: C E 364.

712 WATER RESOURCES PROJECTS (3 + 0) 3 credits
Engineering requirements for the economic and beneficial uses of water. Prerequisite: C E 364.

714 ADVANCED WATER RESOURCES TOPICS 1 to 4 credits
Advanced studies in the field of water resources not included in other courses. Prerequisite: C E 367.

717 STATISTICAL METHODS IN HYDROLOGY (3 + 0) 3 credits
Frequency distributions of hydrologic data. Analysis of time series including trends, periodicities, oscillations and cycles, serial correlation, spectral and cross spectral analysis. Introduction to stochastic simulation. Prerequisite: C E 364.

718 ADVANCED HYDROLOGY I (3 + 0) 3 credits
Detailed aspects of surface water hydrology. Interrelationships of geomorphic features and water yield; peak rates of runoff. Mechanics of snowmelt. Deterministic models of basins including Stanford Watershed Model. Prerequisite: C E 364.

720 ADVANCED STRUCTURAL ANALYSIS AND DESIGN I
(3 + 1) 3 credits
Advanced methods and problems in structural analysis and design. Prerequisite: C E 483, 484, 485.

721 ADVANCED STRUCTURAL ANALYSIS AND DESIGN II
(3 + 0) 3 credits
Continuation of C E 720. Prerequisite: C E 720.

722 PLASTIC DESIGN IN STEEL (2 + 0) 2 credits
Design and behavior of structural steel frames in the inelastic stress range. Prerequisite: C E 381, 483, 484.

723 ADVANCED REINFORCED CONCRETE (3 + 0) 3 credits
Special problems in reinforced concrete. Prerequisite: C E 483, 486.

724 APPLIED ELASTICITY I (3 + 0) 3 credits
Development of three-dimensional equations of elasticity, analysis of stress and strain, compatibility, stress-strain relations, plane stress, plane strain, and torsion. A study of the stresses and displacements in rectangular, circular, and ring-shaped plates and cylinders. Prerequisite: C E 372 and MATH 320 or M E 300.

725 APPLIED ELASTICITY II (3 + 0) 3 credits
Continuation of C E 724 with emphasis on the variation principles of mechanics including the principles of stationary potential and complimentary energy. Hamilton's principle and methods of Ritz and Galerkin. Prerequisite: C E 724.

726 THEORY OF PLATES AND SHELLS (3 + 0) 3 credits
Analysis of plates and shells by classical and numerical methods including the finite difference and finite element methods. Prerequisite: C E 372. Corequisite: C E 704.

727 MATRIX METHODS IN STRUCTURAL ANALYSIS (3 + 0) 3 credits
Formulation of displacement and force methods for structural systems using matrix techniques. Introduction to efficient computer methods in analysis of structures. Prerequisite: C E 483.

730 DYNAMICS OF STRUCTURES (3 + 0) 3 credits
Analysis of single and multidegree of freedom systems for time dependent loadings, with particular attention to earthquake excitation and response spectrum techniques. Prerequisite: C E 381.

731 ADVANCED DYNAMICS OF STRUCTURES (3 + 0) 3 credits
Advanced methods of analysis and design of structural systems subjected to dynamic loads. Elastic and inelastic analysis of single and multi-degree systems. Introduction to random vibration and Fourier transform methods. Design application to building, bridges and reservoirs. Prerequisite: C E 730.

732 BITUMINOUS MATERIALS AND MIXTURES (2 + 3) 3 credits
Physical and chemical properties of asphalts and agregates, design and construction of asphalt mixtures, skid resistance, and performance. Prerequisite: C E 246, 366, 369.

733 ADVANCED PAVEMENT DESIGN AND MANAGEMENT
(3 + 0) 3 credits
1985 AASHTO design procedure; mechanistic design; pavement evaluation; in-situ testing and interpretation, visual surveys, failure criteria; pavement management systems; rehabilitation types and selection. Prerequisite: C E 431, 631.

734 SOIL STABILIZATION AND SITE IMPROVEMENT (3 + 0) 3 credits
Lime, portland cement and asphalt stabilization; use of pozzolans, sand drains, hydraulic fills, deep compaction, electro-osmosis, thermal stabilization, grouting, Prerequisite: C E 246, 366, 369.

741 GEOTECHNICAL ENGINEERING: SEEPAGE, SLOPES, EMBANKMENTS (3 + 0) 3 credits
Seepage effects and control; flow net. Stability of natural and man-made

slopes under various loading conditions. Design and construction of earth dams and embankments. Prerequisite: C E 492.

742 ADVANCED SOIL MECHANICS (3 + 0) 3 credits
Advanced and theoretical treatment of soil stress-strain relationships, consolidation and shear-strength concepts. Prerequisite: C E 493 or 494.

743 ADVANCED SOIL MECHANICS LABORATORY (0 + 3) 1 credit
Advanced soil testing techniques used in geotechnical engineering. Prerequisite: C E 742.

745 GEOTECHNICAL EARTHQUAKE ENGINEERING (3 + 0) 3 credits
Dynamic soil properties, ground response analysis, soil-structure interaction, soil liquefaction, dynamic analysis of earth dams, settlement from earthquakes and dynamic lateral earth pressure. Prerequisite: C E 493 or 494, 730.

746 ADVANCED FOUNDATION ENGINEERING (3 to 4 + 0) 3 to 4 credits
Advanced topics dealing with shallow and deep foundations, including mat foundations, laterally loaded piles and culverts. Prerequisite: C E 493. Additional material dealing with machine foundation design requires prerequisite C E 745 for additional credit.

750 GRADUATE SEMINAR 1 to 3 credits
Study and discussion of important new developments in particular fields of civil engineering. Prerequisite: graduate standing in civil engineering.

751 BIOLOGICAL UNIT OPERATIONS (4 + 0) 4 credits
Process kinetics, theory, design and operation for fixed film and suspended growth erobic, anoxic and anaerobic biological processes. Prerequisite: C E 752.

752 PHYSICOCHEMICAL UNIT PROCESSES (4 + 0) 4 credits
Process kinetics, theory, design and operation for coagulation, flocculation, sedimentation, filtration, disinfection, oxidation, adsorption and membrane processes. Prerequisite: C E 390, 497.

754 UNIT OPERATIONS AND PROCESSES LABORATORY (1 + 6) 3 credits
Laboratory investigation of reactor hydraulics, coagulation, sedimentation, filtration, disinfection, adsorption and activated sludge. Corequisite: C E 753.

755 INDUSTRIAL WASTE TREATMENT (2 + 0) 2 credits
Theory, design and operation of pilot and full-scale systems for the control of aqueous industrial waste streams. Prerequisite: CHEM 142, C E 753.

761 PLANNING AND SCHEDULING OF CONSTRUCTION PROJECTS (2 + 0) 2 credits
Planning, scheduling, and progress control of construction projects with emphasis on Critical Path Method, including network diagramming and calculations and resource leveling. Basics of the PERT system are investigated.

771 SPECIAL ENGINEERING PROBLEMS 1 to 3 credits
Specialized study in any of the subjects pertaining to civil engineering. Subject matter may be arranged after conference with staff members and administrative officers concerned. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Report of professional quality, based on engineering experience and independent study or investigation. May be required for completion of plan B, M.S. program.

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

244 CIVIL ENGINEERING II (2 + 3) 3 credits
347 ENGINEERING REPORTS (1 + 0) 1 credit
373 STRENGTH OF MATERIALS LABORATORY (0 + 3) 3 credits
401, 601 CITY AND REGIONAL PLANNING I (2 + 3) 3 credits
402, 602 CITY AND REGIONAL PLANNING II (3 + 0) 3 credits
416, 616 EMINENT-DOMAIN LAW AND CONDEMNATION PROCEDURE (2 + 0) 2 credits
419, 619 SNOW AND ICE SCIENCE (2 + 0) 2 credits
451, 651 TRANSPORTATION ENGINEERING (3 + 0) 3 credits
452, 652 INTRODUCTION TO TRAFFIC ENGINEERING (2 + 3) 3 credits
473, 673 DECISION MAKING TECHNIQUES (3 + 0) 3 credits
703 AIRPORT PLANNING AND DESIGN (3 + 3) 3 credits
719 ADVANCED HYDROLOGY II 1 to 4 credits
728 EXPERIMENTAL STRESS ANALYSIS (2 + 3) 3 credits
753 AIR POLLUTION CONTROL 2 credits

CLINICAL LABORATORY SCIENCE (CLS)

111 MEDICAL TERMINOLOGY (1 + 0) 1 credit
Self-learning approach to terminology used in medical professions. Emphasis on understanding of word roots and building vocabulary.

161 MEDICAL LABORATORY PRINCIPLES I (1 + 0) 1 credit
Introduction to basic medical laboratory principles including urinalysis and other body fluids. Content areas deal with quality control, venipuncture, use of analytical equipment, laboratory safety, supplies and laboratory records. Prerequisite: CHEM 101 or equivalent, MATH 110.

162 MEDICAL LABORATORY PRINCIPLES II (0 + 3) 1 credit
Laboratory and clinical applications in microscopy, analytical methods, venipuncture, quality control, urinalysis analysis of other body fluids. Prerequisite: CLS 161

215 INSTRUMENTATION (1 + 0) 1 credit
Basic principles of laboratory instrumentation including basic laboratory computer applications and electronics. Prerequisite: CLS 161, 162.

216 INSTRUMENTATION LABORATORY (0 + 3) 1 credit
Principles of clinical laboratory instrumentation. Prerequisite: CLS 161, 162.

221 PRINCIPLES OF DISEASE I (1 + 0) 1 credit
Mechanisms of disease production are correlated with anatomic structures, physiologic processes and cellular requirements of body systems. Corequisite: BIOL 262.

222 PRINCIPLES OF DISEASE II (1 + 0) 1 credit
Continuation of body systems not covered in CLS 221. Corequisite: BIOL 263.

241 CLINICAL CHEMISTRY (3 + 0) 3 credits
Basic principles of methodology in clinical chemistry by analyzing chemical substances in biological fluids. Prerequisite: CHEM 102 or equivalent, CLS 161, 162, 215.

242 APPLIED CLINICAL CHEMISTRY (0 + 9) 3 credits
Quantitative analysis of chemical components in biologic substances. Corequisite: CLS 241.

251 IMMUNOLOGY/IMMUNOHEMATOLOGY (2 + 0) 2 credits
Overview of the immune response with emphasis on serologic principles. Discussion of identification of blood group antigens and antibodies and their clinical significance in transfusion therapy. Prerequisite: BIOL 251, CHEM 142.

252 APPLIED IMMUNOLOGY/IMMUNOHEMATOLOGY (0 + 6) 2 credits
Serological and immunohematological laboratory procedures; grouping, typing, compatibility testing, pregnancy testing, titers, cold agglutinins, quality control. Corequisite: CLS 251

271 CLINICAL MICROBIOLOGY (2 + 0) 2 credits
Characteristics, medical significance and laboratory identification of clinically important bacteria. Prerequisite: BIOL 251.

272 APPLIED CLINICAL MICROBIOLOGY (0 + 9) 3 credits
Collecting and processing specimens, cultivation and identification of clinically important bacteria; staining methods; media preparation; safety measures; susceptibility testing. Corequisite: CLS 271.

281 PARASITOLOGY/MYCOLOGY/VIROLOGY (1 + 0) 1 credit
Characteristics, medical significance and laboratory identification of human parasites, fungi and viruses. Prerequisite: BIOL 251.

282 APPLIED PARASITOLOGY/MYCOLOGY (0 + 3) 1 credit
Specimen collection and processing; identification of parasites; cultivation and identification of medically significant fungi. Corequisite: CLS 281.

291 HEMATOLOGY (2 + 0) 2 credits
Development, identification and function of cellular and humoral elements in whole blood. Principles of laboratory assays used in the diagnosis of hematologic disorders. Prerequisite: CLS 161, 162, BIOL 262 or equivalent.

292 APPLIED HEMATOLOGY (0 + 6) 2 credits
Slide preparation and staining; manual and automated assays of whole blood components; cell identification; coagulation tests and special hematology procedures. Corequisite: CLS 291.

296 CLINICAL PRACTICUM (1 + 6) 3 credits
A six-week integration experience in hematology, microbiology, blood bank, serology, urinalysis and chemistry to include theory review and clinical rotations. Case history project required. Prerequisite: CLS 161, 162, 215, 241, 242, 251, 252, 271, 272, 281, 282, 291, 292.

301 BIOMETRY (1 + 0 per credit) 1 or 2 credits
Discussion on quality control and biostatistical principles useful to health pro-

fessionals. A nontheoretical approach to descriptive and inferential techniques for solving and illustrating statistical problems. Prerequisite: MATH 110.

313 ADVANCED HEMATOLOGY (2 + 0) 2 credits
Hematologic disorders to include anemias, white cell dyscrasians, abnormal hemostasis, clinical presentation and laboratory findings associated with these conditions. Prerequisite: CLS 291, 292, B CH 301.

314 ADVANCED HEMATOLOGY LABORATORY (0 + 3) 1 credit
Specialized and advanced hematologic procedures applied to the diagnosis of blood dyscrasias and hemostatic disorders. Prerequisite: CLS 291. Corequisite: CLS 313.

317 PRINCIPLES OF LABORATORY SUPERVISION/MANAGEMENT I (1 + 0) 1 credit
An overview of the health care delivery systems; discussion of financing of medical care; federal legislation and constraints; accreditation agencies.

318 PRINCIPLES OF LABORATORY SUPERVISION/MANAGEMENT II (2 + 0) 2 credits
Principles of management related to budget preparation, evaluation of capital expenditures, equipment and supplies; all aspects of personnel management.

323 ADVANCED IMMUNOHEMATOLOGY LABORATORY (0 + 3) 1 credit
Advanced, specialized techniques used to identify abnormal antibodies as well as coverage of component separation, preparation and therapy. Prerequisite: CLS 251, 252.

335 ADVANCED CLINICAL MICROBIOLOGY (2 + 0) 2 credits
Selection, interpretation and evaluation of clinical microbiology laboratory tests and their role in the diagnosis of infectious diseases. Prerequisite: CLS 271, 272, 281, 282.

336 ADVANCED CLINICAL MICROBIOLOGY LABORATORY (0 + 6) 2 credits
Selection and performance of a variety of laboratory techniques to identify all types of microorganisms found in clinical specimens. Corequisite: CLS 335.

390 INDEPENDENT STUDY 1 to 3 credits
Individualized in-depth study of a specific area of medical technology, e.g. clinical chemistry, hematology, immunology, immunohematology, microbiology, urinalysis, laboratory administration, and education. Maximum of 6 credits.

425, 625 INSTRUMENTATION (1 + 0) 1 credit
Fundamental principles of specialized clinical laboratory instrumentation. Prerequisite: PHY 152, CHEM 330.

426, 626 CLINICAL CHEMISTRY (3 + 0) 3 credits
Critical examination of metabolism, methodology and clinical significance of chemical compounds in biological fluids. Prerequisite: CLS 241 or permission of instructor, CHEM 330, B CH 301.

427, 627 CLINICAL CHEMISTRY LABORATORY (0 + 3) 1 credit
Quantitative analysis of biological substances from blood, urine and body fluids with emphasis on special methods and instrumentation applying a quality control program. Corequisite: CLS 426.

631, 631 IMMUNOLOGY (3 + 0) 3 credits
Principles of cellular and humoral mechanism of immunity including host-parasite interrelationships, antibody structure and function, hypersensitivity, tolerance, transplantation, immunity, and diseases of immune origins. Prerequisite or corequisite: B CH 301 and knowledge of basic immunologic principles.

432, 632 SEROLOGY LABORATORY (0 + 3) 1 credit
Practical application of fundamentals in cellular and humoral immunity using laboratory techniques commonly performed in detection of disease states. Corequisite: CLS 431 or 631.

441 PATHOPHYSIOLOGY FOR MEDICAL TECHNOLOGISTS (1 + 3) 2 credits
Correlation of clinical laboratory results with disease mechanisms. Literature review and seminar presentations of specified disease syndromes. For medical technology majors in the preclinical semester.

451 CLINICAL PRACTICUM (1 + 3 per credit) 3 to 15 credits *S/U only*
Supervised clinical experience in all hospital laboratory departments: clinical chemistry, clinical microbiology, hematology, immunology, and urinalysis and body fluids. 26 weeks work experience, including elective, with emphasis on interpretation of laboratory results and clinical correlation. Prerequisite: successful completion of all professional (CLS) courses. For CLS majors only.

490 INDEPENDENT STUDY 1 to 3 credits
Individualized in-depth study of a specific area of medical technology, e.g. clinical chemistry, hematology, immunology, immunohematology, microbiology, urinalysis, laboratory administration and education. Maximum of 6 credits.

COMPUTER INFORMATION SYSTEMS (CIS)

250 INTRODUCTION TO BUSINESS INFORMATION SYSTEMS (3 + 0) 3 credits
Introduction to the digital computer. Programming in the BASIC language. Use of time-sharing terminals. Survey of business systems and systems documentation. Not open to freshman students except by special permission.

251 COMPUTER APPLICATIONS USING COBOL (3 + 0) 3 credits
Programming in COBOL. Parallel emphasis in program analysis, design and documentation of management systems applications. Prerequisite: CIS 250.

253 COMPUTER APPLICATIONS USING RPG (3 + 0) 3 credits
Programming in RPG. Parallel emphasis of on-line business application systems, especially accounting and inventory control. Prerequisite: CIS 250.

261 MICROCOMPUTERS IN BUSINESS (3 + 0) 3 credits
Use of microcomputers in solving business problems. Selection of microdatabase and advanced BASIC. Prerequisite: CIS 250.

UPPER-DIVISION COURSES: Business students must have satisfactorily completed the entire lower-division business core (see section on *Upper-Division Courses* in the College of Business Administration section.)

451, 651 ADVANCED COMPUTER PROBLEMS (3 + 0) 3 credits
Case studies and problems in administrative information systems using the COBOL language. Prerequisite: CIS 250, 251.

475, 675 NETWORKS AND DATA COMMUNICATION (3 + 0) 3 credits
Case studies and problems relating to the analysis and design of business data communication systems. Evaluation of centralized, decentralized and distributed processing systems. Prerequisite: completion of lower-division business core, CIS 251, 261.

484, 684 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3 + 0) 3 credits
Case studies and problems relating to the analysis of business information systems and to the design and implementation of new systems. Prerequisite: CIS 250, 251, 451.

485, 685 DATABASE MANAGEMENT AND OPERATING SYSTEMS (3 + 0) 3 credits
Database management systems and features of supporting operating system environments. Evaluation of business database systems including application program development within database structures. Prerequisite: completion of lower-division business core, CIS 251, 261.

487, 687 DECISION SUPPORT SYSTEMS (3 + 0) 3 credits
Taxonomy of DSSs and decision models; development of DSSs using higher-level programming languages, packages, quantitative models and data bases. Prerequisite: CIS 251, MGRS 352.

488, 688 SPECIAL TOPICS IN INFORMATION SYSTEMS (3 + 0) 3 credits
Special topics in selected information systems problems. Prerequisite: CIS 250, 251, 451.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

495, 695 INTERNSHIP IN COMPUTER INFORMATION SYSTEMS (1 + 0 per credit) 1 to 3 credits *S/U only*
Cooperative education wherein students apply knowledge to real business problems developed jointly by company officials and faculty adviser.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

Inactive Course

150 BASIC (1 + 0) 1 credit

COMPUTER SCIENCE (C S)

183 INTRODUCTION TO COMPUTER SCIENCE I (3 + 2) 4 credits
Computer organization, algorithms, data representation, history. Exposure to computer applications from word processing to numerical problems. Emphasis on structured programming using PASCAL. Prerequisite: MATH 110 or satisfactory score on qualifying examination.

283 INTRODUCTION TO COMPUTER SCIENCE II (3 + 0) 3 credits
Structured program design using PASCAL. Applications drawn from elementary numerical methods, data structures and nonnumeric algorithms such as searching, sorting and Polish notation conversion. Prerequisite: C S 183 or equivalent.

284 APPLICATION COMPUTER LANGUAGES (1 + 0) 1 credit
(See MATH 284 for description.)

285 INTRODUCTION TO COMPUTER SYSTEMS (3 + 0) 3 credits
Computer structure, assembly language programming, machine language. Representation of data, subroutines, coroutines, recursion. Macro definition data structures, symbolic debugging. Prerequisite: C S 283.

333 COMPUTER LOGIC DESIGN (3 + 0) 3 credits
Techniques for analysis and design of combinatorial and sequential switching networks; boolean algebra, elements of code theory, function minimization, computer subsystems, arithmetic and logic algorithms, asynchronous sequential networks, simple computer operation. Prerequisite: MATH 217.

386 COMPUTER PROGRAMMING LANGUAGES (3 + 0) 3 credits
Syntax and semantics of programming languages. Algorithmic simulation, list processing and string manipulation languages. Run-time representation of program and data structures. Formal specification of data structures. Prerequisite: C S 285.

387 INTRODUCTION TO THE THEORY OF COMPUTATION (3 + 0) 3 credits
Regular, context free, and type O languages and grammars; finite state, pushdown, and Turing automata; unsolvability; complexity, and NP completeness. Prerequisite: MATH 381, C S 386.

405, 605, MICROPROCESSOR LABORATORY (0 + 3) 1 credit
(See E E 405, 605 for description.)

431, 631 DIGITAL COMPUTER ARCHITECTURE AND DESIGN (3 + 0) 3 credits
(See E E 431, 631 for description.)

435, 635 MICROPROCESSORS (3 + 0) 3 credits
(See E E 435, 635 for description.)

437, 637 COMPUTER GRAPHICS (3 + 1) 3 credits
Software, hardware and mathematical tools for the representation, manipulation and display of two- and three-dimensional objects: applications of these tools to specific problems. Prerequisite: C S 183. (Same as E E 437, 637.)

475, 675 SOFTWARE ENGINEERING (3 + 0) 3 credits
Requirements specifications, structured analysis, modeling, top down design, testability, maintainability, protability, verification and validation, modification, management, reliability, efficiency, complexity, compatibility, modularity, interfacing, hardware and language issues. Prerequisite: C S 386.

482, 682 DATA COMMUNICATIONS AND COMPUTER NETWORKS (3 + 0) 3 credits
Digital modulation, transmission and synchronization, codes, error detection, interfacing, computer networks, ISO model, circuit/packet switching, local area networks. Prerequisite: C S 183, 333. (Same as E E 482, 682.)

483, 683 NUMERICAL METHODS I (3 + 0) 3 credits
(See MATH 483, 683 for description.)

485, 685 COMPUTER DATA STRUCTURES (3 + 0) 3 credits
Analysis and design of nonnumeric algorithms which act on data structures including stacks, queues, lists, trees and graphs. Sorting, searching and memory management. Prerequisite: C S 386.

486, 686 PRINCIPLES OF COMPUTER OPERATING SYSTEMS (3 + 0) 3 credits
Concurrent processes, interprocess communication, processor management, virtual and real memory management, deadlock, file systems, disk management, performance issues, case studies. Practical experience with UNIX. Prerequisite: C S 333, 485.

487, 687 COMPUTER DATABASE MANAGEMENT SYSTEMS (3 + 0) 3 credits
An overview of existing systems; physical data organization; relational, network and hierarchical models; data manipulation languages; data definition languages; database protection; database applications using INGRES. Prerequisite: C S 386. (Same as MATH 487, 687.)

488, 688 TOPICS IN ARTIFICIAL INTELLIGENCE (3 + 0) 3 credits
(a) Survey of artificial intelligence, (b) programming techniques in artificial intelligence. Prerequisite: C S 386 for (a); MATH 481b for (b). Maximum of 6 credits — 3 in each topic. (Same as MATH 488, 688.)

489, 689 TOPICS IN COMPUTER SCIENCE (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as computer networks, compilers, graphics, computability, analysis of algorithms, software design, functional programming and denotational semantics. Maximum of 6 credits. (Same as MATH 489, 689.)

495, 695 INDEPENDENT STUDY 1 to 3 credits
Special projects in computer science. Maximum of 6 credits.

496 SENIOR PROJECTS 2 to 4 credits
Faculty-supervised individual or small-group projects with emphasis on research, design, or tutorial study. Prerequisite: C S 486. Maximum of 8 credits.

703 COMPUTABILITY AND FORMAL LANGUAGES (3 + 0) 3 credits
Turing machines, recursive functions, computability and undecidability. Formal languages and their decision problems. Prerequisite: MATH 381. (Same as MATH 703.)

704 NONPROCEDURAL PROBLEM SOLVING TECHNIQUES (3 + 0) 3 credits
(a) Knowledge based systems, (b) PROLOG problem solving. Maximum 6 credits — 3 in each topic. Prerequisite: C S 488 for (a); MATH 481c, C S 488 for (b). (Same as MATH 704.)

705 COMPILERS AND TRANSLATORS (3 + 0) 3 credits
Context-free and regular grammars, lexical analyzers, LL(k) and LR(k) parsers, syntax directed translation, code generation, optimization; practical experience with compiler writing tools of UNIX. Prerequisite: C S 486, 686. (Same as MATH 705.)

706 ADVANCED OPERATING SYSTEMS CONCEPTS (3 + 0) 3 credits
(a) Design and implementation, (b) computer networks. Maximum of 6 credits — 3 in each topic. Prerequisite: C S 486, 686. (Same as MATH 706.)

709 TOPICS IN ADVANCED COMPUTER SCIENCE (3 + 0) 3 credits
(a) Algorithms and complexity, (b) software project management and development, (c) discrete systems simulation. Maximum 9 credits — 3 in each topic. Prerequisite: MATH 381 or 435 for (a); C S 486 for (b) and (c). (Same as MATH 709.)

731 ADVANCED SWITCHING THEORY (3 + 0) 3 credits
(See E E 731 for description.)

732 THEORY OF FINITE AUTOMATA (3 + 0) 3 credits
(See E E 732 for description.)

784 COMPUTER LABORATORY (0 + 3) 1 credit
(See E E 784 for description.)

790 SEMINAR 1 to 3 credits
Organized study and research under direction and supervision: (a) beginning, (b) advanced. Maximum of 6 credits.

791 SPECIAL TOPICS 1 to 3 credits

793 INDEPENDENT STUDY 1 to 3 credits

796 PROFESSIONAL PAPER 2 credits *S/U only*

797 THESIS 1 to 6 credits

COUNSELING AND GUIDANCE PERSONNEL SERVICES (CAPS)

122 ENHANCING ACADEMIC SUCCESS (1 + 0) 1 credit *S/U only*
Improving competence in such areas as time management, interpersonal communication, goal setting, decision-making, test-taking strategies and concepts related to the achievement of academic success.

123 CAREER DEVELOPMENT (2 + 1) 2 credits *S/U only*
Occupational choice processes leading to control over one's own life/career development by planning and decision-making.

330 EDUCATIONAL PSYCHOLOGY (3 + 0) 3 credits
Overview of the psychology of learning, motivation, growth and development, personality dynamics and social adjustment. Field experience required during course. Prerequisite: PSY 101.

331 EDUCATIONAL PSYCHOLOGY EXPERIENCE (0 + 2) 1 credit *S/U only*
Field experience to assist students to apply basic helping principles of educational psychology to tutoring and school situations. Prerequisite or corequisite: CAPS 330.

400, 600 INTRODUCTION TO COUNSELING AND GUIDANCE
(3 + 0) 3 credits
Overview of personnel services that include counseling, individual appraisal, occupational information, group procedures, referral and follow-up. Prerequisite: PSY 101. Meets teacher certification requirements. Graduate program credit for nonmajors and international students only.

401, 601 INTRODUCTION TO ELEMENTARY SCHOOL GUIDANCE
(3 + 0) 3 credits
Overview of personnel services at the elementary school and preschool levels. The teacher's role emphasized. Meets teacher certification requirements.

410, 610 INTRODUCTION TO EMPLOYMENT COUNSELING
(3 + 0) 3 credits
Principles, procedures, techniques, backgrounds of public and private employment agencies. Emphasis on employment records, tests (General Aptitude Test Battery), occupational information, referral, placement, employer relations. Prerequisite: CAPS 400.

412, 612 CORRECTIONS COUNSELING (3 + 0) 3 credits
Overview of services provided by counselors of public offenders, including juvenile and adult probation, imprisonment, and parole. Prerequisite: CAPS 400.

417, 617 INTRODUCTION TO REHABILITATION COUNSELING
(3 + 0) 3 credits
Philosophy, procedures, staff and professional relationships employed in the rehabilitation process including evaluation, interviewing, planning and placement. Prerequisite: CAPS 400.

420, 620 THE INFORMATION SERVICES (3 + 0) 3 credits
Procurement, evaluation and utilization of occupational, educational and personal-social information within the context of a guidance program; includes the follow-up and community surveys, placement and referral agencies. Prerequisite: CAPS 400 or 401.

422, 622 CAREER EDUCATION (3 + 0) 3 credits
Career education encompasses the career development experiences for kindergarten through twelfth-grade instructional sequences. The goal is self and environmental awareness by approaching subject matter from the standpoint of vocational utility. Designed for the classroom teacher. Prerequisite: CAPS 330.

431, 631 BEHAVIORAL ANALYSIS (3 + 0) 3 credits
Interaction analysis of groups and diagnosis of individual behavior. Prerequisite: CAPS 330.

432, 632 AFFECTIVE EDUCATION (2 + 2) 3 credits
Human relations, psychological education and humanistic skills identified, clarified, expressed and developed. An overview of the emotional aspects of learning, valuing, and communicating. Prerequisite: CAPS 330.

436, 636 TEACHING FOR CRITICAL THINKING (3 + 0) 3 credits
Emphasized knowledge and understanding of the field of critical thinking and methods and procedures required to teach critical thinking at various age levels. Prerequisite: PHIL 105 or equivalent.

440, 640 EDUCATIONAL MEASUREMENTS AND STATISTICS
(3 + 0) 3 credits
Basic statistical methods in the field of education and related disciplines. Emphasis on role of statistics in behavioral research; meets certification requirements for those areas in education requiring a background in statistical understandings.

442, 642 INDIVIDUAL APPRAISAL I (3 + 0) 3 credits
Selection, administration, interpretation and statistical understanding of standardized aptitude, achievement and personal-social adjustment tests. Prerequisite: CAPS 400 or 401.

460, 660 GROUP PROCESS (3 + 0) 3 credits
Theory and techniques in understanding group behavior and the development of experiences that lead to self-insight. Prerequisite: CAPS 400 or 401.

465, 665 CHILD AND FAMILY GUIDANCE (3 + 0) 3 credits
Principles of child behavior at home and school are studied with actual teachers, children and families involved. Application for counselors and teachers is emphasized. Prerequisite: CAPS 400 or 401.

490, 690 WORKSHOP IN COUNSELING AND GUIDANCE
(1 + 0 per credit) 1 to 4 credits
Specialized instruction in counseling and guidance designed to develop depth in understanding of a current guidance problem. Maximum of 4 credits.

491, 691 SPECIAL TOPICS WORKSHOP (1 to 3 + 0) 1 to 3 credits S/U only
Specialized instruction designed to develop breadth of understanding in current counseling topics. Maximum of 6 credits.

499, 699 SPECIAL PROBLEMS IN COUNSELING 1 to 6 credits
Specialized instruction in counseling and guidance personnel services designed to develop depth in understanding of current counseling problems of the in-service counselor. A maximum of 6 credits accepted in special problems for graduate degree programs.

614 COLLEGE STUDENT DEVELOPMENT SERVICES (3 + 0) 3 credits
Characteristics of college students' goals, values, attitudes and relationships. Student personnel systems designed to facilitate personal, social, academic and vocational growth. Prerequisite: CAPS 400.

700 INTRODUCTION TO EDUCATIONAL RESEARCH (3 + 0) 3 credits
Introductory course required for all students preparing for an advanced degree. Emphasis on the purpose, general procedures and types of educational research. Designed for research practitioners and consumers.

715 SEMINAR IN COLLEGE STUDENT DEVELOPMENT (3 + 0) 3 credits
Student-personnel functions of developing, implementing and evaluating to include: programs in higher education financial aids, career planning and placement, enrollment planning, residential life, counseling, student activities, academic advising, and administration. Prerequisite: CAPS 614.

716 COUNSELING IN HIGHER EDUCATION (3 + 0) 3 credits
Focus on the psychological, intellectual, emotional development aspects of both late adolescents and transitional adults and their counseling needs as students in higher education institutions. Prerequisite: CAPS 750.

721 THEORIES OF OCCUPATIONAL CHOICE (3 + 0) 3 credits
Analysis of the relationships among theoretical constructs, counselor behavior and vocational counseling services. Prerequisite: CAPS 400 or 401.

738 LEARNING THEORIES IN EDUCATION (3 + 6) 3 credits
Problem-solving, cognitive processes, concept formation and creativity from the viewpoint of major learning theorists as applied to the educational and classroom setting. Conditions and processes of behavior modification. Prerequisite: CAPS 631, 632.

740 ADVANCED EDUCATIONAL MEASUREMENTS AND STATISTICS
(3 + 0) 3 credits
Second course designed for the student planning to contribute research findings of their own design. Refinement of inferential statistical methods introduced in CAPS 440. Prerequisite: CAPS 440 or 640 or equivalent.

742 INDIVIDUAL APPRAISAL II (3 + 0) 3 credits
Techniques and interpretation of personality appraisal with an emphasis on school age children. Includes self report inventories, projective techniques, and rating scales. Prerequisite: CAPS 642.

744 INDIVIDUAL APPRAISAL III (4 + 6) 6 credits
Selection, administration, and interpretation of individually administered scales of mental capacity and emotional analysis. Prerequisite: CAPS 742, 770. Advance departmental approval is required.

749 CASE STUDY SEMINAR (2 + 3) 3 credits
Study, diagnosis, planning and evaluation of program of services provided counselees and students. Instructional processes include staff-study in demonstration of cooperative interprofessional relationships. Prerequisite: CAPS 750 plus 18 graduate credits in CAPS courses.

750 THE COUNSELING PROCESS (3 + 0) 3 credits
Theory and techniques of therapeutic counseling; self-theory emphasized with dyadic relationships the focus. Prerequisite: CAPS 400 or 401.

751 COUNSELING THE CULTURALLY DIFFERENT (3 + 0) 3 credits
Special relational problems and processes in the counseling setting in effectively dealing with counselees from non-middle class and/or non-Caucasian backgrounds. Values, attitudes and beliefs of various subcultures. Prerequisite: CAPS 750.

752 ADVANCED COUNSELING THEORY (3 + 0) 3 credits
Depth investigation of major theoretical positions related to professional counseling services. Ethical and procedural components stressed. Prerequisite: CAPS 770.

753 COUNSELING THE OLDER WORKER (3 + 0) 3 credits
Concerns of older persons preparing for retirement and life-style changes; agency counseling assistance programs; special relational skills and intervention systems when dealing with the aging person. Prerequisite: CAPS 750.

754 SUBSTANCE ABUSE COUNSELING (3 + 0) 3 credits
Physical and psychological aspects of substance abuse; specific counseling and treatment approaches. Prerequisite: CAPS 750.

755 SEMINAR IN ELEMENTARY SCHOOL COUNSELING (3 + 0) 3 credits
Directed seminar format considering roles and relationships of pupil personnel specialists within grades kindergarten through sixth. Case studies illustrate interprofessional functioning between school and community agencies. Pupil, parental and faculty concerns explicated. Prerequisite: CAPS 642, 660, 750.

761 GROUP COUNSELING (3 + 0) 3 credits
Theories and techniques of small group counseling with an emphasis on developing group counseling leadership skills. Prerequisite: CAPS 750.

764 GROUP COUNSELING THEORY (1 + 0 per credit) 2 or 3 credits
Group counseling processes provided for small groups. Includes co-counseling designs: (a) family groups, (b) employment groups, (c) need groups. Prerequisite: CAPS 660 plus 15 graduate credits in CAPS courses.

765 THEORY AND PRACTICE OF MARRIAGE COUNSELING (3 + 0) 3 credits
Study of therapy systems to aid intimate partnerships, their formation, maintenance and termination. Prerequisite or corequisite: CAPS 770.

766 ADVANCED FAMILY COUNSELING (3 + 0) 3 credits
Study of therapeutic intervention systems over the life span of developing families. Prerequisite: CAPS 765.

769 COUNSELING LABORATORY (0 + 6) 3 credits *S/U only*
Counseling experience and practice under supervision. Corequisite: CAPS 750.

770 PRACTICUM IN COUNSELING (1½ + 6) 3 credits
Supervised counseling internship. May be repeated to a maximum of 6 credits per advanced degree. Written applications required by July 1 for fall and December 1 for spring. (a) Elementary schools; (b) secondary schools; (c) higher education; (d) employment service; (e) vocational rehabilitation; (f) private agencies. Prerequisite: CAPS 620 or 721, 642, 660, 750.

772 PRACTICUM IN GROUP COUNSELING (1½ + 6) 3 credits
Supervised counseling internships with small groups. Written applications required one month prior to registration. Maximum of 6 credits. Prerequisite: CAPS 770.

773 PRACTICUM IN FAMILY COUNSELING (1 + 4 per credit) 3 or 6 credits
Supervised counseling internship with families. Written applications are required by July 1 for fall and December 1 for spring. Prerequisite: CAPS 770.

774 COLLEGE STUDENT DEVELOPMENT LABORATORY (0 + 9) 3 credits
Supervised work experience at a professional level. (a) recruitment and retention, (b) academic advising, (c) orientation, (d) international student affairs, (e) administration. Prerequisite: 15 graduate CAPS credits appropriate to the assignment.

775 DOCTORAL RESEARCH SEMINAR (3 + 0) 3 credits
Advanced considerations relating to the materials, procedures and write-up techniques involved in educational research. Special attention on analysis of various social science approaches to the study of education problems. Doctoral research area should be identified before enrolling; concurrently, the student must be registered for at least 3 credits of CAPS 799. Prerequisite: doctoral candidacy plus CAPS 640 and 700 or equivalent.

776 GUIDANCE LABORATORY (1½ + 6) 3 credits
Supervised guidance work experience at a professional leadership level. (a) financial aids and graduate placement, (b) residence halls and college housing, (c) occupational information and vocational placement, (d) career education, (e) consulting, (f) appraisal, (g) substance abuse. Prerequisite: 12 graduate CAPS credits appropriate to the task activities.

779 PRACTICUM IN SCHOOL PSYCHOLOGY (½ + 2 per credit) 3 to 6 credits
Directed experiences in the administration, interpretation, consultation and counseling pertaining to assessment and school psychological services. Written applications required one month prior to registration. Maximum of 12 credits. Prerequisite: CAPS 744.

782 CONSULTATION AND SUPERVISION IN COUNSELING SERVICES (3 + 0) 3 credits
Theoretical and practical counseling methods for assisting the change process in individuals and organizations. Includes the theory and practice of supervision techniques for counseling services. Prerequisite: completion of 18 CAPS graduate credits.

784 STRUCTURE AND SUPERVISION OF PUPIL PERSONNEL PROGRAMS (2 + 0) 3 credits
Assessing the need, determining the structure, supervising the specialists and evaluating the functions of pupil and student personnel programs. Emphasizes procedures for incorporating guidance services within the educational setting. Meets certification requirements for school counselors. Prerequisite: CAPS 750 or approval of instructor.

790 SEMINAR 2 to 4 credits
Maximum of 4 credits.

791 SPECIAL TOPICS 1 credit
Selected basic problems related to counseling and guidance personnel services. Maximum of 4 credits.

794 COLLOQUIA IN COUNSELING (1 + 0 per credit) 1 to 3 credits *S/U only*
Emphasis on current and pertinent topics. Presentations by prominent professionals in the field.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

798 COUNSELING INTERNSHIP (0 + 2 per credit) 1 to 6 credits *S/U only*
A program of professional counseling services in one of the following areas: (a) elementary schools, (b) secondary schools, (c) higher education, (d) employment service, (e) vocational rehabilitation, (f) private agencies, (g) marriage and family. Prerequisite: 6 counseling practicum credits.

799 DISSERTATION 1 to 12 credits

CRIMINAL JUSTICE (C J)

110 INTRODUCTION TO CRIMINAL JUSTICE (3 + 0) 3 credits
Introduction to the history, philosophy and functions of community, state and federal agencies or services involved in the criminal justice system. Chronological process of procedures from incident to final disposition.

120 CRIMINAL LAW (3 + 0) 3 credits
General introduction to the substantive law of crimes, emphasizing historical development; types and elements of crime; criminal responsibility; justification and defense; anticipatory offenses.

211 POLICE IN AMERICA (3 + 0) 3 credits
Historical development, roles, socialization and problems of police work.

220 CRIMINAL PROCEDURE (3 + 0) 3 credits
Origin, development and rationale of the structural and procedural aspects of America's criminal justice system and arrest, search-seizure, confessions and related legal issues.

231 CORRECTIONS (3 + 0) 3 credits
Overview of development of corrections, recent innovations and future correctional systems structure and programs. Prerequisite: C J 110.

232 COMMUNITY CORRECTIONS (3 + 0) 3 credits
Philosophy of community corrections, alternatives to confinement, the role of corrections in the community, evaluation of existing programs and administration of and planning for community corrections. Prerequisite: C J 231.

312 ADMINISTRATION (3 + 0) 3 credits
Theory of management and motivation; bureaucracy; labor law and relations; financial administration; criminal justice agency administration. Prerequisite: C J 110.

313 CRIMINAL JUSTICE AND COMMUNITY RELATIONS (3 + 0) 3 credits
Current issues and theories in relationships between the criminal justice system and the community. Prerequisite: C J 110.

320 LEGAL SEMINAR I (3 + 0) 3 credits
Elements of criminal law, procedure and evidence. Prerequisite: C J 110, 120, 220. Limited to criminal justice majors and minors only.

324 PRINCIPLES OF CRIMINAL INVESTIGATION (3 + 0) 3 credits
Fundamental principles of criminal investigation including crime scene work, collection and analysis of physical evidence, sketching, forensic photography and identification techniques. Prerequisite: completion of all required lower-division criminal justice courses. Open only to criminal justice majors and minors.

326 JUVENILE JUSTICE (3 + 0) 3 credits
Decision-making processes; theories of delinquent behavior; court decisions and problems affecting the administration of justice during childhood and adolescence.

328 STATISTICS FOR CRIMINAL JUSTICE (3 + 0) 3 credits
Study and practice with statistical methods which are useful in the collection, processing and utilization of data relative to criminal justice work.

330 PROFESSIONAL PAPER-RESEARCH PROBLEM 2 credits

331 THE CORRECTIONAL INSTITUTION (3 + 0) 3 credits
Analysis of the administration and societies of the prison community. Prerequisite: C J 110, 231.

332 PROBATION AND PAROLE (3 + 0) 3 credits
Scope and functions of probation and parole, decision-making processes, differences in supervision of clients, management of resources, use of volunteers and current trends in these fields. Prerequisite: C J 231.

336 JUVENILE CORRECTIONS (3 + 0) 3 credits
Overview of development of juvenile corrections, nature of the offender, processing, treatment and aftercare facilities. Prerequisite: C J 110.

367 PENOLOGY (3 + 0) 3 credits
(See SOC 367 for description.)

410 CRIMINAL JUSTICE SEMINAR (3 + 0) 3 credits
Intensive study of the theory and operation of the entire criminal justice system.

412 ADVANCED ORGANIZATION AND ADMINISTRATION
(3 + 0) 3 credits
Advanced concepts and theories of criminal justice organization and administration. Prerequisite: C J 110.

420 LEGAL SEMINAR II (3 + 0) 3 credits
Continuation of C J 320. Prerequisite: C J 320.

424 CRIMINALISTICS (2 + 3) 3 credits
Gathering and preservation of evidence. Preparation of evidence for forensic use. Prerequisite: C J 324. Open only to criminal justice majors and minors.

425 ADVANCED CRIMINAL INVESTIGATION (2 + 3) 3 credits
Continuation of C J 324 with emphasis on crime scene work and use of the crime laboratory. Prerequisite: C J 324.

450 CRIMINAL JUSTICE INTERNSHIP 1 to 6 credits *S/U only*
Individual student internships are arranged with appropriate federal, state, or local criminal justice agencies. Regular written reports on observations and activities are required. Maximum of 9 credits. Open only to criminal justice majors and minors.

498 SELECTED TOPICS IN CRIMINAL JUSTICE 1 to 3 credits
Study of a major topic or issue in criminal justice. Maximum of 9 credits when content differs.

499 INDEPENDENT STUDY IN CRIMINAL JUSTICE 1 to 3 credits
Maximum of 6 credits. Open only to criminal justice majors.

Inactive Course

214 PRINCIPLES OF POLICE PATROL TECHNIQUES (3 + 0) 3 credits
260 THE VOLUNTEER IN COURTS AND CORRECTIONS (4 + 0) 4 credits
316 TECHNIQUES OF POLICE TRAFFIC FUNCTIONS (3 + 0) 3 credits

CURRICULUM AND INSTRUCTION (C I)

250 SCHOOL LABORATORY EXPERIENCES (1½ + 4½) 3 credits *S/U only*
Field experiences with young adolescents in local area middle schools, accompanied by a weekly campus seminar. Prerequisite or corequisite: EAHE 101.

270 HUMAN GROWTH AND DEVELOPMENT (3 + 3) 4 credits
Principles of human growth and development, the nature of the child, and child and adolescent learning. Laboratory with K-12 pupils required. Prerequisite: general psychology.

280 BASIC COMPUTER APPLICATIONS IN EDUCATION
(1 + 0) 1 credit
Basic exposure to computing and to computer applications in education. Includes hands-on experience with the computer. Designed primarily for preservice teachers.

290 ISSUES IN EDUCATIONAL COMPUTING (1 + 0) 1 credit
Examination of current research, issues and trends in educational computing.

300 TEACHING OF READING IN THE ELEMENTARY SCHOOL
(3 + 0) 3 credits
Instruction in phonics, word recognition, and comprehension. Basic understanding, techniques and approaches which are related to developmental programs in the elementary schools.

301 INTRODUCTION TO LIBRARY EDUCATION (3 + 0) 3 credits
Acquaints student with philosophy and work of school librarian. Introduces bibliographic tools and information sources basic to librarianship, emphasizing those used in school library work.

310 EDUCATION OF THE EXCEPTIONAL CHILD
(1 + 0 per credit) 2 or 3 credits
Survey of the various types of exceptionalities. Emphasis on etiology, physical and educational characteristics.

311 INTRODUCTION TO LEARNING AND BEHAVIOR DISORDERS
(3 + 0) 3 credits
Overview of contemporary theories and approaches to learning and behavior disorders with emphasis on assessment and treatment methodologies. Prerequisite: C I 310.

312 EXCEPTIONAL CHILD EXPERIENCE (0 + 3) 1 credit *S/U only*
Field experience to acquaint students with types of handicapping conditions and kinds of services available to handicapped persons. Prerequisite or corequisite: C I 310.

350 SCHOOL LABORATORY EXPERIENCE II (1 + 6) 3 credits *S/U only*
Field experience with adolescents and the effect of teaching on the learning process. Prerequisite: C I 250.

393 AUDIOVISUAL EQUIPMENT AND INSTRUCTIONAL MEDIA 1 credit
Beginning exposure to audiovisual equipment used in teaching and preparation of basic instructional materials for the classroom. Prerequisite: education major.

401, 601 INDIVIDUALIZED METHODS OF TEACHING READING
(3 + 0) 3 credits
Theory, procedures, organization and content of an individualized approach to the teaching of reading. Prerequisite: C I 300.

402, 602 READING IN THE LOWER ELEMENTARY GRADES
(2 + 3) 3 credits
Advanced work in developmental reading including new developments, techniques and methods which are related to the primary grades. Prerequisite: C I 300.

403, 603 READING IN THE UPPER ELEMENTARY GRADES
(2 + 3) 3 credits
Advanced work in developmental reading for the reading teacher and the subject-matter teacher; including new developments, techniques and methods which are related to the upper-elementary grades. Prerequisite: C I 300.

404, 604 READING IN THE SECONDARY SCHOOL (2 + 0) 2 credits
Sources of reading difficulties; reading skills; developmental reading; reading in content fields. Laboratory experiences required. Prerequisite: C I 250, CAPS 330 or valid teaching certificate.

406, 606 SURVEY OF REMEDIAL READING PROBLEMS (3 + 0) 3 credits
Introductory course for remedial reading training. Offers specialized instruction in reading designed to develop depth in remedial reading problems. Prerequisite: C I 300.

407, 607 BOOK SELECTION FOR CHILDREN (3 + 0) 3 credits
Survey of the field of books for children. Children's reading interests and needs as bases for evaluating and selecting library materials for the elementary school.

408, 608 BOOK SELECTION FOR ADOLESCENTS/YOUNG ADULTS
(3 + 0) 3 credits
Prepares teachers, librarians and administrators for evaluation of books and other library materials for pupils in secondary schools. Prerequisite: C I 301 or equivalent.

409, 609 HANDICAPPED LEARNERS IN THE REGULAR CLASSROOM
(3 + 0) 3 credits
Preparation of teachers to deal with assessment and program development for handicapped children who are placed in the regular classroom. Prerequisite: EAHE 101, C I 270 or equivalent. Meets new teacher education certification requirements.

410, 610 TRANSITIONAL PROGRAMS FOR THE HANDICAPPED ADOLESCENT (3 + 0) 3 credits
Instructional strategies for preparing the handicapped adolescent for the transition from school to work. Implications for secondary school resource room teachers. Prerequisite: advanced standing in teacher certification.

413, 613 SERVING HANDICAPPED INDIVIDUALS AND THEIR FAMILIES
(3 + 0) 3 credits
Facilitating the interrelationship of varied services for exceptional students. Focus includes working with parents, professionals and community service.

415, 615 THE ADOLESCENT LEARNER AND THE SECONDARY CURRICULUM (3 + 0) 3 credits
Accommodating the secondary curriculum to developmental characteristics of the adolescent. Prerequisite: advanced standing in teacher certification program.

414, 614 PROBLEMS IN SPECIAL EDUCATION
(1 + 0 per credit) 1 to 3 credits
Integration of subject matter into the learning situation. New procedures on developments in the area of special education. Observation of special classrooms is required. Maximum of 12 credits, only 6 of which may apply to a degree. Prerequisite: C I 310, 311, 418 or 471.

415, 615 THE ADOLESCENT LEARNER AND THE SECONDARY CURRICULUM (3 + 0) 3 credits
Accommodating the secondary curriculum to developmental characteristics of the adolescent. Prerequisite: advanced standing in teacher certification program.

416, 616 CURRICULUM FOR MODERATELY AND SEVERELY RETARDED CHILDREN (3 + 3) 4 credits
Curriculum developments and methods in teaching the moderately and severely retarded child. Includes an experience with severely handicapped children.

417, 617 CURRICULAR APPROACHES FOR THE HANDICAPPED ADOLESCENT (3 + 0) 3 credits
Problems and methods for designing curriculum for secondary special education students with emphasis on vocational experience. Prerequisite: C I 311.

418, 618 CURRICULUM DEVELOPMENT FOR THE MILDLY HANDICAPPED (3 + 3) 4 credits
Problems and procedures in curriculum development for the mildly handicapped child. Materials and technique development for use in special, regular or resource classrooms. Field experience is required as a part of the course to practice techniques. Prerequisite: C I 471.

419, 619 TEACHING THE BLIND AND VISUALLY HANDICAPPED
(1 + 1 per credit) 2 or 3 credits
Anatomy and physiology of the eye. Instruction of the partially seeing and blind. Instruction in Braille, six-key typewriter and other audiovisual equipment. Prerequisite: C I 310.

420, 620 METHODOLOGY OF MULTICULTURAL EDUCATION
(2 + 0) 2 credits
Methods and instructional strategies appropriate for teaching students from Black American, Native American, Spanish-speaking American, Asian American and other cultures. Evaluation and selection of relevant curriculum materials for classroom use. Prerequisite: C I 250 or CAPS 330. Meets new teacher education certification requirements.

421 TEACHING OF SECONDARY SOCIAL STUDIES (2 + 0) 2 credits
Nature of social growth of adolescents in a democratic culture. Content and procedures in social studies. Development of instructional materials and techniques. Prerequisite: advanced standing in the College of Education.

422 TEACHING OF SECONDARY MATHEMATICS (2 + 0) 2 credits
Content and methods of mathematics; diagnosis and remedial treatment of pupil difficulties; readiness; objectives of mathematics; recent trends. Prerequisite: advanced standing in the College of Education.

423 TEACHING OF SECONDARY ENGLISH (2 + 0) 2 credits
Methods for teaching writing, speaking and listening with particular emphasis on responding to literature. Prerequisite: advanced standing in the College of Education.

424 TEACHING OF SECONDARY SCIENCE (2 + 0) 2 credits
Content and procedures in teaching science; demonstrations; experiments; evaluation of curricular materials. Prerequisite: advanced standing in the College of Education.

425 METHODS AND MATERIALS IN TEACHING BUSINESS EDUCATION (2 + 0) 2 credits
Learning processes and their applications to the teaching of business subjects. Techniques and media for effective teaching of skill and nonskill areas. Prerequisite: advanced standing in the College of Education.

426 METHODS AND MATERIALS IN TEACHING FOREIGN LANGUAGES (2 + 0) 2 credits
Specific instructional strategies, techniques and materials for teaching basic skills and culture in American public school settings. Includes procedures for teaching subject matter in English and a second language. Field experience is required. Prerequisite: advanced standing in the College of Education.

427, 627 TEACHING INDUSTRIAL EDUCATION (2 + 0) 2 credits
Techniques of teaching applied to individual and group instruction in industrial education. Shop organization and planning, location and standards of equipment, checking plans and specifications, safety precautions, shop rules and regulations. Prerequisite: C I 270 or CAPS 330; advanced standing in the College of Education.

428 GENERAL PRINCIPLES OF SECONDARY EDUCATION
(3 + 0) 3 credits
Basic orientation and preparation for supervised teaching. To be taken as part of the professional semester. Corequisite: C I 457.

429, 629 METHODS OF TEACHING ENVIRONMENTAL SCIENCE
(1 + 0 per credit) 2 or 3 credits
Methods of teaching environmental science. Special emphasis on outdoor education methods. Materials and media for effective teaching. Prerequisite: 9 credits in science and a science methods course; advanced standing in the College of Education.

430, 630 KINDERGARTEN EDUCATION (1 + 0 per credit) 2 or 3 credits
Practical problems of organizing kindergarten programs. Emphasis on methods, materials and development aspects of learning.

432, 632 MICROCOMPUTERS IN EDUCATION (2 + 3) 3 credits
Uses of microcomputers in education, microcomputer operations, hardware/software selection, work processing and LOGO. Applied outcomes applicable to the classroom for teachers seeking a practical knowledge of how to operate and utilize microcomputers in education. Prerequisite: C I 290.

433, 633 CREATIVE EXPERIENCES IN ELEMENTARY EDUCATION (1 + 0 per credit) 1 to 3 credits
Analysis of the nature of creative expression including art, music, movement, drama and creative thinking. Prerequisite: EAHE 101.

434, 634 CLASSROOM MANAGEMENT TECHNIQUES (3 + 0) 3 credits
Major aspects of classroom management including the physical arrangement of the classroom, scheduling, daily routines and procedures, models of discipline and methods for dealing with behavior problems. Corequisite: C I 451, 453.

435, 635 PROGRAMMING LANGUAGES (2 + 3) 3 credits
Educational applications of programming languages. LOGO, BASIC and PASCAL are offered on a rotating basis according to student need. Prerequisite: C I 290, 488, 688.

436, 636 TEACHER APPLICATIONS OF MICROCOMPUTERS (2 + 3) 3 credits
Strategies and techniques for effective use of microcompurers in the classroom. Topics include software evaluation, authoring systems, utility programs, classroom management uses and new technologies. Prerequisite: C I 290, 432, 632.

437, 637 LAW, SOCIETY AND EDUCATION (3 + 0) 3 credits
Effects of judicial decisions upon society and education; interactions among the law, society and education. Prerequisite: C I 270 or CAPS 330.

439, 639 THE JUNIOR HIGH SCHOOL/MIDDLE SCHOOL (3 + 0) 3 credits
Development, basic philosophy and functions. Psychological and educational foundations. Problems and practices in administration, curriculum, instruction, guidance and student activities. Prerequisite: C I 270 or CAPS 330.

440, 640 THE INTEGRATED CURRICULUM (3 + 0) 3 credits
Integration of subject matter into a functional learning situation. Attention is given to curricular areas and methods of instruction. Prerequisite: C I 270 or CAPS 330.

441, 641 CURRICULUM DEVELOPMENT IN THE SOCIAL STUDIES (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the social studies. Prerequisite: C I 421 or 463.

442, 642 CURRICULUM DEVELOPMENT IN MATHEMATICS (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of mathematics. Prerequisite: C I 422 or 464.

443, 643 CURRICULUM DEVELOPMENT IN THE LANGUAGE ARTS (3 + 0) 3 credits
Research and curriculum studies dealing with the content and procedures of the language arts. Prerequisite: C I 423 or 466.

444, 644 CURRICULUM DEVELOPMENT IN SCIENCE (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the science program. Prerequisite: C I 424 or 465.

446, 646 CURRICULUM DEVELOPMENT IN FOREIGN LANGUAGES (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the foreign language program. Prerequisite: C I 426.

447, 647 CURRICULUM DEVELOPMENT IN VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits
Research and curriculum studies dealing with content and procedures of the vocational, technical and industrial education program. Prerequisite: C I 427.

448, 648 CURRICULUM DEVELOPMENT IN ECONOMICS EDUCATION (3 + 0) 3 credits
Recent curriculum developments in economics education, review of pertinent literature, and development of techniques for imparting basic concepts of economics. Prerequisite: C I 421 or 463. Meets new teacher education certification requirements.

449, 649 CURRICULUM DEVELOPMENT IN ENVIRONMENTAL EDUCATION (1 + 0 per credit) 2 or 3 credits
Development of the school curriculum in the area of environmental education. Special emphasis is given to school and school-camp programs. Activities for promoting the acquisition of environmental concepts are demonstrated. Prerequisite: 6 credits of science.

451 SUPERVISED TEACHING IN THE ELEMENTARY GRADES (0 + 2½ per credit) 4 to 12 credits
Observation, planning and teaching of units, classroom management, participation and direction of school activities, pupil and parent conferences. Prerequisite: meet screening criteria. (See statement under Supervised Teaching.)

452, 652 ADVANCED SUPERVISED TEACHING (0 + 2) 1 to 6 credits
Supervised teaching experience in elementary, special or secondary education, beyond that required for original certification.

453 SUPERVISED TEACHING WITH EXCEPTIONAL CHILDREN (0 + 2½ per credit) 4 to 16 credits
Practical experience in the classroom management and teaching of exceptional children: (a) mental retardation, (b) speech therapy, (c) learning disabilities, (d) emotionally handicapped. Prerequisite: C I 310, 311, 418, 471; meet screening criteria.

454 SUPERVISED TEACHING IN PHYSICAL EDUCATION: GRADES 1 TO 6 1 to 6 credits
Experience teaching physical education under supervision in an elementary school. Not applicable for teaching other elementary subjects. Prerequisite: meet screening criteria.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0 + 2½ per credit) 5 to 10 credits
Experience teaching major and/or minor field under supervision in either middle school or senior high school. Prerequisite: meet screening criteria. (See statement under Supervised Teaching.)

458, 658 THE MICROCOMPUTER AS A TOOL (2 +) 3 credits
Advanced applications of educational tool software such as word processors, data base managers, spreadsheets and graph packages. Prerequisite: C I 290, 432, 632.

461, 661 DEVELOPMENT OF VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits
History, development and current status of vocational and technical education programs. Societal conditions that led to these programs. Prerequisite: C I 250 or CAPS 330.

462, 662 VOCATIONAL EDUCATION (3 + 0) 3 credits
Nature and purposes of vocational education, including vocational-technical and distributive education; social and economic values for public school programs. Prerequisite: C I 457 or equivalent.

463 ELEMENTARY SOCIAL STUDIES AND MULTICULTURAL EDUCATION (3 + 3) 4 credits
Teaching methods, content and procedures in social studies and multicultural education in the elementary school. Development of instructional materials and techniques. Prerequisite: advanced standing in the College of Education.

464 ELEMENTARY MATHEMATICS AND SCIENCE (3 + 3) 4 credits
Content and methods of teaching mathematics and science in the elementary school. Mathematics methods include diagnosis and remediation of pupil difficulties, readiness, objectives of mathematics and recent trends. Science methods include demonstrations, experiments, evaluations of curricular materials. Prerequisite: education major.

466 TEACHING OF ELEMENTARY LANGUAGE ARTS AND LITERATURE (3 + 3) 4 credits
Language needs of children with emphasis on written expression, language skills, speaking and listening. Language development as related to individual and cultural differences. Content and procedures for teaching language arts and children's literature and integrating literature of all groups in the total elementary school curriculum. Prerequisite: advanced standing in the College of Education.

467, 667 TEACHING WRITING THROUGHOUT THE CURRICULUM, K-12 (1 + 0 per credit) 1 to 4 credits
Focus on writing for learning in all subject areas and at all grade levels. Introduction to current practices in the teaching of writing as well as frequent writing by participants in the course.

471, 671 ASSESSMENT FOR SPECIAL EDUCATION TEACHERS (3 + 3) 4 credits
Methods for assessing handicapped children: motor, perceptual, academic language, self help skills, both formal and informal. Interpretation of assessment information and application to program needs. Prerequisite: C I 311.

474, 674 CATALOGING AND ORGANIZATION OF LIBRARY MATERIALS (3 + 0) 3 credits
Cataloging of books and other library materials. Includes practice in working with Dewey and Library of Congress "classification systems," principles of entry and cross referencing and organization of periodicals. Prerequisite: C I 301 or equivalent.

475, 675 SUPERVISED LIBRARY PRACTICE (0 + 2 per credit) 1 to 4 credits
Opportunities for supervised library practice under the direction of a professionally trained librarian in a school situation. Prerequisite: C I 301, 407, 408, 474, 476 or equivalent.

476, 676 ADMINISTRATION OF THE SCHOOL LIBRARY (3 + 0) 3 credits
Includes functions of school library. Relationship of library to school's total instructional program. Preparation of library budget. Other problems of library administration. Prerequisite: C I 301, 407, 408, 474 or equivalent.

477, 677 NONPRINT MATERIALS IN THE SCHOOL LIBRARY (3 + 0) 3 credits
Selection, acquisition, organization, storage and maintenance of films, filmstrips, recordings, pictures, maps, charts, computer software/courseware and realia in libraries and media centers. Prerequisite: C I 301 or equivalent.

480, 680 INDEPENDENT STUDY IN CURRICULUM AND INSTRUCTION (0 + 2 per credit) 1 to 3 credits
Action or library research in an appropriate area of curriculum and instruction. Maximum of 6 credits. Prerequisite: C I 440 or other curriculum course, advance faculty approval.

481, 681 SPECIAL PROBLEMS IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 1 to 6 credits
Specialized instruction designed to develop depth in understanding of a current education problem of the inservice teacher. Maximum of 12 credits, only 6 of which may be applied toward any degree. Prerequisite: C I 440 or other curriculum course. (Same as AGED 481, 681.)

482, 682 FIELD STUDIES IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 2 or 3 credits
Intensive study on organization and interpretation of data relative to selected problems such as curriculum development, parent-teacher relations, grouping of pupils. Maximum of 12 credits. Prerequisite: C I 440 or other curriculum course. (Same as AGED 482, 682.)

483, 683 SPECIAL PROJECT WORKSHOP IN CURRICULUM AND INSTRUCTION (1 + 0 per credit) 1 to 3 credits
Emerging problems in curriculum and instruction. Maximum of 12 credits.

484, 684 WORKSHOP IN VOCATIONAL EDUCATION (1 + 0 per credit) 1 to 6 credits
Modern developments in vocational and technical education programs; local vocational education and administration and supervision, agriculture, home economics, trades and industries, business and office occupations, health occupations, technical occupations, marketing and distributive occupations and vocational guidance. Maximum of 6 credits. (Same as AGED 455 and H EC 484.)

486, 686 WORKSHOP IN SCHOOL LIBRARY PROBLEMS (2 + 0) 2 credits
Problems pertaining to administration and operation of a school library. Discussed from point of view of the teacher-librarian. Prerequisite: C I 301, 407, 408, 474 or equivalent.

487, 687 SPECIAL TOPICS 1 to 3 credits *S/U only*
Specialized instruction designed to develop breadth of understanding in current curriculum and instruction topics for elementary, secondary and special education teachers. Maximum of 6 credits.

488, 688 CURRICULUM INTEGRATION: METHODOLOGY AND APPLICATIONS (2 + 3) 3 credits
Techniques for integrating computing activities into the general curriculum. Emphasis on the interrelationship between computers and the curriculum. Prerequisite: C I 290, 432, 632.

489, 689 SPECIAL TOPICS IN EDUCATIONAL COMPUTING (1 + 3) 2 credits
Specialized instruction in educational computing. Topics may include authoring systems, programming, critical thinking and computers, special education applications, graphics, word processing and creative writing, etc. Prerequisite: C I 290, 432, 632.

490, 690 MICROCOMPUTER COURSEWARE DESIGN (2 + 3) 3 credits
Introduction to instructional design of courseware in education and microcomputer programming. Emphasis on principles of courseware development and evaluation and an understanding of microcomputer commands and language. Prerequisite: C I 280 or equivalent.

491, 691 PRODUCTION AND DESIGN OF MEDIA MATERIALS (3 + 0) 3 credits
Preparation and use of graphics in instruction. Design and presentation of materials for slides, transparencies, models and exhibits. For teachers and librarians. Prerequisite: EAHE 101 or equivalent

492, 692 PHOTOGRAPHY FOR TEACHERS (2 + 3) 3 credits
Emphasizes fundamental photographic processes in education including film development, black and white enlarging, black and white and color slide development, lighting arrangements, portrait procedures, photographic displays, technical and operational lab aspects of the field. Prerequisite: EAHE 101 or equivalent.

493, 693 AUDIOVISUAL METHODS IN TEACHING (3 + 0) 3 credits
For both elementary and secondary students. Principles and application of both projected and nonprojected materials in audiovisual education. Prerequisite: EAHE 101 or equivalent.

494, 694 EDUCATIONAL MOTION PICTURE PRODUCTION (3 + 0) 3 credits
Idea development, research, planning and production of instructional motion pictures. Script writing, filming, editing and sound systems and applications, supervision of budget, personnel and content during film preparation. Prerequisite: C I 493 or equivalent.

495, 695 PRACTICUM IN EDUCATIONAL MEDIA (0 + 2 per credit) 1 to 3 credits
Supervised experiences in designing, developing and evaluating instructional media for specific teaching objectives. Involves working in the Learning and Resource Center. Prerequisite: C I 493 or equivalent.

611 MENTAL RETARDATION — MODERATE TO PROFOUND (3 + 0) 3 credits
The adaptive, biological and communication characteristics of the moderate, severe and profoundly retarded. Prerequisite: C I 310 or 409.

612 CURRICULUM: SEVERE LEARNING AND BEHAVIOR DISORDERS (3 + 0) 3 credits
Behavioral and learning management for children with severe disorders such as autism, extreme perceptual, thinking and communication disorders. Prerequisite: C I 311.

700 SUPERVISION OF STUDENT TEACHING (2 + 0) 2 credits
Designed primarily for public school teachers who are functioning as cooperating teachers in the student teaching program.

701 FIELD WORK AND CLINICAL PRACTICE IN READING (1 + 5) 3 credits
Practice in reading with emphasis upon clinical diagnosis, prognosis and remediation. Maximum of 6 credits. Prerequisite: C I 606.

702 READING CLINIC (1 + 5) 3 credits
Administration of the reading clinic. Observation, planning and management of the pupil's diagnosis and remediation as well as staffing and parent conference. Maximum of 6 credits. Prerequisite: C I 701.

705 ADVANCED STUDY OF HUMAN GROWTH AND DEVELOPMENT (3 + 0) 3 credits
Emphasis on implications of human growth and development for the curriculum. Application and examples directed to the teaching profession. Prerequisite: C I 270 or equivalent.

706 EDUCATIONAL USES OF TELEVISION (3 + 0) 3 credits
Analysis of trends in utilization of television and video tape recordings. Program production, evaluation and methods of teaching with these media.

707 MODERN TECHNOLOGY IN EDUCATION (3 + 0) 3 credits
New and emerging technological advances in multimedia systems of instruction. Included are programmed instruction, audio and visual media and communication labs. Emphasis on current research and experimentation in this area.

708 ADVANCED MEDIA DESIGN AND PRODUCTION (3 + 0) 3 credits
Comprehensive multi-media modules designed around individually chosen topics and produced in class. Emphasis placed on quality production, organization, continuity and effective communication of topic. Prerequisite: C I 491, 691 or equivalent.

710 ASSESSMENT OF THE SEVERELY HANDICAPPED (3 + 3) 4 credits
Assessment of the intellectual, motor, adaptive and behavioral functioning of severely handicapped children during various developmental periods. Includes practicum tailored to one area of severity. Prerequisite: C I 471, 671.

711 CLINICAL PRACTICE IN LEARNING DISABILITIES (3 + 0) 3 credits
Practical experience in learning disabilities to assess, prescribe and trial teach in a clinical situation. Prerequisite: C I 311, 418, CAPS 442 or equivalent.

713 ORGANIZATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Problems of organization of public school programs for exceptional children. Involves the planning and programs and facilities for the exceptional child in public and private institutions. Prerequisite: C I 413, 453.

714 CAREER AND COMMUNITY LIFE FOR SEVERELY HANDICAPPED (3 + 0) 3 credits
Theoretical and applied study of the self help, prevocational, career and community life needs of the moderate to profoundly handicapped, including the personal and community services available to help in their transition. Prerequisite: C I 417.

715 EDUCATION OF THE GIFTED (1 + 0 per credit) 2 or 3 credits
Consideration of educational programs and procedures to develop stimulating environments for the maximum development of gifted or superior children. Specific cases and demonstration. Prerequisite: C I 310.

716 TEACHING THE NEUROLOGICALLY HANDICAPPED (1 + 0 per credit) 2 or 3 credits
Principles, methods and materials appropriate for instruction of the neurologically handicapped.

717 BEHAVIOR DISORDERS (3 + 1) 3 credits
Survey of the field of behavior disorders including characreristics, contributing factors, and an overview of interventions in school and related settings.

719 SEVERE LEARNING DISABILITIES (3 + 0) 3 credits
Survey of the field of learning disabilities including characteristics, contributing factors, and an overview of interventions in school and related settings.

718 PSYCHOEDUCATIONAL PROBLEMS OF EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Study of research dealing with physical, mental, emotional and social characteristics of exceptional children. Emphasis on the implications of research for program development. Prerequisite: C I 413.

719 SEVERE LEARNING DISABILITIES (3 + 0) 3 credits
Survey of the field of learning disabilities including characteristics, contributing factors, and an overview of interventions in school and related settings.

720 ADVANCED METHODOLOGY (3 + 0) 3 credits
Study and evaluation of innovative teaching in elementary and secondary schools. Prerequisite: C I 451, 453 or 457 and a curriculum course.

721 EVALUATION OF CLASSROOM LEARNING (3 + 0) 3 credits
Construction and use of classroom tests, performance instruments, and other methods of evaluating learning. Prerequisite: C I 451, 453 or 457.

728 PROBLEMS IN TEACHING (1 + 0 per credit) 1 to 6 credits
Research projects required of each student in the field of special interest. (a) Social studies, (b) English, (c) science, (d) mathematics, (e) business education, (f) foreign language, (g) industrial education, (h) bilingual-bicultural education, (j) agricultural education. Maximum of 6 credits. Prerequisite: CAPS 700. (Same as AGED 728.)

740 ELEMENTARY SCHOOL CURRICULUM (1 + 0 per credit) 2 or 3 credits
Curriculum principles as found in the historical, philosophical, sociological and psychological foundations. Emphasis on methods and techniques that meet the needs of the child. Prerequisite: C I 640 or equivalent.

741 ADVANCED CURRICULUM DESIGN IN EARLY CHILDHOOD EDUCATION (3 + 0) 3 credits
Research and curriculum studies in content and procedures. Curriculum design projects undertaken. Prerequisite: C I 705.

742 FOUNDATIONS IN ELEMENTARY EDUCATION (3 + 0) 3 credits
Philosophical, historical, sociological and psychological foundations of elementary education. Includes integrated curriculum, unit teaching, inquiry and discovery, human relations in the classroom. Prerequisite: C I 740.

744 RESEARCH APPLICATIONS IN CURRICULUM AND INSTRUCTION (3 + 0) 3 credits
Analysis of methods of research appropriate to curriculum and instruction. Application of these methods to a specific problem. Prerequisite: minimum of 9 graduate credits in education.

746 SECONDARY SCHOOL CURRICULUM (3 + 0) 3 credits
Study and discussion of development and improvement of curriculum practices, with special stress upon working out procedures suited to this area. Prerequisite: C I 440 or other curriculum course.

748 ADVANCED CURRICULUM DESIGN FOR EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Recent developments in curriculum design for exceptional children including consideration of programmed instruction and operant procedures. Prerequisite: C I 416, 417 or 418.

750 INTERNSHIP IN CURRICULUM AND INSTRUCTION (0 + 2 per credit) 3 to 6 credits
Application of course content included in C I 742 or 746 in the classroom under the supervision and direction of local school system personnel and university staff members. Prerequisite: C I 742 or 746. (Same as AGED 763.)

753 SUPERVISION AND FIELD WORK WITH EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Practicum in (a) mental retardation, (b) learning disabilities, (c) gifted, (d) behavior disorders. Maximum of 6 credits. Prerequisite: C I 413, 453, 748.

755 SUPERVISED TEACHING IN EDUCATION (1 + 1 per credit) 2 or 3 credits
Directed experience in college teaching consisting of the preparation, presentation and testing of material for undergraduate students in lectures, discussion sections or labs. Prerequisite: undergraduate major in the subject or equivalent.

770 SEMINAR IN EARLY CHILDHOOD EDUCATION (3 + 0) 3 credits
Observation, study and research in early childhood education. Problems of organization, administration and evaluation of programs. Prerequisite: C I 705.

771 SEMINAR IN ELEMENTARY EDUCATION 1 to 6 credits
Problems of organization, administration, curriculum, methodology, evaluation, public relations. Review of research procedures. (a) Curriculum, (b) advanced methods, (c) diagnosis and remedial, (d) evaluation, (e) administration and supervision, (f) research. Prerequisite: certification for teaching.

772 SEMINAR IN SPECIAL EDUCATION 1 to 6 credits
Consideration of special problems in organization, administration, curriculum, construction of materials, methodology and evaluation: (a) severe mentally retarded, (b) physically handicapped, (c) gifted or rapid learner, (d) emotionally handicapped, (e) culturally deprived, (f) severe learning disabilities.

773 SEMINAR IN SECONDARY EDUCATION (1 + 0 per credit) 1 to 6 credits
Study of a topic or topics of current importance in secondary curriculum, methodology, evaluation and materials. Maximum of 6 credits. Prerequisite: certification for teaching.

776 SEMINAR IN MULTICULTURAL EDUCATION (1 + 0 per credit) 1 to 6 credits
Detailed analysis of selected aspects of recent developments in methodology and pedagogical materials designed to instruct Black American, Native American, Spanish-speaking American, Asian American and other minority culture students. Maximum of 6 credits. Prerequisite: C I 420 or 620.

778 SEMINAR IN TEACHING WRITING (1 + 0 per credit) 1 to 6 credits
(See ENGL 778 for description.)

791 SPECIAL TOPICS (0 + 1) 1 credit
Selected problems related to curriculum and instruction: (a) reaching problems, (b) curriculum, (c) supervision, (d) programmed instruction, (e) elementary, (f) junior high school, (g) senior high school, (h) area problems, (j) research. Maximum of 6 credits. Prerequisite: C I 440 or equivalent.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 12 credits

Inactive Courses

349 TEACHING OF SECONDARY MUSIC (2 + 0) 2 credits
371 UNDERSTANDING CHILD BEHAVIOR (1 + 0 per credit) 2 or 3 credits
374 HEALTH INSTRUCTION METHODS FOR SECONDARY TEACHERS (2 + 0) 2 credits
438, 638 LITERATURE FOR CLASSROOM USE (3 + 0) 3 credits
450, 650 TEACHING SKILL DEVELOPMENT TECHNIQUES (1 + 3) 2 credits
460, 660 ADULT EDUCATION (1 + 0 per credit) 1 to 6 credits
470, 670 ADVANCED STUDY OF PROBLEMS IN CHILD DEVELOPMENT (1 + 0 per credit) 2 or 3 credits
774 SEMINAR IN VOCATIONAL AND INDUSTRIAL EDUCATION (3 + 0) 3 credits

ECONOMICS (EC)

101 PRINCIPLES OF MACROECONOMICS (3 + 0) 3 credits
Introduction to the determination of levels of national income, employment and prices and the basic causes of fluctuations of these levels.

102 PRINCIPLES OF MICROECONOMICS (3 + 0) 3 credits
Introduction to the theory of relative prices; the allocation of productive resources among alternative uses in the production of national output and its distribution.

103 INTRODUCTION TO ECONOMIC EDUCATION (3 + 0) 3 credits
Introduction and survey of current issues and problems in both macro and micro economic areas. Economic tools, concepts and terminology are developed as well as applications related to the teaching of economics. Primarily for education majors. May not substitute for either EC 101 or 102.

261 PRINCIPLES OF STATISTICS I (3 + 0) 3 credits
Probability and major probability distributions; sampling theory; descriptive statistics; measures of central tendency and dispersion; index figures; time series. Prerequisite: MATH 110 or equivalent.

262 PRINCIPLES OF STATISTICS II (3 + 0) 3 credits
Statistical inference, estimation, hypothesis testing; simple linear regression and correlations; analysis of the variance. Prerequisite: EC 261.

UPPER-DIVISION COURSES: Business majors must have satisfactorily completed the entire lower-division business core (see section on *Upper-Division Courses* in the College of Business Administration section).

301 COMPARATIVE ECONOMIC SYSTEMS (3 + 0) 3 credits
Analysis of the economic institutions of capitalism and other economic systems. Prerequisite: EC 101, 102.

303 MONEY AND BANKING (3 + 0) 3 credits
Nature and functions of money, functions and history of banks, Federal Reserve System; monetary theory and policy in relation to employment, growth and price levels. Prerequisite: EC 101, 102.

321 INTERMEDIATE PRICE THEORY (3 + 0) 3 credits
Analysis of the price mechanism and the determination of resource allocation, output composition and income distribution in a market economy. Prerequisite: EC 101, 102.

322 INTERMEDIATE INCOME THEORY (3 + 0) 3 credits
Analysis of income, output, employment, and price-level determination in a market economy. The role of fiscal and monetary policy in promoting stability and growth. Prerequisite: EC 101, 102.

365 LABOR ECONOMICS (3 + 0) 3 credits
Theoretical materials relating to the economic analysis of labor problems and the descriptive materials relating to unionism and collective bargaining. Prerequisite: EC 101, 102.

367 COMPARATIVE LABOR MOVEMENTS (3 + 0) 3 credits
Analysis of labor movements of Europe and developing countries emphasizing the relationships between unions, political parties, and governments; the importance of collective bargaining and union structure. Prerequisite: EC 101, 102.

403, 603 MONETARY AND FINANCIAL ECONOMICS (3 + 0) 3 credits
Detailed analysis of the role played by money and monetary institutions in the determination of the general levels of output, employment and prices. Prerequisite: EC 303.

410, 610 SEMINAR IN SOCIAL ECONOMICS (3 + 0) 3 credits
Advanced analysis of current economic problems. Maximum of 6 credits. No topic may be repeated for credit.

411, 611 ECONOMIC AND SOCIAL ASPECTS OF GAMING AND GAMBLING (3 + 0) 3 credits
Analysis of topics relevant to gambling, including game strategies and odds-making, gambling behavior, economics of the gaming industry, compulsive gambling and gambling and the law.

431, 631 INTRODUCTION TO MATHEMATICAL ECONOMICS (3 + 0) 3 credits
Mathematical formulation of economic theory with principal consideration given to the construction of deterministic models of economic behavior. Prerequisite: MATH 265, EC 321.

441, 641 INTRODUCTION TO ECONOMETRICS (3 + 0) 3 credits
Application of statistical techniques for the purpose of testing and explaining economic relationships; integration of economic theory with observed economic phenomena. Useful for economic and business forecasting. Prerequisite: EC 101, 102, 262 or equivalent.

451, 651 PUBLIC FINANCE (3 + 0) 3 credits
Appraisal of the effects of government financial policies. Government expenditures, taxation, government borrowing and indebtedness and fiscal policy are considered. Prerequisite: EC 101, 102.

454, 654 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY (3 + 0) 3 credits
Interrelationships between industrial structure, conduct and performance. Implications for public policy with an emphasis on antitrust law. Prerequisite: EC 101, 102.

456, 656 ECONOMICS OF REGULATED INDUSTRIES (3 + 0) 3 credits
Economic and legal bases of the public utility concept; rate base regulation, rate structures in electric, gas and communication industries; public power; the transportation industry. Prerequisite: EC 101, 102.

457, 657 LAW AND POLITICS (3 + 0) 3 credits
Examines economic efficiency implications and objectives of legal institutions and legal rulemaking; including common law, public regulation of the market and legal procedures. Prerequisite: EC 102.

458, 658 INTERNATIONAL ECONOMICS (3 + 0) 3 credits
Analysis of the theory of international trade, balance of payments, commercial policies; international institutions and theory of international economic integration. Prerequisite: EC 101, 102.

459, 659 FUTURE DEVELOPMENT (3 + 0) 3 credits
Introduction to the world's development problems such as population, food, scarcity of nonrenewable resources, growing inequality between nations and within nations, possible socioeconomic consequences of those problems. Prerequisite: EC 101, 102.

460, 660 AMERICAN ECONOMIC SYSTEM (3 + 0) 3 credits
Current problems and issues in the American economic system. Development of the economic tools of analysis necessary for an examination of a market economy. Prerequisite: current teaching certificate and course background in the social science areas of economics, political science or history. Not available to majors in the College of Business Administration.

463, 663 ECONOMIC HISTORY OF EUROPE (3 + 0) 3 credits
Economic and social background of European national and international development with emphasis upon the period 1500 to present. Prerequisite: EC 101, 102.

464, 664 ECONOMIC HISTORY OF THE UNITED STATES (3 + 0) 3 credits
Origin and development of economic institutions including industry, agriculture, commerce, transportation, labor and finance. Analysis of the economic progress of the U.S. Prerequisite: EC 101, 102.

471, 671 URBAN ECONOMICS (3 + 0) 3 credits
Exploration of the foundation of urban economic theory and planning. Primary emphasis placed upon research into urban problems and policy formulation.

472, 672 REGIONAL ECONOMICS (3 + 0) 3 credits
Systematic analysis of the problems of economic growth and stability of subnational regions. Trade, location, interregional competition and structural economic analyses are considered. Prerequisite: EC 101, 102. (Same as AGEC 472.)

481, 681 HISTORY OF ECONOMIC DOCTRINES (3 + 0) 3 credits
Development of classical political economy; the orthodox tradition in political economy in the 19th century; the foundation of economic doctrine in the 20th century. Prerequisite: EC 101, 102.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

703 ADVANCED MONETARY AND FINANCIAL ECONOMICS (3 + 0) 3 credits
Comprehensive and critical examination of monetary theories. Major topics include the quantity theory, liquidity preference theory, money markets and money in macroeconomic markets. Prerequisite: EC 322.

721 ADVANCED PRICE THEORY (3 + 0) 3 credits
Advanced analysis of production, pricing, resource allocation and income distribution. Prerequisite: EC 321.

722 ADVANCED INCOME THEORY (3 + 0) 3 credits
Advanced analysis of the determinants of national income and the price level. Theories of growth and fluctuations in the economic system. Prerequisite: EC 322.

731 QUANTITATIVE METHODS IN ECONOMICS (3 + 0) 3 credits
Selected topics in the uses of mathematics and statistics in economic analysis. Prerequisite: EC 262, MATH 265.

751 ECONOMICS OF THE PUBLIC SECTOR (3 + 0) 3 credits
Theory of local, state and federal expenditures and revenues. Economic effects of alternative policies and decision-making processes of the public sector are emphasized. Prerequisite: EC 451.

759 ECONOMIC GROWTH AND DEVELOPMENT (3 + 0) 3 credits
Economic, social and political factors in economic development with special emphasis on low income countries. Programs for accelerated development and problems of financing are considered. Prerequisite: EC 458, 459.

764 SEMINAR IN AMERICAN ECONOMIC HISTORY (3 + 0) 3 credits
Advanced analysis of trends in U.S. economic history, including the industrialization process, economic factors influencing the Civil War, the Great Depression and post-World War II economic growth. Prerequisite: EC 464.

765 SELECTED TOPICS IN LABOR ECONOMICS (3 + 0) 3 credits
Analysis of labor force concepts and measurements, labor markets and labor mobility, wage theory and collective bargaining and macroeconomic behavior of employment and earnings. Prerequisite: EC 365.

781 SEMINAR IN ECONOMIC DOCTRINES (3 + 0) 3 credits
Development of the critical method in the study of economic doctrines. Prerequisite: EC 481.

793 INDEPENDENT STUDY 1 to 3 credits
Advanced study and research in selected topics. Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

109 ECONOMIC GEOGRAPHY (3 + 0) 3 credits
200 ECONOMIC DEVELOPMENT OF WESTERN CIVILIZATION (3 + 0) 3 credits
208 ECONOMICS OF SOCIAL INCOME REPORTING (3 + 0) 3 credits
473, 673 BUSINESS FLUCTUATIONS AND FORECASTING (3 + 0) 3 credits
772 REGIONAL ECONOMICS (3 + 0) 3 credits

EDUCATION

(See separate listings for:)

Counseling and Guidance Personnel Services (CAPS)
Curriculum and Instruction (C I)
Educational Administration and Higher Education (EAHE)

EDUCATIONAL ADMINISTRATION AND HIGHER EDUCATION (EAHE)

101 EDUCATIONAL EXPERIENCE I (3 + 0) 3 credits
Introduction to the basic philosophical, sociological, psychological, historical, legal and anthropological foundations of education. Prerequisite for upper-division courses in education. Meets state certification requirements in Nevada school law.

421, 621 EDUCATION IN DEVELOPING NATIONS (3 + 0) 3 credits
Interrelations of education with economic, political and social development in selected Latin American, African, Asian and Native American cultures. The foregoing enhances an individual's ability to identify materials and understand the methodologies essential to functioning appropriately in a multi-cultural context.

422, 622 SEMINAR IN EDUCATION IN DEVELOPING NATIONS (3 + 0) 3 credits
Intensive study of student-selected topics dealing with current policies for educational development in Latin America, Africa, Asia and Native American cultures. Prerequisite: EAHE 421, 621 or equivalent.

700 BASIC PRINCIPLES OF EDUCATIONAL ADMINISTRATION (3 + 0) 3 credits
Foundational course for graduate students interested in school administration. Treatment of the major areas of school operations.

701 ADMINISTRATION OF SCHOOL STAFF PERSONNEL (3 + 0) 3 credits
Recruitment, selection, placement of teachers; orientation of new teachers; staff participation in salary scheduling and other aspects of economic welfare of teachers; administrator-teacher relations; codes of ethics; merit rating; certification, tenure. Prerequisite: EAHE 700 or equivalent.

702 SCHOOL MANAGEMENT AND DECISION MAKING (3 + 0) 3 credits
Discussion of administrative theory and practice in the context of the school setting. Needs assessment, goal setting, planning and decision making will be examined.

703 ADMINISTRATION AND CURRICULUM IMPROVEMENT (3 + 0) 3 credits
Clarifies the role of the administrator in improving curriculum and instruction in public schools.

704 ADMINISTRATION OF THE JUNIOR AND COMMUNITY COLLEGE (2 + 0) 2 credits
Presents the principles, policies and procedures for organizing and administering the junior and community college.

705 SEMINAR IN ADMINISTRATIVE PROBLEMS (0 + 1 per credit) 1 to 4 credits
Provides opportunity for advanced students to select and analyze current problems and to develop proposed solutions to such problems. Current related issues discussed. Maximum of 4 credits. Prerequisite: EAHE 700, 702 or equivalent.

706 ADMINISTRATION OF SPECIAL PROGRAMS (3 + 0) 3 credits
Treatment is given to the administration and supervision of specific school programs such as guidance services, pupil personnel services, vocational-technical and special education. Prerequisite: EAHE 700, 702 or equivalent.

707 SEMINAR IN ADMINISTRATION OF COMMUNITY COLLEGES (0 + 1 per credit) 1 to 4 credits
Organization and administration of community colleges. Emphasis on differences in the nature of the program generally offered by community colleges and staffing procedures. Prerequisite: master's degree.

709 THE ADMINISTRATOR AND COMMUNITY COLLEGE CURRICULUM (3 + 0) 3 credits
Treatment is given to the unique nature of the curriculum of the community college and the justification of such offerings. Prerequisite: EAHE 707.

710 THE PRINCIPALSHIP (3 + 0) 3 credits
Gives specific treatment to the administration of the school unit at the elementary, middle school, junior high and senior high levels. Prerequisite: EAHE 700, 702 or equivalent.

711 ARTICULATION OF POSTSECONDARY EDUCATION CURRICULA (3 + 0) 3 credits
Emphasis is placed on the necessity for continuity of the curriculum of secondary education, the community college and colleges and universities. Prerequisite: EAHE 704, 707.

712 HISTORY OF EDUCATION (3 + 0) 3 credits
Development of educational thought and practice in Western civilization.

713 HISTORY OF EDUCATION IN THE UNITED STATES (3 + 0) 3 credits
Factors and conditions which have been influential in the shaping of educational thought, ideals, theories and practices of current American education.

715 THE PROCESS OF SUPERVISION (3 + 0) 3 credits
Specific techniques and systems to supervise instruction. Review of instrumentation and development of skills related to administrative supervision. Prerequisite: EAHE 700, 702 or equivalent.

716 SUPERVISORY THEORIES (3 + 0) 3 credits
Teaching models and techniques for supervisors to systematically improve instruction and curriculum in a variety of organizational climates. Prerequisite: EAHE 715 or equivalent.

718 SOCIAL FOUNDATIONS OF EDUCATION (3 + 0) 3 credits
Emphasizes the changing role of our educational system in meeting demands of our post-industrial society.

719 PHILOSOPHY OF EDUCATION (3 + 0) 3 credits
Examination and analysis of philosophical issues in education with particular reference to noted traditional and contemporary philosophers. Importance of developing a consistent personal philosophy of education.

720 ADVANCED PHILOSOPHY OF EDUCATION (3 + 0) 3 credits
Critical analysis and evaluation of philosophies of education. Implications for practice of progmatism, logical empiricism and existentialism. Prerequisite: EAHE 719 or equivalent.

721 COMPARATIVE EDUCATION IN DEVELOPED NATIONS (3 + 0) 3 credits
Comparative study of national ideologies and educational philosophies, and systems of education with emphasis upon Great Britain, France, the Union of Soviet Socialist Republics, Peoples Republic of China and Japan. Prerequisite: EAHE 421 or 621, 422 or 622 or in-depth cross-cultural experience.

722 CRUCIAL ISSUES IN EDUCATION (3 + 0) 3 credits
Problem analysis of timely issues in education analyzing their legal, historical, sociological and philosophical dimensions with focus on problems of continuing concern. Prerequisite: CAPS 700.

725 PUBLIC SCHOOL FINANCE (3 + 0) 3 credits
Study of local, state and federal revenue sources used to support public education. State aid, taxation and current issues are emphasized. Prerequisite: EAHE 700, 702 or equivalent.

726 SCHOOL BUSINESS MANAGEMENT (3 + 0) 3 credits
The administration of school insurance, transportation, food services, purchasing, inventory control, state and federal accounting systems and budgeting procedures. Prerequisite: EAHE 725 or equivalent.

727 SEMINAR IN SCHOOL FINANCE
(0 + 1 per credit) 1 to 4 credits
Specific problems related to financing public education on the local, state and national levels. Prerequisite: EAHE 725 or 726.

730 THE EDUCATIONAL PLANT (3 + 0) 3 credits
Specialized classroom treatment to the theoretical and practical procedures in developing educational specifications for the school plant and planning the school survey. Prerequisite: EAHE 730 or equivalent.

731 SCHOOL SURVEYS AND EDUCATIONAL FACILITIES
(3 + 0) 3 credits
Master planning for school districts involving the details of programming, site selection, construction, equipment and student enrollment projections. Laboratory work. Prerequisite: EAHE 700, 702 or equivalent.

734 ORGANIZATION, LAW, AND FINANCE IN SPECIAL EDUCATION
(3 + 0) 3 credits
Study of federal and state statutes, regulations, case law, finance, and grant programs. Includes policy and procedural issues.

735 THE LAW OF PUBLIC EDUCATION (3 + 0) 3 credits
Examination of statutory and case law with special consideration given to litigation relating to teachers and students. Emphasis on due process requirements. Prerequisite: EAHE 700, 702 or equivalent.

740 THE LAW OF PUBLIC EDUCATION II (3 + 0) 3 credits
Legal authority of the public school with special consideration given to legal issues facing boards of education. Topics include: tort liability, religion and censorship. Prerequisite: EAHE 700, 702 or equivalent.

741 POLITICS POLICY AND ETHICS (3 + 0) 3 credits
Emphasis on national, state and local political structures and processes including the origin and appraisal of school policies. Key constituencies to be discussed. Prerequisite: EAHE 700, 702 or equivalent.

742 ADMINISTRATION OF VOCATIONAL EDUCATION PROGRAMS (3 + 0) 3 credits
Responsibilities of the administrator and directors of vocational and technical programs in the public schools and community colleges.

743 PUBLIC RELATIONS FOR SCHOOLS (3 + 0) 3 credits
Principles and practices pertaining to public relations, including the role of professional and classified personnel as well as the public.

746 COORDINATION OF COOPERATIVE EDUCATION PROGRAMS
(3 + 0) 3 credits
The administrator has leadership responsibilities in developing an understanding of the philosophy underlying cooperative education, which includes business and office education, distributive education, home economics, industrial education, etc. Prerequisite: EAHE 742.

752 SEMINAR IN COLLEGE TEACHING (1 + 0 per credit) 2 to 5 credits
Topics include: (a) methods of teaching; (b) theories of learning; (c) modern technology in teaching; (d) evaluation and measurements; (e) social foundations of higher education. Prerequisite: recommendation by chairman of student's major.

791 SPECIAL TOPICS (0 + 1 per credit) 1 to 4 credits
Literature review and analysis of assigned topics focusing on contemporary and future issues in school administration and other issues related to the school setting. Prerequisite: EAHE 700, 702 or equivalent.

792 SPECIAL PROBLEMS (1 + 0 per credit) 1 to 4 credits
Individual or group research projects in various areas of school administration and issues related to the public school setting. Prerequisite: EAHE 700, 702 or equivalent.

793 INDEPENDENT STUDY (0 + 1 per credit) 1 to 4 credits
Supervised readings with conferences. Maximum of 4 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP (0 + 2 per credit) 3 to 9 credits
Practical experience in the student's major field under close supervision and direction of local school system personnel and university staff members. Experience areas selected by student, adviser and department chairman. Prerequisite: approval of student's advisory committee.

799 DISSERTATION 1 to 12 credits

ELECTRICAL ENGINEERING (E E)

198, 298, 398, 498 COOPERATIVE TRAINING REPORT (1 + 0) 1 credit
Preparation of written reports based on cooperative program assignments. Required of all students in cooperative programs during the summer or other semesters when on work assignments with cooperative program employers.

202 MATERIALS IN ELECTRICAL ENGINEERING (3 + 0) 3 credits
Properties, tests and uses of materials in electrical engineering. Structural materials, conductors, insulators, semiconductors, magnetic materials. Prerequisite: CHEM 101. Corequisite: PHYS 202, M E 241.

212 INTRODUCTION TO NETWORK ANALYSIS (3 + 0) 3 credits
Introduction to analysis methods and network theorems used to describe operation of electric circuits. Includes resistive, capacitive and inductive components in DC and AC circuits. Prerequisite: PHYS 202.

231 COMPUTERIZED MATRIX ALGEBRA (2 + 0) 2 credits
Engineering programming applications with emphasis on vector space, its basis and transformations and computer solutions of linear equations. Introduction to FORTRAN. Prerequisite: C S 183.

240 ELECTRICAL INSTRUMENTATION FOR THE HEALTH SCIENCES
(2 + 3) 3 credits
Theory and application of electrical devices for measurement, monitoring and control of life processes and functional substitutes. Prerequisite: college algebra.

291-292 ELECTRICAL PROJECTS LABORATORY
(0 + 3 or 6) 1 or 2 credits each
Offers the opportunity to undertake an independent project of the student's own interest, upon individual arrangement with a staff member. Maximum of 4 credits.

301 PRINCIPLES OF ELECTRICAL MEASUREMENT (1 + 3) 2 credits
Introduction to the theory and use of electrical instruments for measuring voltage, current, power and element values. Use of the oscilloscope is emphasized. Prerequisite: E E 202, 212.

302 ELECTRONICS/MACHINERY LABORATORY (1 + 3) 2 credits
Design, construction, and testing of electronic circuits, integrated circuit measurements, motor, generator and transformer tests and characteristics. Experiments reflect course work in C S 333, E E 311, 350, 372 which are prerequisites.

311 CIRCUITS AND SYSTEMS (3 + 0) 3 credits
Analysis and design of linear circuits and systems in the time and frequency domains. Topics include linear algebra, Laplace and Fourier transforms and system modeling. Prerequisite: E E 212, MATH 320.

337 COMPUTER ACQUAINTANCE FOR BIOLOGICAL SCIENCES
(2 + 2) 3 credits
Introduction to the computer and its applications. BASIC programming, word processing, data file management, use of statistical packages, and other applications. Prerequisite: elementary algebra. (Not open to engineering majors.) (Same as BIOL 325.)

339 COMPUTER ACQUAINTANCE (1 + 0) 1 credit
Beginning acquaintance with programming language and the digital computer. Intended for nontechnical students, particularly prospective teachers. Prerequisite: elementary algebra or junior standing. (Not open to engineering majors.)

340 ELECTRONICS FOR MEDICAL APPLICATIONS (2 + 3) 3 credits
Electrical and electronic theory for life processes and functional substitute applications. Prerequisite: MATH 216, college physics.

350 POWER SYSTEM FUNDAMENTALS (3 + 0) 3 credits
Basic power system analytical concepts, three-phase systems, phasors, impedance, steady-state network analysis, normalization, transmission lines, transformers, synchronous machines. Prerequisite: E E 212. Corequisite: E E 311.

355 ELECTRIC AND MAGNETIC FIELDS (3 + 0) 3 credits
Vector analysis approach to electric and magnetic fields and of Maxwell's equations. Prerequisite: E E 212, PHYS 202, MATH 217 and Differential Equations.

372 INTRODUCTION TO ELECTRONICS (3 + 0) 3 credits
Principles of electronics. A study of active devices and their behavior in analog and digital circuits. An introduction to integrated circuits as building blocks in digital and analog circuits. Corequisite: E E 311.

375 PRINCIPLES OF ELECTRIC CIRCUITS AND MACHINES
(3 + 0 or 3) 3 or 4 credits
Characteristics of DC and AC circuits and machines, electric controls and instruments, measurements of electric power and energy. Prerequisite: PHYS 210, MATH 217.

382, 582 ELECTRICAL COMMUNICATION (3 + 0) 3 credits
Basic information and communication theory. Study of information measure, noise measure, pulse and continuous signal modulation and detection systems. Prerequisite: E E 311, MATH 251.

386, 586 FEEDBACK CONTROL SYSTEMS (3 + 0) 3 credits
The theory, analysis and design of closed-loop systems primarily in the real and complex frequency domain. Prerequisite: E E 311, M E 342.

391-392 ELECTRICAL PROJECTS LABORATORY
(0 + 3 or 6) 1 or 2 credits each
An independent project of the student's own interest, upon individual arrangement with a staff member. Maximum of 4 credits.

401 ELECTRICAL PROJECTS LABORATORY (1 + 3) 2 credits
Theory and techniques of measurement on complex systems by electrical means. Prerequisite: E E 302.

404 DIGITAL ELECTRONICS LABORATORY (0 + 3) 1 credit
Experiments and reports corresponding to logic circuit realization of digital hardware. Emphasis is placed on TTL and CMOS families for combinatorial and sequential circuits. Microprocessor experiments. Corequisite: E E 473.

405, 605 MICROPROCESSOR LABORATORY (0 + 3) 1 credit
Design and development of a working microprocessor system with applications in hardware and software. Corequisite: E E 435, 635.

412, 612 ADVANCED NETWORK THEORY (3 + 0) 3 credits
Introduction to network synthesis procedures and computer aided design of networks. Prerequisite: E E 311, 372.

424, 624 INTEGRATED CIRCUIT ENGINEERING (2 + 3) 3 credits
Introduction to the design and fabrication of integrated circuits. Factors limiting integrated circuits specifications are considered and new technologies are studied. Prerequisite: E E 372.

425, 625 HYBRID INTEGRATED CIRCUIT ENGINEERING (2 + 3) 3 credits
Introduction to the design and fabrication of thick and thin film integrated circuits. Design, processing and applications are considered and new techniques are studied. Prerequisite: E E 372.

430, 630 NUMERICAL METHODS IN ELECTRICAL ENGINEERING
(2 + 3) 3 credits
Numerical analysis and digital computer applications. Prerequisite: MATH 320.

431, 631 DIGITAL COMPUTER ARCHITECTURE AND DESIGN
(3 + 0) 3 credits
Design of functional digital units—memory, arithmetic units, timing and input/output devices. Topics include coding, error detection, data flow, register transfer language. Prerequisite: C S 333. (Same as C S 431, 631.)

432, 632 ELECTRONIC CAD/CAM (3 + 0) 3 credit
The impact of the computer on the process of electronic system design, manufacture and test. Computer modeling, simulation and data interfacing to the manufacturing process. Student presentations on specialized topics.

434, 634 REAL TIME COMPUTING SYSTEMS (3 + 0) 3 credits
(See CH E 434, 634 for description.)

435, 635 MICROPROCESSORS (3 + 0) 3 credits
Elementary microprocessor principles founded in electrical engineering applications. Hardware, software and interface areas analyzed. Corequisite: E E 405, 605. Prerequisite: C S 333. (Same as C S 435, 635.)

437, 637 COMPUTER GRAPHICS (3 + 1) 3 credits
(See C S 437, 637 for description.)

438, 638 BIOMEDICAL INSTRUMENTATION (2 + 2) 3 credits
(See PHSY 438, 638 for description.)

439, 639 ADVANCED MICROPROCESSORS (2 + 3) 3 credits
System design for techniques with emphasis on hardware and software development for typical applications. Topics include arithmetic processing, parallel processing, advanced 8-bit and 16-bit machines. Prerequisite: E E 435.

451, 651 ELECTRICAL MACHINES (3 + 0) 3 credits
Fundamentals of transformers and rotating machines; dc, induction and synchronous machines. Prerequisite: E E 350.

455, 655 DISTRIBUTED SYSTEMS AND ANTENNA DESIGN
(3 + 0) 3 credits
Introduction to concept of distributed systems, wave propagation and antenna design. Prerequisite: E E 355.

460, 660 POWER SYSTEM ANALYSIS (3 + 0) 3 credits
Power flow, symmetrical componenrs, faulted system analysis, protection, stability. Prerequisite: E E 350.

461, 661 ELECTRIC POWER DISTRIBUTION (3 + 0) 3 credits
Distribution components, load characteristics, voltage calculations, primary and secondary systems, transformers, capacitor applications. Prerequisite: E E 350.

462 ENGINEERING DESIGN/ANALYSIS (4 + 0) 4 credits
Proposal writing, design and fabrication of a suitable project selected by the student, following procedures used by industry for product design and development. Prerequisite: E E 372.

464, 664 POWER SYSTEM PROTECTION (3 + 0) 3 credits
Elements of protective systems, relays, relaying schemes circuit interrupting devices, fault protection of radial feeders, network protective schemes and protective system reliability. Prerequisite: E E 350.

473, 673 DIGITAL ELECTRONICS (3 + 0) 3 credits
Hardware-related design considerations for combinatorial and sequential logic using integrated circuits. Includes TTL, CMOS, shift registers, arithmetic units, RAM, ROM and edge-triggered devices. Prerequisite: C S 333, E E 372.

481, 681 INTEGRATED ELECTRONICS (3 + 0) 3 credits
Examines circuit design and integrated circuit use with emphasis on operational amplifiers, active filters and analog applications. Prerequisite: E E 372.

482, 682 DATA COMMUNICATIONS AND COMPUTER NETWORKS
(3 + 0) 3 credits
(See C S 482 for description.)

483, 683 STOCHASTIC SYSTEMS (3 + 0) 3 credits
Introduction to stochastic systems. Includes review of concepts of random variable theory, functions of two random variables, mean square estimation, nonstationary process applications. Prerequisite: MATH 251, E E 382.

485, 685 MODERN SYSTEM THEORY (3 + 0) 3 credits
Modern techniques of system analysis and design, primarily in the time domain using state variable concepts. Prerequisite: E E 386.

486, 686 SAMPLED DATA CONTROL SYSTEMS (3 + 0) 3 credits
The analysis and control of feedback systems with discrete, digital and sampled data. Prerequisite: E E 386.

487, 687 SEMINAR 1 to 4 credits
Organized for advanced study and research under the direction of one or more staff members of the department. Maximum of 8 credits.

490, 690 ELECTRACOUSTICS (2 + 3) 3 credits
Theory of sonic and ultrasonic vibrations and acoustics, including electromechanical transducers. Prerequisite: E E 355.

492, 692 POWER ELECTRONICS (3 + 1) 3 credits
Semiconductor power switches. Rectifiers, a.c. voltage controllers, cycloconverters, choppers, inverters. Applications. Prerequisite: E E 350, 372.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Special projects or studies in electrical engineering. Maximum of 6 credits each. (Same as C S 495, 695.)

703 INFORMATION AND COMMUNICATION THEORY (3 + 0) 3 credits
(a) Information theory and coding, (b) continuous and pulsed communication systems, (c) optimum transmission and propagation techniques. Each topic may be taken for 3 credits. Prerequisite: E E 382.

713 PASSIVE AND ACTIVE NETWORKS (3 + 0) 3 credits
(a) Linear passive network synthesis, (b) linear active network synthesis. (c) nonlinear active network analysis. These courses are sequential. Prerequisite: E E 386.

715 NANOSECOND PULSE SYSTEMS (3 + 0) 3 credits
Analysis of nanosecond pulse generation, transmission and recording techniques, including study of pulse distortion. Prerequisite: E E 412, 485.

721 ADVANCED ELECTRONICS (3 + 0) 3 credits
(a) Low noise, wide band, and fast, amplifiers, active filters, (b) pulse, wave shaping and computing circuits. These courses are not sequential. Prerequisite: E E 311, 372.

731 ADVANCED SWITCHING THEORY (3 + 0) 3 credits
Shift register sequences, state assignments for edge-triggered circuits, logic decisions, multilevel logic, fault detecting and ripple design. Prerequisite: C S 333. (Same as C S 731.)

732 THEORY OF FINITE AUTOMATA (3 + 0) 3 credits
Finite-state automata: formal systems, functional decomposition, generators and acceptors, transition systems, algorithms and unsolvable problems. Prerequisite: C S 333. (Same as C S 732.)

741 ELECTROMAGNETIC FIELDS (3 + 0) 3 credits
(a) Energy and matter in stationary and moving systems, (b) radiating structures and systems. These courses are not sequential. Prerequisite: E E 355.

751 ELECTROMAGNETIC FIELD ANALYSIS I (1 + 0) 1 credit
Calculation of electromagnetic fields in two and three dimensions in air and in the presence of iron. Use of field analysis in high energy physics, electrodynamic forces, etc. Typical examples are solved using computer techniques. Prerequisite: E E 355.

752 ELECTROMAGNETIC FIELD ANALYSIS II (1 + 0) 1 credit
Continuation of E E 751. Prerequisite: E E 751.

753 DESIGN OF ELECTRICAL DEVICES (2 + 2) 3 credits
Industrial design of electric transformers and rotating machines. Complete examples of designs are worked through. Prerequisite: E E 451. Maximum of 9 credits.

757 UNCONVENTIONAL POWER SOURCES (1 + 0) 1 credit
Energy conversions devices and systems other than conventional rotating machines. Prerequisite: E E 372, 451.

761 SYNTHESIS OF SOLID-STATE DEVICES I (3 + 0) 3 credits
Development of the theory of solid-state devices, with particular emphasis on controlling material parameters so as to produce desired terminal characteristics. Study of the current literature is required. Prerequisite: E E 372.

762 SYNTHESIS OF SOLID-STATE DEVICES II (3 + 0) 3 credits
Principles of formation of solid-state devices to achieve the desired terminal characteristics. Energy level analysis is emphasized. Study of the current literature is required. Prerequisite: E E 372.

774 ADVANCED POWER SYSTEM ANALYSIS (3 + 0) 3 credits
(a) Computer solution of power system, (b) power system stability, (c) power system planning. Each topic may be taken for 3 credits. Prerequisite: E E 460.

781 MICROWAVES (3 + 0) 3 credits
Microwave devices and systems, including magnetrons, klystrons, traveling wave tubes and others and associated components and systems. Prerequisite: E E 455, 655.

783 MICROWAVE LABORATORY (0 + 3) 1 credit
Prerequisite: E E 372. Corequisite: E E 781.

784 COMPUTER LABORATORY (0 + 3) 1 credit
Non-von Neumann computer architectures, including principles of parallel processing and communication between multi-processors. Current developments in new architectures such as RISC and AI machines. Prerequisite: C S 333, E E 431 or 435. (Same as C S 784.)

786 ADVANCED CONTROL SYSTEM THEORY (3 + 0) 3 credits each
(a) Random signal response of systems, (b) computer modeling of systems, (c) nonlinear control systems. Each topic may be taken for 3 credits. Prerequisite: E E 386.

788 ADVANCED CONTROL SYSTEM THEORY II (3 + 0) 3 credits
System optimization and adaptive systems. Prerequisite: E E 485.

790 SEMINAR 1 to 3 credits
Organized study and research under direction and supervision (a) beginning (b) advanced. Maximum of 6 credits. (Same as C S 790.)

791 SPECIAL TOPICS 1 to 3 credits

792 SPECIAL PROBLEMS 1 to 2 credits
Special projects or studies in electrical engineering.

793 INDEPENDENT STUDY 1 to 3 credits

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 2 credits *S/U only.*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

ENGINEERING (ENGR)

201 ENGINEERING COMMUNICATION (2 + 2) 3 credits
Gathering and organization of information and the oral, written and visual presentation of that information and its meaning.

Inactive

204 ENGINEERING FOR SPACESHIP EARTH (3 + 0) 3 credits

ENGLISH (ENGL)

The prerequisite (or test score) requirements must be satisfied for registration in a course to be valid. Any exceptions require advance written approval by the department chairman or director.

New students must satisfy these test score requirements for initial placement; final placement is based on an essay written the first week of class.

	ACT	*SAT/Verbal*	*TSWE*
ENGL 1	*16 or below*	*399 or below*	*37 or below*
ENGL 101	*17 to 24*	*400 to 599*	*38 to 56*
ENGL 102	*25 to 36*	*600 to 800*	*57 or above*
ENGL 321 H, Honors level	*Requires junior classification*		

Nonnative English speaking students must present evidence of satisfactory TOEFL scores for initial placement in these courses:

ENGL 111	*500-525*
ENGL 112	*526-550*
ENGL 113	*551-600*
ENGL 114	*601 or higher*

Transfer students who have completed one or more college-level composition courses are exempt from the test score requirements.

English

1 DEVELOPMENTAL WRITING (2 + 1) 3 credits *S/U only*
Systematic review of grammar, punctuation, sentence structure, usage and spelling with practice in writing paragraphs and short essays. Both classroom and laboratory work are required. Credit not to apply toward any baccalaureate degree.

10 ORAL ENGLISH FOR NON-NATIVE SPEAKERS (3 + 0) 3 credits *S/U only*
Intensive, individualized, self-evaluative practice in the oral properties of English for professionals who need to improve their fluency (requires access to a learning laboratory or cassette recorders). Not acceptable as a substitute for ENGL 111-112. Offered by correspondence only.

11 ENGLISH LABORATORY FOR INTERNATIONAL STUDENTS (1 + 2) 2 credits
Training in conversation, reading and writing in English for international students. Designed for groups of visiting foreigners under special circumstances. Credit not to apply toward any baccalaureate degree.

101 COMPOSITION I (3 + 0) 3 credits
Practice in varieties of expository writing, with attention to organization, development, and mechanics.

102 COMPOSITION II (3 + 0) 3 credits
Continuation and extension of ENGL 101; includes fundamental bibliographic techniques of investigation and documentation. (H) designates Honors level for those with high ACT scores and superior writing skill.

111 ENGLISH AS A SECOND LANGUAGE I (2 + 3) 3 credits *S/U only*
Intensive practice in idiomatic English: speaking, listening, reading. Prerequisite: TOEFL score of 500 or higher.

112 ENGLISH AS A SECOND LANGUAGE II (2 + 3) 3 credits *S/U only*
Continuation of ENGL 111 with special emphasis on writing. Prerequisite: ENGL 111 or its equivalent.

113 COMPOSITION I FOR INTERNATIONAL STUDENTS (3 + 0) 3 credits
Practice in expository writing with emphasis on the application of grammar; includes essay test writing and the multiparagraph essay. Prerequisite: ENGL 112 or equivalent, or a TOEFL score of 550 or higher.

114 COMPOSITION II FOR INTERNATIONAL STUDENTS (3 + 0) 3 credits
Continuation and extension of ENGL 113; includes the annotated theme and practice in technological writing. Prerequisite: ENGL 113 or equivalent. Satisfies the English requirement for international undergraduate students.

131 INTRODUCTION TO LITERATURE (2 + 0) 2 credits
Introduction to fiction, poetry and drama.

181 VOCABULARY AND MEANING (2 + 0) 2 credits
Problems of meaning, word derivation and word formation are investigated with a view to enlarging and refining a working English vocabulary. Not acceptable for the field of concentration as a substitute for ENGL 281. (Offered by correspondence study only.)

223 THEMES OF LITERATURE (2 or 3 + 0) 2 or 3 credits
Themes and ideas significant in literature. Maximum of 6 credits.

235 ENGLISH LITERATURE TO 1800 (3 + 0) 3 credits
English writings and writers from the beginnings to about 1800, e.g., *Beowulf*, Chaucer, Shakespeare, Milton, Swift.

236 ENGLISH LITERATURE, 1800 TO THE PRESENT (3 + 0) 3 credits
English writings and writers from about 1800 to the present, e.g., Blake, Keats, Browning, Arnold, Yeats, Eliot.

241 SURVEY OF AMERICAN LITERATURE (3 + 0) 3 credits
Introduction to major American writers, e.g., Franklin, Whitman, Dickinson, Twain; and important literary trends. Designed to provide a general knowledge of American literature.

244 INTRODUCTION TO FICTION (2 or 3 + 0) 2 or 3 credits
Significant works of fiction from various languages, with attention to the novel and the short story as literary forms.

253 INTRODUCTION TO DRAMA (2 or 3 + 0) 2 or 3 credits
Reading of a variety of plays with attention to special characteristics of drama.

261 INTRODUCTION TO POETRY (2 or 3 + 0) 2 or 3 credits
Reading and discussion of selected British and American poems with attention to form and content.

263 LITERATURE AND SOCIETY (3 + 0) 3 credits
Literature within its various social contexts. Includes such topics as the protrayal of society in literature and the social responsibility of the artist.

264 LITERATURE AND PSYCHOLOGY (3 + 0) 3 credits
Relationships between literature and human psychology. Includes such topics as the portrayal of consciousness in literature and the application of psychological insights.

265 NATURE IN LITERATURE (2 + 0) 2 credits
Literary expressions of man's conceptions of nature.

266 POPULAR LITERATURE (2 or 3 + 0) 2 or 3 credits
Various forms of popular writing, e.g., best-seller, the western, science fiction, the detective story.

267 WOMEN AND LITERATURE (3 + 0) 3 credits
Women writers and the ways in which women are portrayed in literature.

268 LITERATURE AND RELIGION (3 + 0) 3 credits
Literary expressions of religious experience.

271 INTRODUCTION TO SHAKESPEARE (3 + 0) 3 credits
Shakespeare's principal plays read for their social interest and their literary excellence. Not intended for students selecting a field of concentration in English.

272 KING ARTHUR AND HIS KNIGHTS (3 + 0) 3 credits
Origins and development of the Arthurian legends with readings from medieval and modern versions of the Arthurian stories.

273 CHILDREN'S LITERATURE (3 + 0) 3 credits
A historical survey of children's literature from the 18th century to the present, emphasizing fantasy, fable and fairy tale by such writers as Kenneth Grahame, C.S. Lewis and E.B. White.

275 CONTEMPORARY LITERATURE (2 or 3 + 0) 2 or 3 credits
Selected contemporary writers for understanding and appreciation. Emphasis on British and American figures.

281 INTRODUCTION TO LANGUAGE (3 + 0) 3 credits
Nature and function of language, including an introduction to the linguistic subsystems of modern English and the development of the English language.

291 INTRODUCTION TO LITERARY STUDY (3 + 0) 3 credits
Training in literary analysis. Designed for students intending to take upper-division courses in English.

292 GREAT BOOKS: THE GREEKS TO DANTE (3 + 0) 3 credits
Important writers of Western culture in translation, e.g. Homer, the Greek dramatists, Virgil, Ovid, Dante. (Same as FLL 292.)

293 GREAT BOOKS: THE RENAISSANCE TO THE PRESENT (3 + 0) 3 credits
Important writers from the Renaissance to the present in translation, e.g., Racine, Moliere, Voltaire, Goethe. (Same as FLL 293.)

301-302 IDEAS, VALUES AND CULTURES I AND II (3 + 0) 3 credits each
Ideas, values and cultures as they relate to conceptions of man, society and the cosmos. Based on both Western, non-Western and woman's primary source material.

305-306 FUNDAMENTALS OF CREATIVE WRITING: FICTION (3 + 0) 3 credits each
Conducted as a writer's workshop in fiction. Continued as ENGL 405-406. Prerequisite: submission of a sample of superior creative work to instructor.

307-308 FUNDAMENTALS OF CREATIVE WRITING: POETRY (3 + 0) 3 credits each
Conducted as a writer's workshop in poetry. Continued as ENGL 407-408. Prerequisite: submission of a sample of superior work to instructor.

321 EXPOSITORY WRITING (3 + 0) 3 credits
Advanced composition in various forms of expository prose with attention to structural and stylistic problems.

322 ADVANCED EXPOSITORY WRITING (3 + 0) 3 credits
Continuation of ENGL 321 with attention to the development of a distinctive writing style. Prerequisite: ENGL 321.

335 THE ISLAMIC TRADITION (3 + 0) 3 credits
Study of the Qur'an and other literary texts of classical Islamic culture, including poetry, history, science, philosophy and their relation to Greek and Christian cultures.

337 THE BIBLE AS LITERATURE (3 + 0) 3 credits
Readings from the Old and New Testaments studied in literary, historical and cultural contexts.

339 MYTHOLOGY AND FOLKLORE (3 + 0) 3 credits
Introduction to early literature as a revelation of the human mind with some attention to folkloristic methodology.

340 MYTH AND ARCHETYPE (3 + 0) 3 credits
Modes of relationship between mythic patterns and literary expression.

341 LITERATURE OF NEVADA AND THE FAR WEST (2 + 0) 2 credits
Fiction and nonfiction of the American West by, e.g., Twain, London, Cather, Clark, Stegner.

345 LITERATURE OF ETHNIC MINORITIES IN THE U.S. (3 + 0) 3 credits
Literature of ethnic groups within the American population, such as American Indians, Blacks, Basques and Chicanos.

355 MODERN DRAMA (3 + 0) 3 credits
Drama from various nations from the late 19th century through about 1945 including, e.g., Ibsen, Chekhov, Shaw, theatre of the absurd. (Same as FLL 355.)

356 CONTEMPORARY DRAMA (3 + 0) 3 credits
Treats selected plays of the recent theatre, including current productions here and abroad.

358 SHAKESPEARE FESTIVAL (1 + 0) 1 credit
One-week field trip to Ashland, Oregon, to attend the Oregon Shakespearean Festival. Offered only during summer sessions. Not applicable toward an advanced degree in English.

366 GREAT NOVELS IN TRANSLATION (3 + 0) 3 credits
Masterpieces of 19th and 20th century fiction by such authors as Balzac, Flaubert, Dostoevsky, Tolstoy, Proust, Kafka, Mann, Camus. (Same as FLL 366.)

404, 604 APPLIED LINGUISTICS (3 + 0) 3 credits
Modern approaches to language and linguistics. Prerequisite: ENGL 281.

405-406, 605-606 ADVANCED TRAINING IN CREATIVE WRITING: FICTION (3 + 0) 3 credits each
Continuation of ENGL 305-306.

407-408, 607-608 ADVANCED TRAINING IN CREATIVE WRITING: POETRY (3 + 0) 3 credits each
Continuation of ENGL 307-308.

410, 610 DESCRIPTIVE GRAMMAR (3 + 0) 3 credits
Modern English grammar and usage. Prerequisite: ENGL 281.

411, 611 LINGUISTICS (3 + 0) 3 credits
Studies in general linguistics. Prerequisite: ENGL 281 or 282. (Same as ANTH 411.)

413, 613 HISTORY OF THE LANGUAGE (3 + 0) 3 credits
History of English from its beginnings to the present. Prerequisite: ENGL 281.

414, 614 HISTORICAL LINGUISTICS (3 + 0) 3 credits
General principles of historical and comparative linguistics. Theories of language origin, methods of classifying language, processes of language change, techniques of reconstructing older forms of languages. Prerequisite: ENGL 281. (Same as ANTH 414, 614.)

415, 615 PHONEMICS AND COMPARATIVE PHONETICS (3 + 0) 3 credits
Phonetic phonemena that occur in languages of the world. Phoneme concept as applied to the analysis of speech sounds. Phonological structures. Prerequisite: ENGL 281 or SPA 259. (Same as ANTH 415.)

416, 616 LINGUISTIC FIELD METHODS (2 + 3) 3 credits
(See ANTH 416 for description.)

417 OLD ENGLISH (3 + 0) 3 credits
Old English language and literature for undergraduate students. Prerequisite: ENGL 281.

418 BEOWULF (3 + 0) 3 credits
Beowulf and the Germanic Heroic Age for undergraduate studenrs. Prerequisite: ENGL 417 or equivalent.

421, 621 LITERARY CRITICISM (3 + 0) 3 credits
Major theories and methods of literary criticism.

423, 623 THEMES OF LITERATURE (2 or 3 + 0) 2 or 3 credits.
Themes and ideas significant in literature and literary history. Maximum of 6 credits.

425, 625 THE BRITISH NOVEL I (3 + 0) 3 credits
British fiction from its origins to about 1800. Readings in such authors as Defoe, Richardson, Fielding, Smollett, Sterne, Johnson, Austen.

426, 626 THE BRITISH NOVEL II (3 + 0) 3 credits
British fiction from about 1800 to World War I; readings in such authors as Austen, Scott, Dickens, Thackeray, Trollope, Eliot, Hardy.

429, 629 LANGUAGE AND CULTURE (3 + 0) 3 credits
(See ANTH 429 for description.)

430, 630 STUDIES IN COMPARATIVE LITERATURE (3 + 0) 3 credits
Literature in English and English translation, following a historical (e.g., Classicism, Romanticism, Modernism) or a formal (e.g., narrative and fiction, drama) approach. Maximum of 6 credits. (Same as FLL 430.)

436, 636 THEORIES OF SECOND LANGUAGE ACQUISITION (3 + 0) 3 credits
Survey of major theories of second language acquisition and their potential applications to language teaching. Topics include: language and behavior, language acquisition in children and adults, social and psychological factors. Prerequisite: ENGL 281, 410.

437, 637 TEACHING OF COMPOSITION (3 + 0) 3 credits
Theory and practice in teaching of composition with special emphasis on recent developments.

438, 638 TEACHING ENGLISH AS A SECOND LANGUAGE (3 + 0) 3 credits
Current methods and materials in ESL with emphasis on curriculum models and applications. Class observation at primary, secondary and university levels. Prerequisite: ENGL 281, 410.

439, 639 LANGUAGE TESTING (3 + 0) 3 credits
Theories of defining and assessing competence in English as a second language. Preparation and administration of various tests with attention to cultural bias in testing. Prerequisite: ENGL 281, 410.

441, 641 AMERICAN IDEAS (3 + 0) 3 credits
Readings in American fiction, poetry, and intellectual prose from the 17th to the 20th centuries, with emphasis on characteristic American notions.

445, 645 THE AMERICAN NOVEL (3 + 0) 3 credits
American fiction from its origins to about 1940 with emphasis on the 19th century.

446, 646 AMERICAN POETRY (3 + 0) 3 credits
American poetry from the Puritans to about 1940 with emphasis on the 19th century.

451, 651 CHAUCER (3 + 0) 3 credits
Selections from the works of Chaucer read in Middle English with emphasis on the *Canterbury Tales*. Prerequisite: ENGL 281.

453, 653 LITERATURE OF THE MIDDLE AGES (3 + 0) 3 credits
Medieval writers and works from the continent, read in translation, e.g., *The Song of Roland, The Nibelungenlied,* Dante, Boccaccio.

454, 654 MEDIEVAL ENGLISH LITERATURE (3 + 0) 3 credits
Writers and works from medieval England, excluding Chaucer, e.g., *Beowulf,* Langland, *Sir Gawain and the Green Knight, Everyman.*

458, 658 DRAMA BEFORE SHAKESPEARE (3 + 0) 3 credits
Emphasizes the large body of important drama of the Middle Ages and early Renaissance.

460, 660 ELIZABETHAN AND JACOBEAN DRAMA (3 + 0) 3 credits
Plays and playwrights of the 16th and early 17th centuries, e.g., Marlowe, Jonson, Webster.

461, 661 THE RENAISSANCE (3 + 0) 3 credits
Writers of prose and poetry in 16th-century England, e.g., More, Sidney, Spenser.

463, 663 THE 17TH CENTURY (3 + 0) 3 credits
Writers in prose and poetry in England from about 1603 to 1660, e.g., Donne, Jonson, Herbert, Herrick; excluding Shakespeare and Milton.

464, 664 MILTON (3 + 0) 3 credits
Intensive study of Milton's poetry and selected prose.

465, 665 SHAKESPEARE (3 + 0) 3 credits
Reading and discussion of some of the major comedies, tragedies, and history plays.

469 INDIVIDUAL AUTHORS (Before 1800) (2 or 3 + 0) 2 or 3 credits
Undergraduate seminar on one or two authors, e.g., Pope, Boswell and Johnson, Dryden. Maximum of 6 credits.

470, 670 RESTORATION AND 18TH CENTURY DRAMA (3 + 0) 3 credits
English dramatists from about 1660 to 1800 including e.g., Wycherley, Congreve, Sheridan, Goldsmith.

471, 671 RESTORATION AND 18TH CENTURY LITERATURE (3 + 0) 3 credits
Readings in drama, poetry, shorter prose fiction and intellectual prose of such writers as Dryden, Swift, Pope, Fielding, Johnson, Goldsmith, Gray, Hume, Walpole, Blake.

475, 675 THE ROMANTIC MOVEMENT (3 + 0) 3 credits
English writers from about 1790-1832, e.g., Blake, Wordsworth, Coleridge, Byron, Shelley, Keats.

481, 681 THE VICTORIAN PERIOD (3 + 0) 3 credits
Social and artistic movements of the later 19th century as revealed in English poetry and prose.

483, 683 20TH CENTURY BRITISH AND AMERICAN POETRY (3 + 0) 3 credits
Readings in such poets as Auden, Eliot, Frost, Thomas, Stevens, Yeats, Williams.

484, 684 20TH CENTURY BRITISH FICTION (3 + 0) 3 credits
Selected fiction written in English by, e.g., Conrad, Joyce, Lawrence, Woolf.

485, 685 STUDIES IN 20TH CENTURY LITERATURE (3 + 0) 3 credits
Cross-generic studies in British and American literature from approximately 1900 to 1945.

486, 686 STUDIES IN CONTEMPORARY LITERATURE (3 + 0) 3 credits
Cross-generic studies in British and American literature since World War II.

489 INDIVIDUAL AUTHORS (AFTER 1800) (2 or 3 + 0) 2 or 3 credits.
Seminar on one or two authors, e.g., Joyce, Emerson and Thoreau, Dickens. Maximum of 6 credits.

495 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in English. Maximum of 6 credits.

531 WRITING WORKSHOP (1 to 3 + 0) 1 to 3 credits
Practicum in the teaching of writing.

533 LITERATURE WORKSHOP (1 to 3 + 0) 1 to 3 credits
Practicum in the teaching of literature.

711 INTRODUCTION TO GRADUATE STUDY (4 + 0) 4 credits
Bibliography and modern research techniques in language and literature, methods of literary analysis, preparation of documented investigation.

713 PROBLEMS IN LANGUAGE (3 or 4 + 0) 3 or 4 credits
Typical problems in advanced study of language. Prerequisite: ENGL 411 or equivalent. Maximum of 8 credits. (Same as ANTH 713.)

714 PROBLEMS IN MODERN GRAMMATICAL STUDY (3 or 4 + 0) 3 or 4 credits
Examination of important current grammatical descriptions, especially of English. Prerequisite: ENGL 411 or equivalent. Maximum of 8 credits.

715 SEMINAR IN PHILOLOGY AND LINGUISTICS (3 or 4 + 0) 3 or 4 credits
Special problems in philology and linguistics. Prerequisite: ENGL 411 or equivalent. Maximum of 8 credits.

717 OLD ENGLISH (3 + 0) 3 credits
Introduction to Old English language and literature.

718 BEOWULF (3 + 0) 3 credits
Beowulf and the Germanic Heroic Age. Prerequisite: ENGL 717 or equivalent.

719 MIDDLE ENGLISH (3 + 0) 3 credits
Introduction to Middle English language and literature. Prerequisite: ENGL 451 or equivalent.

721 PROBLEMS IN THE HISTORY OF LITERARY CRITICISM (4 + 0) 4 credits
Important critical modes and approaches from Plato and Aristotle to the present.

722 PROBLEMS IN LITERARY THEORY (4 + 0) 4 credits
Problems in criticism and critical theory. Maximum of 8 credits with approval of the student's committee.

723 PROBLEMS IN THEMES AND IDEAS IN LITERATURE (3 or 4 + 0) 3 or 4 credits
Themes and ideas in literature and broad literary approaches like comparative literature and the history of ideas. Maximum of 8 credits.

725 PROBLEMS IN THE NOVEL (4 + 0) 4 credits
Intensive study of the novel with attention to its history and development. Maximum of 8 credits.

726 PROBLEMS IN LITERARY FORM (4 + 0) 4 credits
Generic or cross generic studies of literary structure. Maximum of 8 credits.

733 HISTORY AND PRINCIPLES OF RHETORIC (3 + 0) 3 credits
Development of theories of effective expression in language with attention to practical problems of writing and the teaching of writing. Advised for candidates planning to teach.

735 SEMINAR IN RHETORIC AND COMPOSITION (4 + 0) 4 credits
Rhetorical problems. Maximum of 8 credits.

737 COLLEGE TEACHING IN LANGUAGE AND LITERATURE (1 to 3 + 0) 1 to 3 credits *S/U only*
Theory and practice in the teaching of English in college, particularly the first-year course. Required of students planning a degree with a teaching emphasis. Maximum of 4 credits.

738 TEACHING ENGLISH AS A FOREIGN LANGUAGE (1 to 3 + 0) 1 to 3 credits
Theory and practice in the teaching of English to speakers of other languages and nonstandard dialects. Students work under supervision of the director of the ESL program. Prerequisite: ENGL 411 or equivalent. Maximum of 4 credits.

741 PROBLEMS IN EARLY AMERICAN LITERATURE (4 + 0) 4 credits
Selected subjects in early American literature. Prerequisite: ENGL 441, 445 or 446 or equivalent. Maximum of 8 credits.

743 PROBLEMS IN LATER AMERICAN LITERATURE (4 + 0) 4 credits
Companion course to ENGL 741. Prerequisite: ENGL 441, 445 or 446 or equivalent. Maximum of 8 credits.

749 SPECIAL TOPICS IN LANGUAGE AND LINGUISTICS (1 to 3 + 0) 1 to 3 credits
Intensive study of specific topics related to language. Maximum of 6 credits.

751 WRITERS AND WORKS BEFORE 1800 (1 to 3 + 0) 1 to 3 credits
Intensive study of specific works by early writers. Maximum of 6 credits.

752 INDIVIDUAL WRITERS AND WORKS AFTER 1800 (1 to 3 + 0) 1 to 3 credits
Intensive study of specific works by later writers. Maximum of 6 credits.

753 PROBLEMS IN CHAUCER (4 + 0) 4 credits
Selected problems in Chaucer. Prerequisite: ENGL 451 or equivalent. Maximum of 8 credits.

758 PROBLEMS IN TEACHING WRITING 1 to 4 credits
Survey of theory and practice of teaching composition (a) in grades K through 13, (b) at particular grade levels. Maximum of 6 credits.

761 PROBLEMS IN THE EARLY RENAISSANCE (4 + 0) 4 credits
Intensive study of selected topics in nondramatic Renaissance literature prior to 1603. Prerequisite: ENGL 461 or equivalent. Maximum of 8 credits.

762 PROBLEMS IN 17TH CENTURY LITERATURE (4 + 0) 4 credits
Companion course to ENGL 761. Prerequisite: ENGL 463 or equivalent. Maximum of 8 credits.

764 PROBLEMS IN NON-SHAKESPEAREAN DRAMA (4 + 0) 4 credits
16th and 17th century drama exclusive of Shakespeare. Prerequisite: ENGL 461 or equivalent. Maximum of 8 credits.

765 PROBLEMS IN SHAKESPEARE (4 + 0) 4 credits
Intensive study in the works of Shakespeare. Prerequisite: ENGL 465 or equivalent. Maximum of 8 credits.

767 PROBLEMS IN MILTON (4 + 0) 4 credits
Intensive study in the works of Milton. Prerequisite: ENGL 464 or equivalent. Maximum of 8 credits.

771 PROBLEMS IN THE AGE OF REASON (4 + 0) 4 credits
Considers special figures or aspect of the period. Prerequisite: ENGL 471 or equivalent. Maximum of 8 credits.

775 PROBLEMS IN THE ROMANTIC MOVEMENT (4 + 0) 4 credits
Problems in the prose and verse of the late 18th and early 19th centuries in England. Prerequisite: ENGL 475 or equivalent. Maximum of 8 credits.

778 SEMINAR IN TEACHING WRITING (1 + 0 per credit) 1 to 6 credits
Methods of teaching writing in grades K through 14 presented in relation to theories of language growth. Prerequisite: approval of screening committee. Maximum of 6 credits. (Same as C I 778.)

781 PROBLEMS IN THE VICTORIAN AGE (4 + 0) 4 credits
English literature of the middle and late 19th century in England. Prerequisite: ENGL 481 or equivalent. Maximum of 8 credits.

783 PROBLEMS IN EARLY 20TH CENTURY BRITISH LITERATURE (4 + 0) 4 credits
British and Irish literature of the early 20th century. Maximum of 8 credits.

785 PROBLEMS IN CONTEMPORARY AMERICAN LITERATURE (4 + 0) 4 credits
Selected contemporary American writers or current literary movements. Maximum of 8 credits.

787 PROBLEMS IN CONTEMPORARY BRITISH LITERATURE (4 + 0) 4 credits
Contemporary literature with emphasis upon movements which center in Great Britain. Maximum of 8 credits.

788 PROBLEMS IN MODERN COMPARATIVE LITERATURE (4 + 0) 4 credits
Modern literature studied with emphasis upon international movements. Maximum of 8 credits.

790 SPECIAL TOPICS 1 to 3 credits
May be taken by M.A. students only under very special conditions to provide work which is not otherwise offered during a student's anticipated residence. Maximum of 3 credits with the approval of the student's committee.

791 SPECIAL TOPICS 1 to 3 credits
May be taken by Ph.D. students only under very special conditions to provide work which is not otherwise offered during a student's anticipated residence. Maximum of 6 credits with the approval of the student's committee.

795 COMPREHENSIVE EXAMINATION 0 credits *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

282 INTRODUCTION TO LANGUAGE AND LITERARY EXPRESSION (3 + 0) 3 credits
323 PRINCIPLES OF LITERARY ANALYSIS (2 + 0) 2 credits
333 FAR EASTERN LITERATURE (2 to 3 + 0) 3 credits
365 MODERN CONTINENTAL FICTION (3 + 0) 3 credits
412, 612 INTRODUCTION TO OLD NORSE (3 + 0) 3 credits
419, 619 MODERN ENGLISH (3 + 0) 3 credits
452, 652 CHAUCER (3 + 0) 3 credits

ENVIRONMENT (ENV)

Interdisciplinary Courses

101 MAN AND ENVIRONMENT (3 + 0) 3 credits
Interdisciplinary, introductory survey of the ecology of natural systems with emphasis on the relationship of man to the environment.

292 COMMUNITY ENVIRONMENTAL PROBLEMS (3 + 0) 3 credits
(See GEOG 292 for description.)

294 LIFE STYLES AND THE ENVIRONMENT (3 + 0) 3 credits
Evaluation of personal decisions and medes of behavior which have effects upon environmental problems such as the consumption of resources, pollution and population growth.

301 INDEPENDENT STUDY IN ENVIRONMENT 1 to 3 credits
Independent research and/or reading under supervision of an instructor. Maximum of 6 credits

401 ENVIRONMENTAL INTERNSHIP 1 to 5 credits *S/U only*
Work experience in governmental or private entity under supervision of faculty member. Periodic and final reports required. Maximum of 6 credits.

457, 657 ENVIRONMENTAL POLICY (3 + 0) 3 credits
(See P SC 457 for description.)

494, 694 SEMINAR ON LIFE STYLES AND THE ENVIRONMENT (2 + 0) 2 credits
Systematic analysis and reconsideration of alternative individual life style in the framework of society's impact on the environment.

ETHNIC STUDIES (E S)

307 TOPICS IN RACE AND RACISM (3 + 0) 3 credits
Definitions and classifications of race and racism. Topical analyses within sociological, historical, psychological, anthropological, biological, humanistic and economic contexts.

FAMILY AND COMMUNITY MEDICINE (FCM)

401, 601 NUTRITION APPLICATIONS (1 + 0) 1 credit
Identity, functions, metabolism, requirements, and food sources of basic nutrients and their role in health/disease.

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing family and community medicine.

461, 661 SENIOR ELECTIVES 2 to 8 credits *S/U only*
Elective experiences in family and community medicine including: (a) rural health, (b) family and community medicine, (c) hospice care. Prerequisites: fourth-year medical students. Maximum of 8 credits in any one subtopic. The maximum total credits for any combination of subtopics is 16.

462, 662 NUTRITION 1 to 4 credits
Advanced clinical experiences in nutrition. Selected applied nutrition preceptorship experiences under faculty supervision. Special arrangement with instructor.

463, 663 PRECEPTORSHIP (0 + 8) 4 credits *S/U only*
Clinical experience for medical students between their first and second years. Observe and participate with preceptor in an office/practice setting.

468, 668 NUTRITION CLINIC ELECTIVE 1 to 3 credits
Individual counseling for personal nutrition problems. Learn experientially as patients in the clinic, co-therapists and students.

471, 671 ADVANCED CLINICAL EXPERIENCES (0 + 96) 2 to 32 credits
Selected practical experiences with patients, with faculty advisement and supervision.

477-478, 677-678 ADVANCED COMMUNITY MEDICINE (0 + 1) 1 credit each
Field questions exemplifying community health problems and delivery of health care.

481, 681 TEAM APPROACH TO HEALTH CARE II (1 + 6) 1 to 3 credits
Case study and field work methods are continued from SHR 335, with more time being allocated to direct experiences with individuals and families in the community through preceptorships.

490 INDEPENDENT STUDY 1 to 4 credits

491, 691 INDEPENDENT STUDY IN CLINICAL NUTRITION 1 to 4 credits
Special problem solving, research or supervised clinical preceptorship in applied clinical nutrition. Prerequisite: medical student standing, H EC 626 or equivalent. Maximum of 8 credits.

676 ISSUES IN HEALTH CARE (2 + 3) 3 credits
Field placements exemplifying different community health problems and delivery of health care.

700 INDEPENDENT STUDY 1 to 3 credits

FOREIGN LANGUAGES AND LITERATURES (FLL)

150-151 ELEMENTARY LANGUAGE (4 + 0) 4 credits each
Introduction to the language through practice and analysis. Instruction in the following languages will be available as demand and resources permit: (a) Arabic, (b) Chinese, (c) Ancient Hebrew, (e) Portuguese.

292 GREAT BOOKS: THE GREEKS TO DANTE (3 + 0) 3 credits
(See ENGL 292 for description.)

293 GREAT BOOKS: THE RENAISSANCE TO THE PRESENT (3 + 0) 3 credits
(See ENGL 293 for description.)

295 INDEPENDENT LANGUAGE STUDY 1 or 2 credits
Open to qualified students in the following languages: (a) Arabic, (b) Basque, (c) Chinese, (d) Classical Greek, (e) Ancient Hebrew, (f) Japanese, (g) Latin, (j) French, (k) German, (m) Russian, (n) Spanish, (p) Portuguese, (q) Persian, (r) Italian. At least one conference per week with instructor concerned. Maximum of 4 credits in any one language.

301-302 IDEAS, VALUES AND CULTURES I and II (3 + 0) 3 credits each
Ideas, values and cultures as expressed in literature as they relate to man, society and the cosmos. Includes Western, non-Western and women's primary source material.

355 MODERN DRAMA (3 + 0) 3 credits
(See ENGL 355 for description.)

366 GREAT NOVELS IN TRANSLATION (3 + 0) 3 credits
(See ENGL 366 for description.)

430, 630 STUDIES IN COMPARATIVE LITERATURE (3 + 0) 3 credits
(See ENGL 430 for description.)

455, 655 APPLIED ROMANCE LINGUISTICS (3 + 0) 3 credits
Introduction to basic linguistic concepts and contrastive linguistics. Projects applying the principles of contrastive linguistics to the teaching of language. Prerequisite: FR or SPAN 306.

458, 658 HISTORY OF THE ROMANCE LANGUAGES (3 + 0) 3 credits
Development of the Romance languages from Latin. Prerequisite: FR or SPAN 306.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to qualified students in the following languages: (a) Arabic, (b) Basque, (c) Chinese, (d) Classical Greek, (e) Ancient Hebrew, (f) Japanese, (g) Latin, (h) Norwegian, (j) French, (k) German, (m) Russian, (n) Spanish, (p) Portuguese, (q) Persian, (r) Italian. At least one conference per week with instructor concerned. Maximum of 8 credits in any one language.

Prerequisite for following four courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

702 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Methods of literary analysis, research techniques, preparation of documented investigation and bibliography.

703 TEACHING FOREIGN LANGUAGES (3 + 0) 3 credits
History and theory of language teaching methodology; application of linguistic theory to classroom practice.

714 PROBLEMS IN ROMANCE PHILOLOGY AND LINGUISTICS (3 + 0) 3 credits
Seminar in typical problems of Romance philology and linguistics. Maximum of 6 credits.

758 PROBLEMS IN COMPARATIVE LITERATURE (3 + 0) 3 credits
Literature studied with emphasis on international movements.

793 INDEPENDENT STUDY 1 to 3 credits
For majors in the tutorial doctoral program in Basque studies. Maximum of 9 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*
For French, German and Spanish majors only.

799 DISSERTATION 1 to 24 credits
For majors in the tutorial doctoral program in Basque studies only.

Inactive Course

365 MODERN CONTINENTAL FICTION (3 + 0) 3 credits

Basque (BASQ)

101-102 ELEMENTARY BASQUE I AND II (4 + 0) 4 credits each
Introduction to the language through the development of written and conversational language skills and through structural analysis. Emphasis on Unified Basque but includes an introduction to the dialects.

203-204 SECOND YEAR BASQUE I AND II (3 + 0) 3 credits each
Structural review, conversation and writing. Includes further work with the unique structure of the Basque verb and system of suffixes. Prerequisite to BASQ 203 is BASQ 102 or equivalent. Prerequisite to BASQ 204 is BASQ 203 or equivalent. Completion of BASQ 204 satisfies the Arts and Science foreign language rquirement.

405-406, 605-606 BASQUE CONVERSATION AND COMPOSITION
(3 + 0) 3 credits each
Syntax and idiomatic usage in spoken and written Basque. Concentration on verb forms. Prerequisite to BASQ 405, 605 is 204; prerequisite to BASQ 406, 606 is 405, 605.

451, 651 INTRODUCTION TO BASQUE LITERATURE (3 + 0) 3 credits
Literature of the Basques in Basque, French, and Spanish. Readings in English translation. Course conducted in English.

455, 655 INTRODUCTION TO BASQUE LINGUISTICS (3 + 0) 3 credits
Structure of the Basque language, suggested relationships to other languages, historical development; dialectology; survey of research problems. Prerequisite: ANTH 305 or ENGL 281. (Same as ANTH 455.)

466, 666 OLD WORLD BASQUE CULTURE (3 + 0) 3 credits
Intensive study of the Basque people of southern Europe both in historical perspective and contemporary society; the historical events and social structural features which have stimulated or facilitated extensive Basque emigration to other parts of the world including the American West. Prerequisite: ANTH 101. (Same as ANTH 466.)

French (FR)

101-102 ELEMENTARY FRENCH I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to French culture.

203-204 SECOND YEAR FRENCH (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to FR 203 is FR 102 or equivalent. Prerequisite to FR 204 is FR 203 or equivalent. Completion of FR 204 satisfies the arts and science foreign language requirement.

205 READING FRENCH I (2 + 0) 2 credits
Development of reading skills, including vocabulary building, verb recognition, and sentence structure. Reading of selected texts for comprehension. Prerequisite: FR 102. Completion of this course and FR 209 satisfies the arts and science foreign language requirement.

209 READING FRENCH II (2 + 0) 2 credits
Continuation of development of reading skills with emphasis on comprehension. Practical readings in the humanities, social science and natural sciences with individualized assignments when appropriate. Prerequisite: FR 205. Completion of this course satisfies the arts and science foreign language requirement.

221 FRANCE AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of France. Taught in English; no knowledge of French required. French language readings required of French majors. Counts for humanities credit.

223 FRENCH LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including such authors as Montaigne, Molière, Voltaire, Hugo, Gide, Ionesco.

301 FRENCH PHONETICS (3 + 0) 3 credits
Introduction to phonetic theory and practice in pronunciation; instruction and practice in levels of usage. Not open to native speakers using the standard form of the language. Prerequisite: FR 203 or equivalent.

305-306 FRENCH COMPOSITION (3 + 0) 3 credits each
Development of directed and creative writing skills in French. Prerequisite to FR 305 is 204; prerequisite to FR 306 is 305. Not applicable to an advanced degree in French.

309 FRENCH CONVERSATION (0 + 2) 1 credit
Intensive practice in speaking. Prerequisite: FR 204. Maximum of 4 credits.

313 INTRODUCTION TO THE HISTORY OF FRENCH LITERATURE I
(3 + 0) 3 credits
Comprehensive view of French literature and its major genres from its beginnings through the seventeenth century, with emphasis on historical background and textual analysis. Prerequisite: FR 305 or equivalent. Not applicable to an advanced degree in French.

314 INTRODUCTION TO THE HISTORY OF FRENCH LITERATURE II
(3 + 0) 3 credits
Comprehensive view of French literature and its major genres from the 18th century to the present with emphasis on historical background as well as textual analysis. Prerequisite: FR 305 and 313 or equivalent. Not applicable to an advanced degree in French.

Prerequisite for all French 400-level literature courses: FR 305-306 and 6 credits from FR 221, 313, 314.

407, 607 ADVANCED FRENCH GRAMMAR AND COMPOSITION
(3 + 0) 3 credits
Prerequisite: FR 306.

441, 641 SEMINAR IN LANGUAGE AND LITERATURE
(2 or 3 + 0) 2 or 3 credits
Selected themes, ideas, authors, works or periods in French language or literature. Topics vary from semester to semester. Maximum of 6 credits.

463, 663 MEDIEVAL FRENCH LITERATURE (3 + 0) 3 credits
Literature and thought of the Middle Ages. Maximum 6 credits each.

465, 665 THE 16TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Literature and thought of the Renaissance. Maximum 6 credits each.

469, 669 THE 17TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Trends of 17th century literature and thought.

473, 673 THE 18TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Literature and thought of the Age of Enlightenment. Maximum 6 credits each.

477, 677 THE 19TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Main literary and intellectual trends from Romanticism to Naturalism.

491, 691 THE 20TH CENTURY IN FRENCH LITERATURE
(3 + 0) 3 credits
Main currents of 20th century prose, poetry and theatre.

Prerequisite for all French 700-level courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

725 EXPLICATION DE TEXTES (3 + 0) 3 credits
French method of *explication de textes* applied to selected prose and poetry of principal Ftench writers.

731 STUDIES IN THE FRENCH RENAISSANCE AND BAROQUE
(3 + 0) 3 credits
Development of the Renaissance and Baroque periods with particular reference to Rabelais, the Pléiade and Montaigne.

739 STUDIES IN 17TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Seminar in literary problems of the century, considered by genre or by author. Maximum of 9 credits.

743 STUDIES IN 18TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Special consideration of various authors or aspects of the period. Maximum of 9 credits.

747 STUDIES IN 19TH CENTURY FRENCH LITERATURE
(3 + 0) 3 credits
Seminar in selected literary schools and movements of the century, selected authors, or genres. Maximum of 9 credits.

761 STUDIES IN 20TH CENTURY FRENCH LITERATURE (3 + 0) 3 credits
Problems of modern and contemporary literature; selected authors, movements, schools, influences, genres. Maximum of 9 credits.

792 SPECIAL PROBLEMS 2 or 3 credits
Seminar in selected problems not the main emphasis in other courses, such as existentialism, culture and civilization, literary criticism, etc. Maximum of 9 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

797 THESIS 1 to 6 credits.

Inactive Course

715 OLD FRENCH (2 + 0) 2 credits

German (GER)

101-102 ELEMENTARY GERMAN I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to German culture.

203-204 SECOND-YEAR GERMAN (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to Ger. 203 is GER 102 or equivalent. Prerequisite to GER 204 is GER 203 or equivalent. Completion of GER 204 satisfies the arts and science foreign language requirement.

205 READING GERMAN I (2 + 0) 2 credits
Development of reading skills, including vocabulary building, verb recognition and sentence structure. Reading of selected texts for comprehension. Prerequisite: GER 102. Completion of this course and 209 satisfies the arts and science foreign language requirement.

209 READING GERMAN II (2 + 0) 2 credits
Continuation of development of reading skills with emphasis on comprehension. Practical readings in the humanities, social sciences and natural sciences with individualized assignments when appropriate. Prerequisite: GER 205. Completion of this course satisfies the arts and science foreign language requirement.

221 GERMAN SPEAKING EUROPE AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of Germany, Austria and Switzerland. Taught in English; no knowledge of German required. German language readings required of German majors. Counts for humanities credit.

223 GERMAN LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including authors such as Goethe, Büchner, Hermann Hesse, Thomas Mann, Franz Kafka, Bert Brecht.

301 CORRECTIVE PHONETICS (2 + 0) 2 credits
Introduction to phonetic theory and extensive practice in pronunciation and intonation. Not open to native speakers using the standard form of the language. Prerequisite: GER 203 or equivalent.

305-306 GERMAN COMPOSITION (3 + 0) 3 credits each
Prerequisite to GER 305 is 204; prerequisite to GER 306 is 305. Not applicable to an advanced degree in German.

309 GERMAN CONVERSATION (0 + 2) 1 credit
Prerequisite: GER 204. Maximum of 4 credits.

311 INTRODUCTION TO GERMAN LITERATURE (3 + 0) 3 credits
Readings in German literature in its major forms with emphasis on the modern period. Discussions. Prerequisite: GER 204. Not applicable to an advanced degree in German.

350 SHORTER FORMS IN GERMAN LITERATURE (3 + 0) 3 credits
Practice in literary analysis. Examples from lyric poetry, the short story, the novella, and the drama. Prerequisite: GER 204 or equivalent. Not applicable to an advanced degree in German.

Prerequisite for all German 400-level literature courses: GER 305-306 and 3 credits from GER 221 or 311.

407, 607 ADVANCED GERMAN GRAMMAR (3 + 0) 3 credits
Prerequisite: GER 306 or equivalent.

408, 608 ADVANCED GERMAN COMPOSITION (3 + 0) 3 credits
Prerequisite: GER 407 or equivalent.

435-436, 635-636 THE AGE OF GOETHE (3 + 0) 3 credits each
Comprehensive view of German literature from 1750 to 1830.

441, 641 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3 + 0) 2 or 3 credits
Selected themes, ideas, authors, works or periods in German language or literature. Topics vary from semester to semester. Maximum of 6 credits.

455, 655 APPLIED GERMAN LINGUISTICS (3 + 0) 3 credits
Introduction to linguistic concepts and contrastive linguistics. Projects by students apply the principles of contrastive linguistics to the teaching of German. Prerequisite: GER 306.

458, 658 INTRODUCTION TO THE HISTORY OF THE GERMAN LANGUAGE (3 + 0) 3 credits
Development of the German language. Basic linguistic concepts and terminology. Prerequisite: GER 306.

459-460, 659-660 HISTORY OF GERMAN LITERATURE (3 + 0) 3 credits each
Comprehensive view of German literature from its beginning to the present day.

467, 667 LESSING (3 + 0) 3 credits
Chief dramatic and critical works of Lessing.

468, 668 SCHILLER (3 + 0) 3 credits
Selections from Schiller's chief poetic, dramatic and aesthetic works.

469, 669 GOETHE (3 + 0) 3 credits
Selected works of Goethe exclusive of Faust.

470, 670 GOETHE'S "FAUST" (3 + 0) 3 credits
Parts I and II.

471, 671 GERMAN LYRIC POETRY (3 + 0) 3 credits
German lyric poetry from the 17th century to the present.

472, 672 19TH CENTURY GERMAN LITERATURE (3 + 0) 3 credits
German literature from 1830 to 1880.

477, 677 THE GERMAN "NOVELLE" (3 + 0) 3 credits each
Development of the "Novelle" from the Romantic period to modern times. Reading and discussion.

491, 691 20TH CENTURY GERMAN LITERATURE (3 + 0) 3 credits
Main currents of German prose, poetry and drama since 1890.

Prerequisite for all German 700-level courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

709 CRITICAL AND CREATIVE WRITING IN GERMAN (2 + 0) 2 credits
Practice of the use of German in criticism and creative writing. Maximum of 6 credits.

721 THE AGE OF ENLIGHTENMENT IN GERMANY (3 + 0) 3 credits
German literature of the Enlightenment. Maximum of 6 credits.

732 GOETHE AND HIS CONTEMPORARIES (3 + 0) 3 credits
Literature of the German *Sturm und Drang, Klassic* and *Romantik*. Maximum of 6 credits.

741 GERMAN REALISM (3 + 0) 3 credits
Literature of Poetic Realism and Realism. Maximum of 6 credits.

761 THE MODERN AGE IN GERMANY (3 + 0) 3 credits
German literature from Naturalism to the present. Maximum of 6 credits.

793 INDEPENDENT STUDY 1 to 3 credits each
Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

713 PROBLEMS IN GERMANIC PHILOLOGY AND LINGUISTICS (3 + 0) 3 credits
714 GOTHIC (3 + 0) 3 credits
715-716 MIDDLE HIGH GERMAN LANGUAGE AND LITERATURE (3 + 0) 3 credits each
731 GERMAN RENAISSANCE, REFORMATION AND BAROQUE (3 + 0) 3 credits

Greek (GK)

101-102 ELEMENTARY CLASSICAL GREEK I and II (4 + 0) 4 credits each
Introduction to the language stressing mastery of grammar and the reading of simple texts from classical authors.

205 READING CLASSICAL GREEK I (2 + 0) 2 credits
Selections from such prose writers as Plato, Xenephon and the New Testament. Completion of this course and GK 209 satisfies the arts and science foreign language requirement.

209 READING CLASSICAL GREEK II (2 + 0) 2 credits
Selections from such prose and verse writers as Plato, Aristotle, Euripides and Homer. Prerequisite: GK 205. Completion of this course satisfies the arts and science foreign language requirement.

Italian (ITAL)

101-102 ELEMENTARY ITALIAN I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to Italian culture.

203-204 SECOND YEAR ITALIAN (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite ro ITAL 203 is ITAL 102 or equivalent; prerequisite to ITAL 204 is 203 or equivalent. Completion of ITAL 204 satisfies the arts and science foreign language requirement.

221 ITALY AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of Italy. Taught in English; no knowledge of Italian required.

223 ITALIAN LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including such authors as Dante, Petrach, Boccaccio, Machiavelli, Pirandello.

309 ITALIAN CONVERSATION (0 + 0) 1 credit
Prerequisite: ITAL 204. Maximum of 4 credits.

462, 662 DANTE'S DIVINE COMEDY (3 + 0) 3 credits
Selected readings in the Divine Comedy with some reference to Dante's minor works. Taught in English.

Inactive Courses

305-306 INTERMEDIATE ITALIAN COMPOSITION AND CONVERSATION (3 + 0) 3 credits each
351-352 THE ITALIAN NOVEL (2 + 0) 2 credits each
381-382 ITALIAN LITERATURE OF THE 18TH AND 19TH CENTURIES (2 + 0) 2 credits each

Japanese (JAPN)

101-102 ELEMENTARY JAPANESE I and II (4 + 0) 4 credits each
Introduction to the language through structural analysis and the writing system. Includes some conversation and an introduction to Japanese culture. Prerequisite to JAPN 102 is JAPN 101 or equivalent.

203-204 SECOND YEAR JAPANESE (3 + 0) 3 credits each
Continuation of structural analysis and spoken and written Japanese. Prerequisite: to JAPN 204 is JAPN 203 or equivalent. Completion of JAPN 204 satisfies the arts and science foreign language requirement.

Latin (LAT)

101-102 ELEMENTARY LATIN I and II (4 + 0) 4 credits each
Introduction to the language stressing mastery of grammar and the reading of simple texts from classical authors.

205 READING LATIN I (2 + 0) 2 credits
Selections from such Latin prose writers as Caesar, Cicero, Livy, Pliny. Completion of this course and LAT 209 satisfies the arts and science foreign language requirement.

209 READING LATIN II (2 + 0) 2 credits
Selections from such Latin poets as Ovid, Virgil, Catullus, Horace. Prerequisite: LAT 205. Completion of this course satisfies the arts and science foreign language requirement.

NOTE: The arts and science foreign language requirement can also be satisfied by completing two semesters of Latin and two semesters of Classical Greek.

Russian (RUSS)

101-102 ELEMENTARY RUSSIAN I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to Russian culture.

203-204 SECOND YEAR RUSSIAN (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to RUSS 203 is RUSS 102 or equivalent. Prerequisite to RUSS 204 is RUSS 203. Completion of RUSS 204 satisfies the arts and science foreign language requirement.

Inactive Courses

305-306 INTERMEDIATE RUSSIAN COMPOSITION AND CONVERSATION (3 + 0) 3 credits each
357-358 SURVEY OF RUSSIAN LITERATURE (3 + 0) 3 credits each

Spanish (SPAN)

101-102 ELEMENTARY SPANISH I and II (4 + 0) 4 credits each
Introduction to the language through the development of language skills and through structural analysis. Includes an introduction to Spanish and Latin American culture.

203-204 SECOND YEAR SPANISH (3 + 0) 3 credits each
Structural review, conversation and writing, readings in modern literature. Prerequisite to SPAN 203 is SPAN 102 or equivalent. Prerequisite to SPAN 204 is SPAN 203 or equivalent. Completion of SPAN 204 satisfies the arts and science foreign language requirement.

205 READING SPANISH I (2 + 0) 2 credits
Development of reading skills, including vocabulary building, verb recognition, and sentence structure. Reading of selected texts for comprehension. Prerequisite: SPAN 102. Completion of this course and 209 satisfies the arts and science foreign language requirement.

209 READING SPANISH II (2 + 0) 2 credits
Continuation of development of reading skills with emphasis on comprehension. Practical readings in the humanities, social sciences and natural sciences, with individualized assignments when appropriate. Prerequisite: SPAN 205. Completion of this course satisfies the arts and science foreign language requirement.

221 IBERIA AND ITS CULTURES (3 + 0) 3 credits
Introduction to the nationalities and cultures of Iberia; emphasis on the Spanish state, through geographical, historical, socio-economic and artistic issues. Taught in English. Readings in Spanish required of Spanish majors. Satisfies humanities credit.

222 HISPANIC-AMERICA AND ITS CULTURE (3 + 0) 3 credits
Introduction to the culture and civilization of Hispanic-American nations. Taught in English; no knowledge of Spanish or Portuguese required. Spanish or Portuguese language readings required of Spanish or Portuguese majors or minors. Satisfies humanities credit.

223 SPANISH LITERATURE IN ENGLISH TRANSLATION (3 + 0) 3 credits
Major representative works of the important literary periods including such authors as Cervantes, Unamuno, Lorca, Borges, García Márquez.

301 CORRECTIVE PHONETICS (2 + 0) 2 credits
Extensive practice in pronunciation with the aim of eliminating foreign accent; instruction and practice in levels of usage. Not open to native speakers using the standard form of the language. Prerequisite: SPAN 203 or equivalent.

305-306 SPANISH COMPOSITION (3 + 0) 3 credits each
Syntax and idiomatic usage. Prerequisite to SPAN 305 is 204; prerequisite to SPAN 306 is SPAN 305. Not applicable to an advanced degree in Spanish.

309 SPANISH CONVERSATION (0 + 2) 1 credit
Not intended for native speakers. Prerequisite: SPAN 204. Maximum of 4 credits.

351-352 MASTERWORKS OF HISPANIC LITERATURE (3 + 0) 3 credits each
Study of selected works of Spanish and Spanish-American literature. Prerequisite: SPAN 204.

Prerequisite for all Spanish 400-level courses: SPAN 305-306, 351-352.

410, 610 SPANISH STYLISTICS (3 + 0) 3 credits
Designed to help the mature language student achieve a personal style in written and spoken Spanish.

440 SEMINAR (3 + 0) 3 credits
Creative and critical writing and speaking on current issues in Hispanic language, literature and culture.

441, 641 SEMINAR IN LANGUAGE AND LITERATURE (2 or 3 + 0) 2 or 3 credits
Selected themes, ideas, authors, works, or periods in Hispanic languages or literatures. Topics vary from semester to semester. Maximum of 6 credits.

462, 662 MEDIEVAL AND EARLY RENAISSANCE SPANISH LITERATURE (3 + 0) 3 credits
Includes the period of the Catholic kings.

464, 664 SPANISH GOLDEN AGE PROSE (3 + 0) 3 credits
Prose forms of the 16th and 17th centuries with emphasis on Cervantes.

466, 666 SPANISH GOLDEN AGE POETRY (3 + 0) 3 credits
Poetry of the 16th and 17th centuries, from Garcilaso to Góngora.

469, 669 SPANISH GOLDEN AGE DRAMA (3 + 0) 3 credits each
Theater of the 16th and 17th centuries from Torres Naharro to Calderón de la Barca.

476, 676 THE 18TH CENTURY IN SPAIN (3 + 0) 3 credits
Neoclassical and traditional writers in the 18th century.

477, 677 19TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Main currents in either the prose, drama, or poetry of the 19th century in Spain. May be repeated to a maximum of 6 credits if topics are alternated.

484, 684 SPANISH-AMERICAN DRAMA (3 + 0) 3 credits
History and development of the theatre in Spanish America.

485, 685 SPANISH-AMERICAN POETRY (3 + 0) 3 credits
Spanish-American poetry from the discovery to the present day.

486, 686 SPANISH-AMERICAN NOVEL (3 + 0) 3 credits
The novel in Spanish America from colonial times to the present.

487, 687 SPANISH-AMERICAN SHORT STORY AND ESSAY (3 + 0) 3 credits
The short story and essay in Spanish America from the conquest to the present day.

491, 691 20TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Main currents in either the prose, drama or poetry of the 20th century in Spain. Maximum of 6 credits if topices are alternated.

493, 693 THE SHORT STORY IN SPANISH LITERATURE (3 + 0) 3 credits
The short story from early times to the present day.

Prerequisite for all Spanish 700-level courses: admission to graduate standing in the Department of Foreign Languages and Literatures.

721 MEDIEVAL AND EARLY RENAISSANCE SPANISH LITERATURE (3 + 0) 3 credits
Seminar on selected genres and authors of the Spanish Middle Ages and the period of the Catholic kings. Maximum of 6 credits.

733 STUDIES IN SPANISH LITERATURE OF THE GOLDEN AGE (3 + 0) 3 credits
Special consideration of selected authors or aspects of the petiod. Maximum of 9 credits.

735 CERVANTES (3 + 0) 3 credits
Seminar on the works of Cervantes.

743 STUDIES IN SPANISH-AMERICAN POETRY (3 + 0) 3 credits
Critical study of poetry in Spanish America with emphasis on the *modernista* movement.

744 STUDIES IN THE SPANISH-AMERICAN NOVEL (3 + 0) 3 credits
Development of the novel in Spanish America. Maximum of 6 credits.

745 STUDIES IN 18TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Seminar in selected literary schools and movements. Maximum of 6 credits if topic is alternated.

747 STUDIES IN 19TH CENTURY SPANISH LITERATURE (3 + 0) 3 credits
Seminar on selected movements, authors or genres in Spanish literature of the 19rh century. Maximum of 6 credits.

761 STUDIES IN SPANISH LITERATURE OF THE 20TH CENTURY (3 + 0) 3 credits
Problems of modern and contemporary literature; selected authors, movements; influences, genres. Maximum of 9 credits.

792a SPECIAL PROBLEMS IN SPANISH LITERATURE (3 + 0) 3 credits
Special topics in literary movements, authors, genres, literary criticism, etc. Maximum of 9 credits.

792b SPECIAL PROBLEMS IN SPANISH-AMERICAN LITERATURE (3 + 0) 3 credits
Seminar in selected authors, genres, movements, literary criticism, etc. Maximum of 9 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Course

715 OLD SPANISH (3 + 0) 3 credits

GEOGRAPHY (GEOG)

103 GEOGRAPHY OF MAN'S ENVIRONMENT (3 + 0 or 3) 3 or 4 credits
Physical elements of the earth, its natural features and their significance to man. Earth form and motion, landforms, climate, vegetation and soils. May be taken with or without laboratory.

106 INTRODUCTION TO CULTURAL GEOGRAPHY (3 + 0) 3 credits
View of selected world culture regions with particular attention to the geographic concepts which illustrate them.

109 ECONOMIC GEOGRAPHY (3 + 0) 3 credits
Emphasizes worldwide patterns of economic activity. World population, food and development problems; natural and economic factors related to economic activity; study of selected agricultural and industrial commodities.

211 MAPS AND THEIR INTERPRETATION (1 + 3) 2 credits
Introduction to maps and their use. Laboratory exercises in the interpretation of maps including topographic types.

212 CARTOGRAPHY (2 + 6) 4 credits
Map making: includes map projections, map lettering, map reproduction and graphic presentation of geographic data. Prerequisite: one semester of college mathematics.

292 COMMUNITY ENVIRONMENTAL PROBLEMS (3 + 0) 3 credits
Local environmental problems involving their causes, effects and possible solutions. Examples also drawn from nearby regions and states. Local field study. Prerequisite: ENV 101 or GEOG 103 or a course in the natural sciences. (Same as ENV 292.)

310 SEMINAR IN CULTURAL GEOGRAPHY (3 + 0) 3 credits
In-depth study of one or more aspects of cultural geography. May be elected more than once to pursue different studies. Prerequisite: introductory cultural or economic geography course. Maximum of 9 credits.

314 FIELD METHODS (1 + 6) 3 credits
Introduction to field techniques used for geographic analysis. Accent on practical experience culminating in individual maps and reports. Prerequisite: geography major or minor.

319 GEOGRAPHY OF WORLD AFFAIRS (3 + 0) 3 credits
Workshop to develop the technique of interpreting current world events in the geographic framework in which such events occur. Prerequisite: introductory geography course.

370 HISTORY OF MAPPING (2 + 0) 2 credits
Great advances in map-making concepts and techniques from the ancient Greeks to the present, and their social, political and economic effects.

412, 612 COMPUTER MAPPING (3 + 0) 3 credtis
Computer assisted cartography in theory and practice. Cartographic communications, data acquisition and design for computer generated mapping. Prerequisite: course in cartography, computer science or statistics.

414, 614 SPATIAL ANALYSIS IN GEOGRAPHY (3 + 0) 3 credits
Statistical and mathematical techniques applied to spatial problems, especially mappable data. Description, inference, hypothesis testing and statistical mapping. Prerequisite: college algebra or higher.

418, 618 GEOGRAPHIC THOUGHT (2 + 0) 4 credits
History of geographic thought; place of geography among the fields of knowledge; geographic methods; current trends in the field. Prerequisite: major or minor in geography.

421, 621 CLIMATOLOGY (3 + 0) 3 credits
Physical characteristics of the atmosphere. World climatic classification. Local atmospheric field study. Prerequisite: GEOG 103 or ENV 101 or a course in physics or meteorology.

422, 622 APPLIED CLIMATOLOGY (3 + 3) 4 credits
Energy balance, microclimates, hydrologic cycle and climatic variability; how they affect and are modified by people and their activities. Prerequisite: GEOG 103 or 421.

431, 631 LANDFORMS (3 + 0) 3 credits
Origin, description and classification of landforms. Distribution of landforms and their significance to environmental and resource problems in the U.S. Prerequisite: GEOG 103 or GEOL 101.

434, 634 BIOGEOGRAPHY (3 + 0) 3 credits
Brief treatment of plant and animal evolution. Prehistoric, historic and present-day world-wide distribution of plant formations and associated animal life. Examples of human impact on biotic life such as domestications, transfers and extinctions.

435, 635 CONSERVATION OF NATURAL RESOURCES (3 + 0) 3 credits
Basic information regarding currrent and future problems and methods of conserving this country's renewable and nonrenewable resources. Prerequisite: one of the following: (1) junior (or higher) standing; or (2) at least 3 credits of work in geography or geology or a biological science. (Same as RWF 435, 635.)

440, 640 MOUNTAIN GEOGRAPHY (3 + 0) 3 credits
Geographic investigation of various mountain regions. Field study in the Sierra Nevada and basin-range mountains emphasizing man's impact on the mountain environment.

442, 642 HISTORICAL GEOGRAPHY (3 + 0) 3 credits
Man's natural environment and his imprint upon it at various times in the past. Old World emphasis, especially Middle East. Attention to development and spread of peoples and cultures and impact of technological changes. Prerequisite: introductory geography course.

446, 646 POLITICAL GEOGRAPHY (3 + 0) 3 credits
Spatial analysis of political systems. Territorial organization trends in local government and the sovereign state. Changing geopolitical patterns of power. Prerequisite: introductory geography courses.

448, 648 ENVIRONMENTAL PERCEPTION (3 + 0) 3 credits
Individual and group mental image of environment in selected cultures. Role of formal communication systems in molding environmental perception. Applications to fields of business, conservation, public and private policy administration.

452, 652 URBAN GEOGRAPHY (3 + 0) 3 credits
Origin and historical development of cities; world survey of cities today; city site, situation and functions with emphasis on American examples. Field trip. Prerequisite: introductory geography course or work in related field such as engineering, history, economics, political science or sociology.

456, 656 LAND USE PLANNING (1 to 3 + 0) 1 to 3 credits
Establishment of goals, policy development, and implementation of plans for land use in various geographic areas. Considers resource scarcity and environmental deterioration problems.

471, 671 ANGLO-AMERICA (3 + 0) 3 credits
Physical and cultural geographic patterns in the U.S. and Canada, using both the systematic and regional approach. Historical origins considered. Prerequisite: introductory geography course.

473, 673 NEVADA: PATTERNS ON THE LAND (3 + 0) 3 credits
Physical, historical and economic aspects of the western Great Basin and nearby areas such as the Sierra Nevada and the southern Columbia Plateau. Field trip.

476, 676 LATIN AMERICA (3 + 0) 3 credits
Regional survey of physical, economic, cultural and political aspects of Latin America. Prerequisite: introductory geography course.

482, 682 EUROPE (3 + 0) 3 credits
Consideration of the physical, cultural and historical geography of Europe and its regions. Prerequisite: introductory geography course.

485, 685 SOVIET UNION (3 + 0) 3 credits
Regional analysis of the environment, resources, peoples, and socialized economic development of the world's largest state. Prerequisite: introductory geography course.

487, 687 MIDDLE EAST (3 + 0) 3 credits
Regional geography of area with limits in terms of Arab and Islamic influences or related cultural and historical circumstances. Oriented around strategic core of territory as crossroads of three continents. Prerequisite: introductory geogtaphy course.

488, 688 THE PACIFIC BASIN (3 + 0) 3 credits
Physical geography, exploration and colonization, peoples and their cultures within the Pacific Ocean region, including Australia, New Zealand, the islands and bordering lands. Prerequisite: introductory geography course.

489, 689 EAST ASIA (3 + 0) 3 credits
Regional and national analysis of the physical, political and cultural geography of China, Japan, and Korea. Comparison of varied development experiences.

491, 691 SPECIAL PROBLEMS 1 to 3 credits
Independent study of selected geographic problems, including library research, field work and reports. Maximum of 8 credits.

495, 695 INTERNSHIP IN GEOGRAPHY 1 to 6 credits *S/U only*
Professional work experience with a government agency or private company. Maximum of 6 credits. Prerequisite: geography major or minor.

701 ADVANCED GEOGRAPHY 1 to 5 credits each
(a) Geographic thought, (b) historical, (c) cultural, (d) economic, (e) urban, (f) regional, (g) field methods, (h) cartography, (j) educational methods, (k) environmental perception, (m) statistical methods, (n) conservation problems, (p) physical, (r) climatology, (s) biogeography, (t) soils. Consists of either lectures, conferences, supervised reading, laboratory work, or field work. May be repeated more than once to pursue different studies.

720 SEMINAR IN ADVANCED CLIMATOLOGY (3 + 0) 3 credits
Topics in physical, regional, or applied climatology, world climates, microclimates, climatic change, statistical techniques and problems pertaining to people. Prerequisite: GEOG 421 or 422.

752 THEMES IN CULTURAL GEOGRAPHY (3 + 0) 3 credits
Uses the topical approach in the study of the roles played by such factors as population, race, social traits, economy, politics in shaping the diverse cultural regions of the earth.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
For majors in the land use planning policy master's program only.

Inactive Courses

478, 678 AFRICA (3 + 0) 3 credits
486, 686 ASIA (3 + 0) 3 credits

GEOLOGY (GEOL)

101 PHYSICAL GEOLOGY (3 + 0 or 3) 3 or 4 credits
Lectures on geologic concepts, features, and processes. Laboratory involves reading of topographic and geologic maps, study and identification of common rocks and minerals, and study of geologic phenomena. Field trips.

102 HISTORY OF THE EARTH (3 + 3) 4 credits
Origin and history of the earth with a description of the life of the successive geologic periods. Laboratory exercises in the interpretation of geologic history from maps and fossil study. Prerequisite: GEOL 101.

105 INTRODUCTION TO GEOLOGY (1 + 0) 1 credit
Brief study of physical and historical geology, with emphasis on the structure of the earth, origin of past and present landscapes, and evolution of life as told in the fossil record.

106 INTRODUCTION TO GEOLOGICAL ENGINEERING
(1 + 0) 1 credit
Historical background to include seismic hazards, landslides, tunnelling, groundwater, exploration and mining geology, remote sensing, geophysics. Field trip required.

160 THE PARADE OF LIFE (3 + 0) 3 credits
Survey of the history and classification of fossil plants and animals. Methods of interpretation of the fossil record. Evolution of form and structure and the sequence of fossils in rocks. Occasional Saturday field trips.

211 MINERALOGY (2 + 3) 3 credits
Crystallography, crystal chemistry and the origin and determination of ore minerals and rock-forming minerals. Prerequisite: elementary chemistry and trigonometry.

212 ELEMENTARY PETROLOGY (2 + 3) 3 credits
Identification of the common igneous, sedementary, and metamorphic rocks using hard specimens supplemented with thin sections. Introduction to the principal rock-forming processes. Prerequisite: GEOL 211.

250 GEOLOGY FOR ENGINEERS (2 + 3) 3 credits
Minerals, rocks, principles of physical and structural geology, introduction to ground water, earthquakes and geophysics. Influence of geology on engineering design and construction procedures. Prerequisite: C E 246.

290 ELEMENTARY GEOPHYSICS AND GEODYNAMICS (3 + 0) 3 credits
Elementary geophysical concepts related to gravity, magnetism, seismic waves. Stress and strain in fault zones, earthquakes and fault creep, earthquake prediction and control. Sea-floor spreading and global tectonics. Prerequisite: GEOL 101, MATH 265.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description)

332 STRUCTURAL GEOLOGY (2 + 6) 4 credits
Structural features of the earth's crust. Laboratory work involves the study and preparation of geologic maps and cross sections. Prerequisite: GEOL 101 and trigonometry.

341 GEOMORPHOLOGY (2 + 3) 3 credits
Surface processes and the development of geomorphic features. Interpretation of topographic maps and air photographs. Emphasis on classic features of the Basin and Range province. Prerequisite or corequisite: GEOL 101 or GEOG 103 and GEOL 332.

351 INTRODUCTION TO GEOCHEMISTRY (3 + 0) 3 credits
Survey of premises and applications of geochemical studies. The distribution of elements in rocks; the periodic table and its usefulness in predicting

geochemical behavior; chemical equilibria in natural systems; diadochy and isomorphism; the phase rule and phase equilibria; Eh and pH diagrams. Prerequisite: GEOL 211, 212.

404, 604 INTRODUCTION TO AEROSPACE REMOTE SENSING (2 + 3) 3 credits
Characteristics of electromagnetic radiation in the ultraviolet, visible and solar infrared portions of the spectrum. Physical basis for spectral properties of rocks, soils, vegetation and water. Applications of data collected by aircraft, spacecraft and satellite systems to mineral and energy exploration, engineering and environmental studies and hydrology/hydrogeology. Prerequisite: GEOL 341, 446, 646. (Same as RWF 404, 604.)

414 HYDROLOGIC FLUID DYNAMICS (3 + 0) 3 credits
Physical principles governing natural flows in the land phase of the hydrologic cycle: open channel and saturated/unsaturated porous media flow. Erosion and sediment transport. Prerequisite: PHYS 201, MATH 310. (Same as RWF 414, 614.)

415, 615 GEOLOGICAL THERMODYNAMICS (3 + 0) 3 credits
Reversible and irreversible thermodynamics. Includes first law, second law, Gibbs equation, entrophy production, flows and forces, transport processes, electrochemical processes. Prerequisite: MATH 215, 216.

417, 617 INSTRUMENTAL METHODS IN DETERMINATIVE MINERALOGY (2 + 3) 3 credits
Principles, operations, and applications of available instruments in the qualitative and quantitative investigations of geologic, materials. Includes X-ray, thermal, atomic absorption, and neutron activation analyses.

425, 625 ADVANCED MINERALOGY (2 + 6) 4 credits
Optical crystallography and mineralogy; chemical composition, crystal chemistry and optical properties of rock-forming minerals; introduction to phase petrology and X-ray diffraction theory and application. Prerequisite: CHEM 202, GEOL 212, PHYS 202.

427, 627 ADVANCED PETROLOGY (2 + 6) 4 credits
Description and interpretation of rocks. Emphasis on rock-forming processes as deduced from textural, small-scale structural and mineralogical characteristics. Prerequisite: GEOL 425 or equivalent.

446, 646 PHOTOGEOLOGY-IMAGE INTERPRETATION (1 + 6) 3 credits
Application of photogeologic and image interpretation techniques for study and evaluation of terrestrial landscapes. Corequisite: GEOL 332, 341.

450 FIELD METHODS (0 + 3) 1 credit
Introduction to methods and instruments used by field geologists, including elementary photogrammetry.

451 SUMMER FIELD GEOLOGY 3 or 6 credits
Study and preparation of maps to accompany reports on areas of sedimentary and igneous rocks in the Basin and Range region. Three- or six-week course in geologic field methods beginning in early June. Prerequisite: GEOL 212, 332, 341, 450. Fee to cover cost of board and transportation.

455-456, 655-656 PHYSICS OF EARTH (3 + 0) 3 credits each
Selected topics concerning the earth from the points of view of physicists and geophysicists. Gravitation, magnetism, heatflow, earth's rotation, waves, geochronology, and plate tectonics. Prerequisite: thorough knowledge of differential-integral calculus, vectors, and basic physics; some knowledge of different equations. (Same as PHYS 455-456, 655-656.)

461, 661 INVERTEBRATE PALEONTOLOGY (3 + 3) 4 credits
Structure and evolutionary development of fossil invertebrates and their existing representatives. Application of paleontology to stratigraphic problems. A two-day collecting trip will be arranged early in October. Prerequisite: GEOL 102 or BIOL 383, 384.

462, 662 MICROPALEONTOLOGY (2 + 6) 4 credits
Study of microfossils, chiefly Foraminiferida and Ostracoda. Consideration of other groups including spores and pollen and nannofossils.

464-465, 664-665 STRATIGRAPHIC PALEONTOLOGY (2 + 3) 3 credits each
Succession of invertebrate faunas from the Cambrian to the Pleistocene with emphasis on index fossils, faunal distributions, and paleoecologic systems. Spring term covers Paleozoic; fall term covers Mesozoic and Cenozoic. Prerequisite: GEOL 461.

468, 668 SEDIMENTOLOGY (2 + 3) 3 credits
Processes that deposit and modify sediments and the aspects of sedimentary rocks that allow interpretation of depositional environments. Prerequisite: GEOL 102, 212.

469, 669 PRINCIPLES OF STRATIGRAPHY (3 + 0) 3 credits
History and methods of stratigraphic analysis and applications to geological and geophysical problems. Prerequisite: GEOL 102, 212, 332, 468.

471, 671 ORE DEPOSITS (2 + 3) 3 credits
Genesis and localization of metalliferous ore deposits, including surface expression, secondary effects in the weathering zone, wall rock alteration, and hypogene zoning. Prerequisite: GEOL 212, 332.

474, 674 HYDROGEOLOGY LABORATORY (0 + 3) 1 credit
Field, laboratory and computer experiments in hydrogeology including determination of hydraulic properties, aquifer testing, well design, flow net analysis, hydrogeochemical sampling/analysis. Corequisite: GEOL 484 or equivalent.

476, 676 NONMETALLIC MINERAL DEPOSITS (3 + 0) 3 credits
Occurrence, distribution, origin, and economic value of the nonmetallic minerals. Prerequisite: GEOL 471.

479, 679 EARTHQUAKE ENGINEERING (3 + 0) 3 credits
Historic earthquakes, faulting and seismicity; spectra of earthquake vibrations; effects on soil and damage to manmade structures; seismic hazard studies; nuclear power plant siting; features of earthquake-resistant structures. Prerequisite: upper-division standing in geology, geological engineering, or civil engineering. (Same as C E 479.)

480, 680 ENVIRONMENTAL GEOLOGY (2 + 3) 3 credits
Relationship between geological materials, processes, and history and man's safety, health, and quality of environment. Studies include lectures, discussions, and field trips dealing with geological hazards in urban development. Prerequisite: upper-division standing in geology, geophysics, or engineering.

483, 683 GEOLOGICAL ENGINEERING SLOPE STABILITY (3 + 0 or 3) 3 or 4 credits
Application of geological and engineering factors in the design and stability of natural and man-made rock and soil slopes. Corequisite: C E 372, GEOL 332.

484, 684 GROUNDWATER HYDROLOGY (3 + 0) 3 credits
Hydrologic, geologic and other factors controlling groundwater flow, occurrence, development, chemistry and contamination. Elementary groundwater flow theory. Interactions between surface-subsurface hydrologic systems. Prerequisite: GEOL 101, PHYS 152, CHEM 102, MATH 216.

485, 685 GEOLOGICAL ENGINEERING SUPPORT AND STABILIZATION TECHNIQUES (3 + 3) 4 credits
Design of support for surface and underground excavations. Ground improvement and instrumentation. In situ measurements in rock and soil. Prerequisite: GEOL 483, C E 492.

486, 686 FIELD GEOPHYSICS (0 + 3) 1 credit
Geophysical exploration and engineering: electrical and seismic refraction surveys. Field work, presentation of data, interpretation, and reports. Prerequisite: GEOL 450, 492.

489, 689 EXPLORATION AND MINING GEOLOGY (3 + 3) 4 credits
Geologic and economic principles and the technology used in exploration, evaluation, development, and mining of ore deposits. Mine mapping, field trips. Prerequisite: GEOL 471.

490, 690 ELEMENTARY SEISMOLOGY (2 + 3) 3 credits
Introduction to Geometrical Ray theory; solutions to elastic wave equation in terms of rays; transmission/reflection at boundaries of earth structure; from short period waves; seismic instrumentation. Prerequisite: MATH 320, PHYS 202.

491, 691 EARTHQUAKE SEISMOLOGY (2 + 3) 3 credits
Solutions to elastic wave equation in terms modes; the earthquake source; earth structure from long period waves; earthquake statistics and prediction. Prerequisite: GEOL 490.

492, 692 GEOPHYSICAL EXPLORATION (2 + 3) 3 credits
Applied geophysical methods: gravity, magnetics, electrical, and seismic refraction. Field work with geophysical equipment. Discussion of case histories. Prerequisite: GEOL 332, MATH 216, PHYS 152, 202.

494, 694 GEOPHYSICS AND POTENTIAL THEORY (2 + 3) 3 credits
Potential theory and interpretation technique as applied to the gravity, magnetic and electricl methods. Prerequisite: GEOL 492, PHYS 352 (may be taken concurrently) and 473.

495, 695 SPECIAL PROBLEMS 1 to 5 credits each
Independent study or research. Consists of conferences, reading, laboratory or field work. Maximum of 10 credits to pursue different studies.

497, 697 SPECIAL TOPICS IN GEOLOGICAL SCIENCES 1 to 6 credits
Study of selected topics by conferences, lectures, colloquia, seminars, and laboratory or field work. May be repeated to a maximum of 10 credits in different topics.

701-702 ADVANCED GEOLOGY 1 to 5 credits each
(a) General geology, (b) regional geology, (c) mineralogy, (d) petrology, (e) petrography, (f) geochemistry, (g) structural geology, (h) geophysics, (j) geomorphology, (k) paleontology, (m) sedimentation, (n) stratigraphy, (p) mineral deposits, (r) economic geology, (s) ground water, (t) engineering geology, (u) photogrammetry, (v) seismology, (w) instrumental analysis, (x) teaching of earth sciences, (y) mineral exploration, (z) earth science. Consists of either lectures, periodic conferences, supervised reading, laboratory or field work. May be repeated more than once to pursue different studies.

704 ADVANCED AEROSPACE REMOTE SENSING (2 + 3) 3 credits
Thermal and radar remote sensing techniques. Thermal properties of rocks, soils, vegetation and water including thermal inertia and spectral emissivity. Microwave evaluation of surface topography, roughness and dielectyric constant using multi-frequency and multi-polarization radar. Applications of aircraft, spacecraft and satellite systems to geologic and hydrologic problems. Prerequisite: GEOL 404, 604.

715 GEOCHEMISTRY (3 + 0) 3 credits
Origin and abundance of elements in nature; their distribution and migration in geochemical spheres of the earth; geochemistry of solids; isotope and historical geochemistry. (Alternates with GEOL 724.)

716 LOW TEMPERATURE AQUEOUS GEOCHEMISTRY (3 + 0) 3 credits
Physical chemistry of electrolyte solutions, oxidation and reduction, surface effects, combination diagrams, precipitation and dissolution. Computer used to calculate various thermodynamic parameters. Prerequisite: GEOL 415; GEOL 724 recommended.

718 CHEMISTRY OF ENVIRONMENTAL WATERS AND ISOTOPES (3 + 0) 3 credits
Basic principles of utilizing isotopes to examine hydrologic systems; includes stable and radioactive isotopes. Basic examination of water quality standards. Prerequisite: GEOL 484, 684.

723 VOLCANIC GEOLOGY AND VOLCANOLOGY (2 + 3) 3 credits
Subdivision, mapping, correlation, dating, petrography and volcanotectonic setting of volcanic and volcaniclastic rocks; collapse caldersa and other volcanic centers; mineralization in volcanic centers; field trips. Prerequisite: GEOL 332, 425 or equivalent.

724 PHASE PETROLOGY (3 + 0) 3 credits
Phase equilibrium, paragenetic relations, and stabilities of minerals and mineral assemblages in the light of thermodynamic principles. Apparatus and techniques for high P-T experiments related to igneous and metamorphic petrology. Prerequisite: GEOL 415, 615. (Alternates with GEOL 715.)

725 ORE PETROLOGY (2 + 6) 4 credits
Microscopic identification and study of opaque minerals and ore mineral suites. Ore textures and interpretation. Use of X-ray diffraction, reflectance and microhardness determinations in opaque mineral studies. Prerequisite: GEOL 425, 471.

726 VOLCANIC PETROLOGY (2 + 3) 3 credits
Origin and evolution of magmas through partial melting, fractionation and mixing; mineralogy, elemental and isotopic geochemistry, and phase petrology; modern analytical, calculation, and descrimination procedures. Prerequisite: GEOL 425, 427-428 or equivalent; GEOL 725 is desirable.

727 PETROLOGY OF PLUTONIC ROCKS (2 + 3) 3 credits
Theoretical and petrographic investigations of crystallization of silicate melts in the plutonic environment. Includes consideration of magma source and the magmatic-metamorphic boundary problem. Prerequisite: GEOL 425 and 427-428 or equivalent. (Alternates with GEOL 728.)

728 METAMORPHIC PETROLOGY (2 + 3) 3 credits
Theoretical and petrographic study of metamorphic mineral assemblages including problems of equilibrium-disequilibrium, process lending to the development of fabric, and elementary petrofabrics. Prerequisite: GEOL 425 and 427-428 or equivalent. (Alternates with GEOL 727.)

729 SEDIMENTARY PETROLOGY (2 + 3) 3 credits
Methods of study of the properties of sedimentary rocks leading to the interpretation of syngenetic, diagenetic and epigenetic history. Prerequisite: GEOL 425, 469.

730 ADVANCED GEOLOGY OF NEVADA (2 + 0) 2 credits
Tectonic and stratigraphic development of Nevada through geologic time. A two- or three-day field trip to significant areas is required early in the semester. Prerequisite: stratigraphy and structural geology.

731 STRUCTURAL GEOLOGY SEMINAR (2 + 3) 3 credits
Structural features of the earth's crust; their distribution and the mechanics of their formation. Prerequisite: GEOL 332.

735 NEOTECTONIC GEOLOGY (1 + 3) 2 credits
Relationship between earthquake or aseismic tectonic activity and deformation. Methods and principles for determining design earthquakes.

736 ACTIVE FAULTING (1 + 3) 2 credits
Tectonic, geomorphic and soil-stratigraphic character of active faults and folds of extensional, compressional and transform settings.

740 DESIGN OF SURFACE AND UNDERGROUND EXCAVATIONS (3 + 0) 3 credits
Design techniques for excavations in hard and soft rocks, soil masses. Stability problems. Rock and soil reinforcement, lining design. Computer applications, field trips. Prerequisite: GEOL 485, C E 492.

741 STATE OF THE ART IN GEOLOGICAL ENGINEERING (3 + 0) 3 credits
Recent advances in geological engineering research. Materials just published and not incorporated into other courses. Prerequisite: GEOL 740.

743 GEOSTATISTICS (3 + 0) 3 credits
Introduction to geostatistical data estimation using the concepts of variograms, kriging, cokriging, multivariate techniques, correlation analysis and regression. Prerequisite: MATH 251.

750 PRIMARY SEDIMENTARY STRUCTURES (3 + 0) 3 credits
Features of sedimentary rock attributed to their environment of deposition and techniques used to constrain their interpretation. Prerequisite: GEOL 469 or 669, or equivalent.

771 HYDROTHERMAL MINERAL DEPOSITS (2 + 3) 3 credits
Field relations; active geothermal and fossil hydrothermal systems; ore transport and precipitation mechanisms; vein materials and alteration mineral assemblages; stable-isotope and fluid-inclusion chemistry. Prerequisite: GEOL 425, 471 or equivalent.

773 MINERAL EXPLORATION SEMINAR (1 + 0) 1 credit
Seminar on a current topic in geology, geophysics, or geochemistry in exploration for hard minerals in the Cordillera.

774 ADVANCED SEISMOLOGY I (3 + 0) 3 credits
Advanced applications of theory and experiments to seismological problems; body wave, and source theory; problems in modern seismometry.

775 ADVANCED SEISMOLOGY II (3 + 0) 3 credits
Advanced applications of theory and experiments to seismological problems; surface wave, free oscillation and source theory.

779 COMPUTER ANALYSIS OF AEROSPACE REMOTE SENSING DATA (2 + 3) 3 credits
Principles of computer processing of electromagnetic remote sensing data including computer systems and software programs used for radiometric and geometric correction, filtering, image enhancement, image transformation and image classification. Applications of computer processing techniques to mineral and energy exploration, engineering and environmental geology and hydrology/hydrogeology. Prerequisite: GEOL 404, 604 or 704.

780 HYDROGEOLOGIC SYSTEMS (3 + 0) 3 credits
Conceptual and quantitative treatment of regional groundwater flow, groundwater-soil water-surface water interactions, groundwater recharge-discharge mechanisms and budgets. Environmental isotope/tracer hydrogeology. Prerequisite: GEOL 484. Corequisite: MATH 320 or M E 300.

782 HYDROLOGY/HYDROGEOLOGY SEMINAR (0 + 3) 1 credit
(See RWF for description.)

783 GROUNDWATER HYDRAULICS (3 + 0) 3 credits
Mechanics of groundwater flow through porous and fractured media; boundary conditions and analytical solutions to subsurface flow problems including flow to wells; aquifer parameter estimation. Prerequisite: GEOL 484, 684; M E 300 or MATH 320.

784 UNSATURATED GROUNDWATER FLOW (3 + 0) 3 credits
Theory of fluid, contaminant, and vapor transport in the vadose zone including the relevant surface physics and chemistry, thermodynamics, and appropriate mathematical development. Prerequisite: GEOL 783.

785 INTRODUCTION TO GROUNDWATER MODELING (3 + 0) 3 credits
Numerical solution of the ordinary and partial differential equations of groundwater flow and contaminant transport. Emphases on learning methodology and solving applied problems. Prerequisite: FORTRAN, GEOL 783.

786 CONTAMINANT TRANSPORT IN GROUNDWATER FLOW SYSTEMS (3 + 0) 3 credits
Theoretical and applied study of solute transport phenomena. Analytical and numerical solutions of the advective-dispersion equation and other techniques

for solving groundwater contamination problems. Prerequisite: MATH 320, GEOL 783.

789 SEMINAR IN AEROSPACE REMOTE SENSING (1 + 0 or 3) 1 or 2 credits
Presentations on student and faculty research in aerospace remote sensing. Reviews of current research topics involving the applications of aerospace methods to study of geoscience problems in the Great Basin. Prerequisite: GEOL 404, 604, 704 or consent of instructor.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

201 GEOLOGY OF NEVADA (2 + 0) 2 credits
203 PROSPECTING TECHNIQUES (1 + 1 or 2) 1 to 3 credits *S/U only*
381 APPLIED GEOLOGY (3 + 0) 3 credits
481, 681 TECTOGENESIS AND GEOTECHNOLOGY (2 + 6) 4 credits
482, 682 GEOLOGY OF ENERGY (3 + 0 or 3) 3 or 4 credits
487, 687 MINING GEOLOGY (2 + 3) 3 credits
488, 688 EXPLORATION GEOLOGY (3 + 0) 3 credits
651 SUMMER FIELD GEOLOGY 3 or 6 credits
710 HISTORY OF GEOLOGY (2 + 0) 2 credits
790 MINERAL INDUSTRY SEMINAR 1 to 3 credits

HISTORIC PRESERVATION (H P)

400, 600 PRINCIPLES OF HISTORIC PRESERVATION (3 + 0) 3 credits
Development of preservation movement, and philosophy in the U.S. and Europe; legal aspects and subfields of historic preservation. Case studies of local, state and federal projects and problems. Prerequisite: nine credits of history, anthropology or political science.

401, 601 LAWS AND POLICIES (3 + 0) 3 credits
Intensive review of agencies, laws, guidelines, policies, ordinances and building codes relating to historic preservation and its sub-fields. Case studies in preservation law. Prerequisite: H P 400 or 600.

402, 602 HISTORY OF AMERICAN ARCHITECTURE (3 + 0) 3 credits
Survey of major historic American architectural styles and European antecedents; consideration of architectural history in relation to historic preservation planning and technology.

405, 605 HISTORIC PRESERVATION SURVEY AND PLANNING (3 + 0) 3 credits
Survey archival and field research practices; formulation of historic preservation plans; procedure for integration with local and regional master plans. Case studies. Prerequisite: H P 400, 401, 600, 601.

470, 670 RESEARCH PRACTICUM (3 + 0) 3 credits
Field and archival recording and research; methods of recording historic structures and objects; development of historic overlays; nomination procedures of the National Register of Historic Places. Prerequisites: H P 400, 401, 600, 601.

475, 675 TECHNIQUES OF PRESERVATION AND CONSERVATION (3 + 0) 3 credits
Methods, techniques and materials for preserving, stabilizing, restoring and adaptively reusing historic structures; conservation methods for prehistoric sites. Field trips to local and regional preservation projects. Prerequisites: H P 400, 401, 600, 601.

480, 680 INTERNSHIP (3 + 0) 3 credits *S/U only*
Practical working experience in local, state or federal historic preservation agencies. Maximum of 6 credits. Prerequisite: H P 400, 401, 600, 601.

499, 699 SPECIAL PROBLEMS 1 to 6 credits
Research or reading in special topics under supervision. Maximum of 6 credits. Prerequisite: H P 400, 401, 600, 601.

HISTORY (HIST)

101 UNITED STATES (3 + 0) 3 credits
U.S. political, social, economic, diplomatic and cultural development from colonial times to 1865. Includes examination of the U.S. Constitution and satisfies the U.S. Constitution requirement.

102 UNITED STATES (3 + 0) 3 credits
U.S. political, social, economic, diplomatic and cultural development from 1865 to the present. Includes examination of the Nevada Constitution and satisfies the Nevada Constitution requirement.

105 EUROPEAN CIVILIZATION (3 + 0) 3 credits
Development of western civilization from the dawn of history to 1648.

106 EUROPEAN CIVILIZATION (3 + 0) 3 credits
Development of western civilization from 1648 to the present.

111 SURVEY OF AMERICAN CONSTITUTIONAL HISTORY (3 + 0) 3 credits
Origins and history of the constitutions of the U.S. and state of Nevada; surveys the development of American judicial interpretations and institutions. Satisfies the U.S. and Nevada Constitutions requirements.

217 NEVADA HISTORY (3 + 0) 3 credits
Nevada history from early exploration to the present. Includes examination of the Nevada Constitution and satisfies the Nevada Constitution requirement.

281 INTRODUCTION TO THE HISTORY OF SCIENCE (3 + 0) 3 credits
History of the physical, mathematical, natural, biological and medical sciences from the ancient world to the Scientific Revolution of the 17th century.

282 INTRODUCTION TO THE HISTORY OF SCIENCE (3 + 0) 3 credits
History of the physical, mathematical, natural, biological and medical sciences from the 17th century to the present.

300 INTRODUCTION OF HISTORIOGRAPHY (3 + 0) 3 credits
Philosophy of history, the history of history and the techniques of historical research.

301-302 IDEAS, VALUES AND CULTURES (3 + 0) 3 credits
Ideas, values and cultures as they relate to the concepts of man, society and the cosmos. Includes Western, non-Western and women's primary source material.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

310 MUSEUM TRAINING FOR HISTORIANS (2 + 2) 3 credits
Operation and administration of historical museums, including training in archival procedures, publications and related museum management procedures.

312 THE EXPANSION OF THE U.S. (3 + 0) 3 credits
Expansion and growth of the U.S. with emphasis on the "westward movement"; the conquest and settlement of regions west of the Appalachian Mountains.

315 TRANS-MISSISSIPPI WEST (3 + 0) 3 credits
U.S. exploration, conquest and settlement of western North America.

316 AMERICAN ENVIRONMENTAL HISTORY (3 + 0) 3 credits
American attitudes and policies toward the environment emphasizing themes of exploitation, preservation and conservation from the Puritans to the late 20th century ecological movement.

317-318 HISTORY OF RELIGION IN THE U.S. (3 + 0) 3 credits each
Selected topics on major trends, issues, and personalities within American religious traditions and their relationship to the political and social life of the nation. HIST 317 covers the period to 1900; 318 covers the 20th century.

320 THE SPANISH-SPEAKING PEOPLE OF THE WESTERN U.S. (3 + 0) 3 credits
Historical development of Hispano, Chicano and Mexican peoples in the Southwest and the Pacific Coast emphasizing the period since 1848.

328 CONTEMPORARY CIVILIZATION (2 or 3 + 0) 2 or 3 credits
Institutional developments, events, trends and conflicts since World War II are summarized and interpreted in the light of the recent past.

343-344 LATIN AMERICA (3 + 0) 3 credits each
Development of the Iberian states as colonizing powers, the discovery and conquest of America, the growth of political, social and economic institutions during the Colonial period, the independence movement in Spanish and Portuguese America and the historical development of the leading republics since independence.

345 LATIN AMERICA IN WORLD AFFAIRS (3 + 0) 3 credits
Emphasizes the relations of Latin America with the U.S. and other world powers; Pan-Hispanism; Pan-Americanism and its relation to world organization; the role of Latin America in the community of nations.

346 MEXICO, CENTRAL AMERICA, AND THE CARIBBEAN (3 + 0) 3 credits
Discovery, conquest, growth of political, social and economic institutions. Socio-economic development and foreign relations since 1850 are stressed.

351-352 THE FAR EAST (3 + 0) 3 credits each
Historical development of China, Japan and Southeast Asia in the 19th and 20th centuries. Emphasis is placed upon such subjects as commercial and colonial expansion, the opening of China and Japan, the growth of colonial imperialistic and nationalistic interests among the western powers and Japan, and the rise of Communist power in Asia.

353 RECENT HISTORY OF THE FAR EAST (2 + 0) 2 credits
The Far East in the aftermath of World War II.

361-362 THE MIDDLE EAST (2 or 3 + 0) 2 or 3 credits each
Survey of the Middle East with emphasis on its impact on European history.

371-372 ANCIENT CIVILIZATION (3 + 0) 3 credits each
Political, social, economic and cultural development of the ancient Near East, Greece and Rome; the elements of ancient civilization that contributed vitally to medieval and modern civilization.

373 MEDIEVAL CIVILIZATION (3 + 0) 3 credits
Europe from the disintegration of the Roman Empire to the age of the Renaissance.

377-378 EUROPEAN SOCIAL HISTORY (3 + 0) 3 credits each
Topical survey of European society emphasizing the formation of classes, the family, women, crime, material culture and popular culture. HIST 377 covers preindustrial Europe; HIST 378 covers industrial and postindustrial Europe.

384 THE AGE OF THE RENAISSANCE (3 + 0) 3 credits
Cultural, social, intellectual, religious, economic and political history of Europe, 1300-1520.

385 REFORMATION EUROPE AND THE AGE OF THE BAROQUE (3 + 0) 3 credits
Political, social, intellectual, religious and cultural history of Europe in the 16th and 17th century.

393-394 ENGLAND AND THE BRITISH EMPIRE (3 + 0) 3 credits each
History of England and its empire: social, economic and political development. Background of English literature and law. Second semester begins at Elizabethan Age.

395 THE IRISH AND OTHER CELTS: A HISTORY OF SURVIVAL (3 + 0) 3 credits
The 3,000-year history and culture of the Irish, Scots, Welsh and related peoples. Special notice is given to their tenuous survival and extensive migrations.

401-402, 601-602 AMERICAN CONSTITUTIONAL HISTORY (3 + 0) 3 credits each
Narrative and interpretive study of the origin and growth of the constitutional system. May be used to satisfy requirement in U.S. Constitution.

403-404, 603-604 AMERICAN INTELLECTUAL AND SOCIAL HISTORY (3 + 0) 3 credits each
Topical examination of the major currents in American life with emphasis on social, cultural, and intellectual development, and the impact of industrialization in the modern world.

406, 606 HISTORY OF AMERICAN IMMIGRATION (2 or 3 + 0) 2 or 3 credits.
Historical inquiry into the conditions which produced and the problems which resulted from the great Atlantic migration.

407-408, 607-608 AMERICAN DIPLOMATIC HISTORY (3 + 0) 3 credits each
Origins, character and consequences of American foreign policies from the Revolutionary War to the present.

409, 609 U.S. AGRICULTURAL HISTORY (3 + 0) 3 credits
Colonial beginnings of American agriculture, the advance of the American agricultural empire into the greater West, the accompanying industrial revolution in agriculture and the role of government in 20th century agricultural policy. Regional characteristics of American agriculture.

410, 610 20TH CENTURY AMERICAN WEST (3 + 0) 3 credits
Political, economic, and social problems growing out of the twentieth century West, including the Plains States, the Rocky Mountains and Pacific Coast with emphasis on the West's integration into the industrial and urban life of the nation and the interaction of the region with the Federal Government.

411, 611 U.S.: COLONIAL PERIOD TO 1763 (3 + 0) 3 credits
Origins of the North American colonies; development of colonial society, culture and institutions; international rivalry for North American supremacy.

412, 612 ERA OF THE AMERICAN REVOLUTION, 1763-1789 (3 + 0) 3 credits
Imperial reorganization and colonial protest, the War for Independence, government under the Articles of Confederation, formation of the Federal Constitution.

413, 613 U.S.: NATIONAL PERIOD, 1789-1850 (3 + 0) 3 credits
Development of the new nation, the Federalists and the Jeffersonians, the War of 1812, the Era of Good Feelings, the Age of Jackson, expansion and controversy to the Compromise of 1850.

414, 614 U.S.: CIVIL WAR AND RECONSTRUCTION, 1850-1877 (3 + 0) 3 credits
Intensification of sectional strife, the road to disunion, the Civil War, the era of Reconstruction.

415, 615 U.S.: THE NEW NATION, 1877-1914 (3 + 0) 3 credits
Political, economic and social developments in years of rapid industrialization and western settlement; emergence as a world power; the Progressive Movement.

416, 616 U.S.: RECENT HISTORY 1914 to PRESENT (3 + 0) 3 credits
World War I and its impact, normalcy and prosperity, the Great Depression and the New Deal, World War II, the U.S. in the Atomic Age.

417, 617 NEVADA AND THE WEST (3 + 0) 3 credits
Topical examination of Nevada history in relation to issues of western and national significance, e.g., mining, transportation, conservation and development of water resources.

418, 618 HISTORY OF U.S.-AMERICAN INDIAN RELATIONS (3 + 0) 3 credits
U.S. government relations with tribes and inter-tribal relations from colonial times into the 20th century with emphasis upon constitutional questions.

421-422, 621-622 HISTORY OF RUSSIA (3 + 0) 3 credits each
Development of Russian history and society from the Varangians to the present.

423-424, 623-624 HISTORY OF GERMANY (3 + 0) 3 credits each
Institutional, social, economic and political development of the German states to 1848. Continued through the period of German unification, Empire, the Weimar Republic and the Nazi era.

425, 625 EUROPEAN DIPLOMATIC HISTORY (3 + 0) 3 credits
Background of the European state system, diplomatic practices and relations since the congress of Vienna with emphasis on the policies of the great powers.

427, 627 INTELLECTUAL HISTORY OF MODERN EUROPE (3 + 0) 3 credits
Examination of selected ideas and thinkers who have influenced European civilization since the Renaissance.

428, 628 BASQUE HISTORY (3 + 0) 3 credits
Political, social and economic history of the Basque provinces and their unique ethnic status within Spain and France.

447-448, 647-648 TOPICAL STUDIES IN AFRICAN HISTORY (3 + 0) 3 credits each
Ancient empires, the peopling of Africa by its modern inhabitants, European imperialism/colonialism, collaboration and resistance to colonial rule.

449, 649 TOPICAL STUDIES IN AFRICAN HISTORY SINCE 1945 (3 + 0) 3 credits
Elites and masses in modern Africa, independence and neocolonialism, white Africa, modern African intellectual thought, African nationalism.

455-456, 655-656 BLACK EXPERIENCE IN AMERICA (3 + 0) 3 credits each
Historical treatment of the Black experience in America, emphasizing the 17th to 20th centuries. Second semester begins in Reconstruction.

461, 661 EUROPEAN CRISIS AND THE AGE OF THE ENLIGHTENMENT (3 + 0) 3 credits
Development of the economic, political, social and cultural patterns of Europe during the Age of Reason and the Age of the Enlightenment.

462, 662 ERA OF THE FRENCH REVOLUTION, 1763-1815 (3 + 0) 3 credits
Europe during the age of democratic revolution and the rise and fall of Napoleon Bonaparte.

463, 663 EUROPE: 1815-1914 (3 + 0) 3 credits
Development of the economic, political, social, and cultural patterns of Europe from Waterloo to the outbreak of World War I.

464, 664 EUROPE: 1914 TO THE PRESENT (3 + 0) 3 credits
Detailed study of an age of conflict and its interludes of peace.

473, 673 PATTERNS OF MEDIEVAL CULTURE (3 + 0) 3 credits
Selected topics concerning medieval economic, social, political, religious and cultural developments such as feudal society, religious orthodoxy and dissent, universities and chivalry. Maximum of 6 credits.

475, 675 STUDIES IN URBAN HISTORY (3 + 0) 3 credits
Topical examination of urban development stressing the city in its various political, social and economic aspects. Geographical and chronological emphasis determined by the instructor. Maximum of 6 credits.

481, 681 PROBLEMS IN THE HISTORY AND PHILOSOPHY OF SCIENCE (3 + 0) 3 credits
Selected topics in scientific revolutions, theory choice, discovery, relations of history, philosophy, sociology and psychology of science. Maximum of 6 credits. (Same as PHIL 481, 681.)

490, 690 HISTORY OF THE MEDICAL SCIENCES (3 + 0) 3 credits
Topical history of the conceptual, instrumental and institutional development of the medical sciences from the Greeks to the present.

495, 695 ADVANCED HISTORICAL STUDIES 1 to 3 credits
Maximum of 9 credits. Topics vary from semester to semester.

497, 697 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

703 ADVANCED STUDIES IN HISTORY 1 to 3 credits
Maximum of 6 credits.

705 GRADUATE READINGS IN HISTORY 1 to 3 credits
Maximum of 9 credits.

710 SEMINAR IN MEDIEVAL HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

711 SEMINAR IN AMERICAN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

712 SEMINAR IN MODERN EUROPEAN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

713 SEMINAR IN LATIN AMERICAN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

714 SEMINAR IN NEVADA AND FAR WESTERN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

715 SEMINAR IN AMERICAN IMMIGRATION (3 + 0) 3 credits
Maximum of 9 credits.

716 SEMINAR IN FAR EASTERN HISTORY (3 + 0) 3 credits
Maximum of 9 credits.

737 COLLEGE TEACHING IN HISTORY (3 + 0) 3 credits
Theory and practice in the teaching of history in college. Maximum of 6 credits.

783 HISTORIOGRAPHY (3 + 0) 3 credits
Extensive readings in the literature of historical methods and a comprehensive survey of historical writing from ancient times to the present.

784 PROBLEMS IN HISTORIOGRAPHY (3 + 0) 3 credits
Prerequisite: HIST 783 or equivalent.

793 INDEPENDENT STUDY 1 to 3 credits
For students majoring in the tutorial doctoral program in Basque studies. Maximum of 9 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits
For majors in the tutorial doctoral program in Basque studies only.

Inactive Courses

431, 631 ENGLISH CONSTITUTIONAL HISTORY (3 + 0) 3 credits
453 ETHNIC HISTORY IN THE U.S. (3 + 0) 3 credits

HOME ECONOMICS (H EC)

The School of Home Economics reserves the right to keep students' work on a loan basis for a period of time up to one year. Such work is used for descriptive and interpretative purposes related to course content and expectations.

121 HUMAN NUTRITION (3 + 0) 3 credits
Introduction to the principles of nutrition and their application to well-balanced diets.

131 CHILD DEVELOPMENT (3 + 0) 3 credits
Overview of growth and development from the prenatal period through adolescence. Recommended corequisite: H EC 233 (1 credit).

132 CHILD GUIDANCE AND PARENTING (3 + 0) 3 credits
Child development principles used in guiding the behavior of children from infancy through adolescence for teachers, parents and others working with children. Prerequisite or corequisite: H EC 131.

151 FOUNDATIONS FOR DESIGN (1 + 6) 4 credits
A studio study of design principles, elements, graphic ideation and modeling; both two- and three-dimensional aspects are studied.

172 INTRODUCTION TO HOME ECONOMICS (2 + 0) 2 credits
History, scope and integrative nature of the profession. Career options. Professional interaction in the work setting. Roll of the home economist in public policy.

200 SPECIAL TOPICS IN HOME ECONOMICS 1 to 6 credits
Study under supervision of a staff member on topics of special interest to the learner. Maximum of 6 credits.

202 FIELD STUDY 1 to 3 credits *S/U only*
Student-faculty seminar including group travel for field study experience. Maximum of 6 credits.

210 APPAREL PRODUCT ANALYSIS (3 + 0) 3 credits
Recognition and evaluation of commercial construction techniques as related to garment cost, durability, and appearance. Prerequisite: H EC 216.

211 PATTERN DESIGN (1 + 4) 3 credits
Basic principles of pattern construction and design through a combination of draping and drafting techniques. Prerequisite: H EC 210.

212 TEXTILE, APPAREL, AND RETAIL INDUSTRIES (3 + 0) 3 credits
Structure, operation, and interrelationship of industries involved in the production, distribution, and merchandising of textile goods. Exploration of career opportunities.

216 TEXTILES (2 + 2) 3 credits
Physical and chemical characteristics of textile fibers, yarn and fabric constructions and finishes. Selection, use and care of textile products. Introduction to laboratory testing methods.

223 PRINCIPLES OF NUTRITION (3 + 0) 3 credits
Nutrient functions and bases for nutrient requirement at the cellular level. Prerequisite: CHEM 101, 142.

225 PRINCIPLES OF FOOD SCIENCE (2 + 3) 3 credits
Principles of food preparation based on physical and chemical changes. Development of professional skills in (a) manipulation of variables using class representative foods and (b) critical evaluation of food quality.

233 PRACTICUM WITH CHILDREN AND FAMILIES (1 + 2 to 14) 1 to 5 credits
Observing and working in a preschool setting with children and their families. Advance approval required for more than one credit. Prerequisite or corequisite: H EC 131 or equivalent. Maximum of 9 credits.

256 INTERIOR DESIGN I (0 + 6) 3 credits
Design of residential interiors appropriate for users; programming, space planning, design, and client presentation. Prerequisite: H EC 151, architectural design.

270 FIELD EXPERIENCE 1 to 3 credits *S/U only*
Work with one or more community agencies or firms that utilize home economics subject matter as they work with clientele. Maximum of 3 credits.

274 INDIVIDUAL AND THE FAMILY (4 + 0) 4 credits
Individual development, roles and interrelationships within the family system, over the lifespan and across socioeconomic levels. Critical and developmental issues facing the family. Prerequisite: SOC 101 or PSY 101.

275 HOUSING (3 + 0) 3 credits
Housing, both aesthetic and functional, as a framework for family living.

309 MUSEOLOGY (3 + 0) 3 credits
(See ANTH 309 for description.)

315 HISTORIC COSTUMES AND TEXTILES (3 + 0) 3 credits
Textile fabrics and dress as they record the cultural, social and economic trends of significant design periods.

317 FUNDAMENTALS OF AESTHETICS AND FASHION (3 + 0) 3 credits
Fashion theories, cycles, and influences. Clothing aesthetics. Impact of clothing and appearance on social interaction. Prerequisite: SOC 101, PSY 101.

318 CREATIVE TEXTILES (2 + 2) 3 credits
Design of textiles structures using fibers, yarns and fabrics. Historical and traditional aspects studied in relation to potential in design of contemporary fabric forms. Prerequisite: H EC 151 or equivalent.

320 QUANTITY FOOD PURCHASING (2 + 3) 3 credits
Food purchasing for food service systems, understanding of cost factors, marketing factors, food laws, quality standards and basic manufacturing processes.

321 FOOD SERVICE SYSTEMS MANAGEMENT (2 + 3) 3 credits
Organization and operation of food services; management principles; food service personnel; labor laws; regulatory agencies; food cost control; record keeping.

333 ADULT DEVELOPMENT AND AGING (3 + 0) 3 credits
Contemporary theory and research; critical examination of both development stages and tasks of men and women in our culture. Prerequisite: H EC 274 or equivalent.

341 PERSONAL FINANCE (3 + 0) 3 credits
Factors relevant to families' and individuals' economic functioning in American society. Personal use of money: earning, spending, saving, borrowing, investing, planning.

347 TEACHING HOME ECONOMICS (1 + 0 per credit) 1 to 3 credits
Competencies in the educative process for home economics. Three sequential parts: (a) lesson planning, instructional objectives and assessment; (b) teaching-learning strategies; and (c) middle and senior high school home economics. Maximum of 3 credits. Home economics education majors must enroll for 3 credits.

350 SPACE, LIGHT, AND COLOR (3 + 0) 3 credits
Theories and concepts of space, light, and color relative to design. Prerequisite: H EC 151.

353 HISTORY OF INTERIORS (3 + 0) 3 credits
Evolution of design in interiors from antiquity to present.

354 INTERIOR PRESENTATION TECHNIQUES (0 + 6) 3 credits
Professional techniques and media for illustrating interior environments. Prerequisite: H EC 151, architectural design.

355 MATERIALS AND RESOURCES (3 + 0) 3 credits
Materials, surfaces, resources, and applications relevant to interior design.

358 INTERIOR DESIGN II (0 + 6) 3 credits
Design problems related to business and institutions. Prerequisite: H EC 256.

371 FAMILY RESOURCE MANAGEMENT (3 + 0) 3 credits
Theory and application in the identification and allocation of human and nonhuman resources. Decision making; communication; time and financial management. Prerequisite: EC 101 or 102; PSY 101, SOC 101; H EC 274.

374 COMMUNICATIONS IN HOME ECONOMICS (3 + 0) 3 credits
Communications process and current techniques in the effective transmission of home economics ideas, attitudes and subject matter to individuals, families, groups and mass audiences. Prerequisite: speech and junior standing in home economics.

374 COMMUNICATIONS IN HOME ECONOMICS (3 + 0) 3 credits
Communications process and current techniques in the effective transmission of home economics ideas, attitudes and subject matter to individuals, families, groups and mass audiences. Prerequisite: speech and junior standing in home economics.

375 PERSPECTIVES ON THE FAMILY'S NEAR ENVIRONMENT (3 + 0) 3 credits
Exploration of the family and its near environment. Focus on the relationship of design, technology and environment to human behavior. Prerequisite: H EC 121, 172, 371, SOC 101, PSY 101.

400, 600 SPECIAL PROBLEMS 1 to 10 credits per semester
Individual study or research in fields of special interest. (Approval of dean required.) Field may be chosen from one or more of the following: (a) child development, (b) clothing, (c) family economics, (d) family studies, (e) foods, (f) general home economics, (g) home economics education, (h) interior design, (j) home management, (k) housing, (m) adult development, (n) nutrition or (p) textiles. Maximum of 10 credits.

410 ADVANCED CLOTHING CONSTRUCTION (2 + 2) 3 credits
Experimental investigation and application of construction methods and techniques including contemporary tailoring and use of fabrics requiring special handling. Prerequisite: H EC 210.

414 ISSUES AND TRENDS IN APPAREL MARKETING (3 + 0) 3 credits
Case study and seminar approach used to investigate the current business and economic events and concerns impacting on apparel marketing. Prerequisite: H EC 212, 317.

416, 616 ADVANCED TEXTILES (3 + 0) 3 credits
Advanced study of fabric performance and selection for specific end uses. Laboratory testing of fabrics. National and international textile trade and legislation with consumer implications. Prerequisite: H EC 216, CHEM 100 or 101.

419, 619 CULTURAL, SOCIAL, AND PSYCHOLOGICAL ASPECTS OF DRESS (3 + 0) 3 credits
Exploration of dress as a communicator of the social, psychological and cultural aspects of society. Prerequisite: 6 credits of social science or human development.

420, 620 ADVANCED NUTRITION (3 + 0) 3 credits
Examination of physiologic/biochemical functions of major nutrients. Prerequisite: H EC 223.

421, 621 READINGS IN FOODS AND NUTRITIONS (2 + 0) 2 credits
Intensive investigation of current research in foods and nutrition through critical evaluation of recent studies. Prerequisite: 15 credits of physical or behavioral science. Maximum of 4 credits.

422, 622 NUTRITION IN THE LIFE CYCLE (1 + 0) 1 credit
Relationship between nutrient needs, development and feeding practices throughout life cycle: (a) pregnancy and lactation, (b) infancy, (c) childhood, (d) adolescence, (e) adults 20-40 years, (f) middle and later life. Prerequisite: introductory nutrition course. Maximum 1 credit per topic.

423, 623 EXPERIMENTAL FOODS (2 + 3) 3 credits
Experimental investigation of the chemical and physical reactions involved in food preparation. Prerequisite: H EC 225 and 3 credits of chemistry.

424, 624 NUTRITION AND PHYSICAL PERFORMANCE (3 + 0) 3 credits
Examination of the relationship of nutrition to physical performance. Prerequisite: H EC 121 or equivalent.

425, 625 BEVERAGES IN THE HOSPITALITY INDUSTRY (3 + 0) 3 credits
Survey of the history, classification, production, storage and service of wines, beers and spirits. Sensory evaluation of beverage quality and characteristics. Prerequisite: must be 21 or older.

426, 626 DIET THERAPY (3 + 0) 3 credits
Modifications of the normal diet for the prevention and treatment of diseases. Prerequisite: H EC 223 plus approved biochemistry or 15 credits of life science.

427, 627 NUTRITION ASSESSMENT (2 + 2) 3 credits
Current concepts of nutritional assessment; clinical, anthropometric, and dietary evaluation techniques. Prerequisite: H EC 121 or 223.

428, 628 WEIGHT CONTROL (2 + 0) 2 credits
Weight control concepts and strategies; includes evaluation of effective versus ineffective/fad techniques. Prerequisite: H EC 121 or 223.

430, 630 HUMAN SEXUALITY (3 + 0) 3 credits
Exploration of masculine and feminine roles as they relate to human development, personal functioning, interpersonal relations and family living in a complex, changing society. Prerequisite: 6 credits in psychology, sociology or biological sciences.

431, 631 ADVANCED STUDIES IN HUMAN DEVELOPMENT AND FAMILY (2 + 0) 2 credits
Theory, research, and issues in one of the following: (a) infancy, (b) early childhood, (c) middle childhood, or (d) adolescence. Interrelationship of individual and family development. Prerequisite: 6 credits in child and family studies, psychology, or sociology.

432, 632 PRESCHOOL FOR SPECIAL CHILDREN AND THEIR FAMILIES (3 + 0 or 3) 3 or 4 credits
Preschool for children with physical, social/emotional and cognitive handicaps and gifted children. Particular emphasis on involvement of the families. Fourth credit is for work with special children in a preschool setting. Prerequisite: 6 credits in child development or special education.

433, 633 ADMINISTRATION OF CHILD AND FAMILY SERVICES (3 + 0) 3 credits
Administration of programs serving children, adolescents, adults and families; includes philosophy, staffing, operations and legal parameters. Prerequisite: H EC 131 or 274 or equivalent.

434, 634 FAMILY EDUCATION AND INTERVENTION PROGRAMS (3 + 0) 3 credits
Study and analysis of programs used in an educational or intervention context within the family system. Prerequisite: H EC 274 or equivalent.

435, 635 FAMILY INTERACTION FOR PRESCHOOL SPECIAL EDUCATION (1 + 0) 1 credit
Principles of family education and intervention program. Only for non-home economics majors enrolled in the early childhood special education option.

436, 636 FAMILY INTERACTION (3 + 0) 3 credits
Critical review of current and classic research on the dynamics of family interaction. Includes an examination of both functional and dysfunctional family patterns. Prerequisite: 6 credits in child development, family studies or social sciences.

437, 637 DEATH AND DYING: FAMILY AND LIFESPAN PERSPECTIVES (3 + 0) 3 credits
Overview of death and dying, coping and adaptation as an individual and family experience from prenatal development through adulthood. Emphasis on both personal and professional applications. Prerequisite: 6 credits in psychology, sociology, or human development.

438, 638 CHILDREN AND FAMILIES IN A MULTIETHNIC SOCIETY (1 + 0 per credit) 1 to 3 credits
Life styles, values and needs of children and their families from diverse ethnic groups. Prerequisite: 6 credits in sociology, psychology, education or human development. One credit meets state of Nevada multiethnic education requirement.

440, 640 PERSPECTIVES ON LATER LIFE (3 + 0) 3 credits
Patterns and dynamics of later life focusing on the family and total ecosystem: natural, socio-cultural, economic, political and human-built environments. Prerequisite: 6 credits of social science or human development.

441, 641 CONSUMER CREDIT (3 + 0) 3 credits
Analysis of use and misuse of consumer credit. Investigation of policies and practices of credit grantors. Examination and application of theories of credit counseling. Prerequisite: EC 101 or 102, PSY 101 or SOC 101.

445, 645 THE CONSUMER IN OUR SOCIETY (3 + 0) 3 credits
Consumer problems, representation, information and protection. The economic system and the role of consumers. The economy and marketplace from the consumer's point of view. Prerequisite: H EC 278 or 341 or 3 to 6 credits of economics.

449 PROGRAM PLANNING IN VOCATIONAL EDUCATION (3 + 0) 3 credits
Strategies for program planning, development, and evaluation in vocational education. Prerequisite: teaching methods course.

451, 651 FINANCIAL PLANNING FOR INDIVIDUALS AND FAMILIES (2 + 2) 3 credits
Using financial management concepts, strategies and theory to develop plans to achieve personal financial goals. Prerequisite: H EC 341, 441, 3 credits of economics.

452 CONTEMPORARY DESIGN CONCEPTS (3 + 0) 3 credits
Evolution and formation of design philosophies, movements, and styles which influence contemporary design.

453, 653 HOUSING AND PUBLIC POLICY (3 + 0) 3 credits
Social, economic and political aspects of housing. Local, state and federal policies and programs directed at current housing issues. Prerequisite: EC 102, P SC 103.

456 PROFESSIONAL PRACTICES FOR INTERIOR DESIGNERS (3 + 0) 3 credits
Business functions specific to design and construction industry. Prerequisite: MGRS 101.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL (0 + 2½ per credit) 1 to 8 credits
Major and/or minor teaching field. Provides opportunities in junior or senior high school. Prerequisite: meet screening criteria (see statement under supervised teaching). Arrangements made by teacher educator in home economics education.

458, 658 FAMILIES AND PUBLIC POLICY (2 + 0 or 3) 2 or 3 credits
Role of the family in decision making and management of public issues: analysis of legislation directly affecting the family. Third credit includes experience with the legislature and other policymaking bodies. Prerequisite: H EC 274 or equivalent, 3 credits of political science or history.

459 INTERIOR DESIGN III (0 + 6) 3 credits
Studio in designing interiors for actual clients; complete design process; critiqued by professional panel. Prerequisite: H EC 358.

470 PREPROFESSIONAL INTERNSHIP 3 credits *S/U only*
Work with one or more community agencies or firms that utilize home economics subject matter as they work with clientele. Combines a seminar with supervised field experience.

471 SENIOR THESIS (3 + 0) 3 credits
Research conducted and written in thesis form. Prerequisite: statistics and faculty approval.

472 CONTEMPORARY FAMILY ISSUES (3 + 0) 3 credits
Application of home economics subject matter in the development of problem-solving strategies related to issues facing families and individuals. Prerequisite: H EC 375.

475 PHILOSOPHIES AND ISSUES IN HOME ECONOMICS (2 + 0) 2 credits
Seminar encompassing objective and critical thought, philosophies, issues, public policy development, responsibilities and ethics in the home economics profession. Prerequisite: H EC 472.

484, 684 WORKSHOP IN VOCATIONAL EDUCATION (1 + 0 per credit) 1 to 6 credits
(See C I 484 for description.)

700 GRADUATE STUDIES IN HOME ECONOMICS 1 to 3 credits in a field per semester
Advanced study of problems and research in one or more of the following fields: (a) child development, (b) clothing, (c) family economics, (d) family studies, (e) foods, (f) general home economics, (g) home economics education, (h) interior design, (j) home management, (k) housing, (m) adult development, (n) nutrition, or (p) textiles.

725 FOOD INTAKE AND NUTRITION (3 + 0) 3 credits
Critical review of research methods and findings relating to psychological, social and economic factors affecting food intake and the subsequent impact on nutritional status. Prerequisite: 3 credits in nutrition and 6 credits in behavioral science.

726 SEMINAR IN NUTRITION (1 + 0) 1 credit
An examination of current nutrition issues and research foci. Maximum of 3 credits.

727 NUTRITION PRACTICUM (0 + 3 per credit) 1 to 3 credits
Selected clinical nutrition experiences with faculty guidance and supervision. Prerequisite: H EC 725.

730 FAMILY THEORIES (3 + 0) 3 credits
Critical analysis of family theory and research related to contemporary family structures and issues. Prerequisite: 9 credits in home economics or social science courses.

740 FAMILY ECONOMICS AND MANAGEMENT (3 + 0) 3 credits
Changing household/family composition, resource production, resource needs. Investigation of the relationships between these changes and the managerial and economic activities of households. Prerequisite: 3 credits of microeconomics.

771 RESEARCH METHODS IN HOME ECONOMICS (3 + 0) 3 credits
Systematic examination of the scope and methods of inquiry for graduate students in home economics; the present state of research in home economics. Prerequisite: statistics.

780 INTERSTATE DOCTORAL STUDY 1 to 3 credits
Extended registration for students participating in an inter-institutional doctoral program. May be repeated for credit.

790 SEMINAR (1 + 0) 1 credit
Clarifies the basic philosophy of home economics and the place of the home economist in present day society.

791 INTERNSHIP 3 credits
PRofessional work experience under the supervision of education, business or governmental personnel and university staff member. Advanced approval required. Reports are prepared periodically and at the conclusion of the internship. Prerequisite: H EC 730, 790 or 740.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*
Required of all students who wish to complete an advanced degree in the School of Home Economics under Plan B.

797 THESIS 1 to 6 credits

798 DIRECTED TEACHING IN COLLEGE HOME ECONOMICS (2 + 2) 3 credits
Examination of home economics in higher education; development and evaluation of undergraduate programs and courses. Includes observation and teaching in undergraduate courses.

Inactive Courses

140 TIME AND MONEY DECISIONS (2 + 0) 2 credits
232 PRESCHOOL CURRICULUM (3 + 0) 3 credits
271 MULTIDISCIPLINARY CONCEPTS OF CLOTHING (3 + 0) 3 credits
273 FOOD AND NUTRITION (3 + 0) 3 credits
313 CLOTHING ECONOMICS AND MARKET ANALYSIS (3 + 0) 3 credits
322 PROFESSIONALS AND THE WORK ENVIRONMENT (1 + 0 per credit) 1 to 3 credits
325 FOOD AND CULTURE (2 + 0 or 3) 2 or 3 credits
373 ISSUES IN CONSUMER COMPETENCE (1 + 0) 1 credit
376 ISSUES IN FAMILY HEALTH (1 + 1) 1 credit
410 ADVANCED CLOTHING CONSTRUCTION (2 + 2) 3 credits
750 EVALUATION IN HOME ECONOMICS (3 + 0) 3 credits

HONORS STUDY (HON)

Interdisciplinary Courses

(These courses are not required for graduation with honors.)

200 FRESHMAN-SOPHOMORE SEMINAR (3 + 0) 3 credits
Topic-oriented rather than discipline-oriented analysis of selected subjects consistent with the framework and goals of the honors program of upper-division seminars. (a) The city, (b) the university, and (c) communications. Maximum of 12 credits.

210 GENERAL HUMANITIES (3 + 0) 3 credits
An integrated perspective of the humanistic disciplines. Three fine arts with philosophy provides the basic materials: literature, graphic arts, and music.

240 AMERICA AND THE FUTURE OF MAN 2 credits
Consists of twenty 1400-word printed lectures written by some of the nation's distinguished scholars and two seminar sessions conducted by university faculty. Printed lectures include such topics as the impact of change on society and on value systems, biological and ethical implications of advances in medicine and genetics, and the future of technology and its effects on the quality of life.

300 SEMINAR THE CITY (3 + 0) 3 credits
Topic oriented analysis of selected subjects consistent within the framework and goals of the honors program. (a) The city, (b) the university, and (c) communications.

410 AREA STUDY 3 credits
View of a particular region of the world from the perspective of several academic disciplines. Maximum of 9 credits.

421 AGGRESSION: ROOTS AND MANIFESTATIONS (3 + 0) 3 credits
Causes and consequences of a basic animal and human motive involving several points of view; genetic, biological, psychological, sociological, historical, and political. Maximum of 6 credits.

432 RACE AND ETHNIC RELATIONS (3 + 0) 3 credits
Consideration of both American and international problems of racial and ethnic relations drawing from anthropology, sociologty, psychology, history, and literature.

435 BRIDGING INTELLECTUAL DISCIPLINES (3 + 0) 3 credits
Methods, values, theories, and directions of two or more academic disciplines in search of their common ground, as well as differences in approaches. Maximum of 6 credits.

443 SCIENCE AND CULTURE (3 + 0) 3 credits
Historical and philosophical presentation of cultural effects of scientific and technological innovation. Explores ways that science affects various humanistic activities. Maximum of 6 credits.

454 THE CREATIVE ARTS (3 + 0) 3 credits
Interaction of literature and fine arts. Investigation of creative arts including art history, involving printing, sculpture, music, architecture, and literature. Maximum of 6 credits.

465 AMERICA: INSTITUTIONS AND VALUES (3 + 0) 3 credits
One or more American institutions or values with a consideration of their evolution and contemporary significance. Maximum of 9 credits.

476 THE FUTURE (3 + 0) 3 credits
Investigation into future relations between man, his social structure, and his environment. Maximum of 9 credits.

487 REVOLUTION: SOURCES AND MANIFESTATIONS (3 + 0) 3 credits
Sources and manifestations of economic, social, and political revolution in various countries and areas. Maximum of 6 credits.

498 DYNAMICS OF NATIONAL DEVELOPMENT (3 + 0) 3 credits
Problems and processes involved in national efforts to achieve various developmental goals. Means and values are emphasized. Maximum of 6 credits.

HORTICULTURE (HORT)

163 LANDSCAPE DESIGN AND CONSTRUCTION (1 + 6) 3 credits
Design using plants to enhance man's environment with specific emphasis on single family dwellings.

164 HORTICULTURAL SCIENCE (3 + 0) 3 credits
Introduction to horticulture, including principles of plant structure and function, culture, production, management and marketing.

260 ORNAMENTAL PLANTS I (2 + 6) 4 credits
Identification of ornamental plants using plant keys and emphasizing landscape characteristics and uses of ornamentals. Prerequisite: HORT 164 or BIOL 202.

263 INTERIORSCAPING (2 + 3) 3 credits
Discussion of methods of indoor foliage and flowering plant production and their effect in interior landscape.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

361 TURFGRASS PRODUCTION AND MANAGEMENT (2 + 3) 3 credits
Business and cultural management of turfgrass production and marketing emphasizing species selection, cultural requirements, establishment, maintenance practices, including equipment and personnel management. Prerequisite: HORT 164 or BIOL 202, AGRO 222.

362 NURSERY PRODUCTION AND MANAGEMENT (2 + 6) 4 credits
Commercial nursery management practices and how students are taught to propagate, schedule, produce and market nursery materials. Field trip required.

364 GREENHOUSE PRODUCTION AND MANAGEMENT (2 + 6) 4 credits
Students learn commercial greenhouse design and management including how to schedule, produce and market crops. Field trip required. Prerequisite: HORT 164, AGRO 222.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

465, 665 URBAN FORESTRY (3 + 0) 3 credits
Urban forestry management and administration will be taught including surveying, cultural practices, program development and working in the public domain. Prerequisite: HORT 164, 260, 362, AGRO 222.

480 INDEPENDENT STUDY 1 to 3 credits
Special problems in floriculture, fruit crops, greenhouse operations, nursery operation, ornamentals, plant propagation, turfgrass or vegetable crops.

485, 685 SPECIAL TOPICS (1 to 4 + 0) 1 to 4 credits
Review of recent research, innovations and developments in horticulture. Maximum of 8 credits.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

791 SPECIAL TOPICS 1 to 3 credits
Intensive study of a special problem in horticulture. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 3 credits
Topics include floriculture, fruit crop production and processing, greenhouse and nursery operations, ornamentals, plant propagation, turfgrass or vegetable crop production and processing. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION *S/U only*

796 PROFESSIONAL PAPER 1 or 2 credits *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP 1 to 2 credits *S/U only*
Directed experience in teaching in a classroom, laboratory or Cooperative Extension setting. Preparation, delivery and evaluation of instruction. Written report required. May be repeated in different topics for a maximum of 3 credits.

Inactive Courses

165 HORTICULTURAL PRACTICES (1 + 3) 2 credits
166 PLANT PROPAGATION (1 + 6) 3 credits
261 ORNAMENTAL PLANTS II (0 + 6) 2 credits
367 FRUITCROP PRODUCTION (2 + 3) 3 credits
368 VEGETABLE CROP PRODUCTION (2 + 3) 3 credits

INTEGRATED PEST MANAGEMENT (IPM)

100 INTRODUCTION TO INTEGRATED PEST MANAGEMENT (3 + 0) 3 credits
Principles and practices in pest management systems including disease, insect and weed management in production agriculture.

210 PRINCIPLES OF BEE MANAGEMENT (2 + 0) 2 credits
Consideration of the basic principles of bee culture and the management of bees for honey production and pollination.

316, 416 INTERNSHIP 1 to 3 credits *S/U only*
Coordinated work-study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

356 WEEDS AND WEED CONTROL (2 + 3) 3 credits
Principles and practices of weed control. Recognition of important weed species. Prerequisite: BIOL 202.

390 RANGE AND FOREST ENTOMOLOGY-PATHOLOGY (2 + 3) 3 credits
Recognition of causal agents and damage produced by insects and diseases to range and forest species. Includes concepts of prevention and control of these pests in relation to resource management. Prerequisite: BIOL 201 or 202, 212.

391 GENERAL ECONOMIC ENTOMOLOGY (2 + 3) 3 credits
Introduction to study and principles of control of insects and related organisms which affect production of animals, crops and management of range and forests. Graduate credit not available for integrated pest management majors, entomology option. Prerequisite: BIOL 201 or 202.

400 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest in the pest sciences, integrated pest management and pesticide chemistry and toxicology.

412, 612 INSECT PESTS OF PLANTS (3 + 0) 3 credits
Detailed study including principles of control of more economic species of insects and related organisms which affect production of plants. Prerequisite: IPM 391 or BIOL 360.

422, 622 INSECT PESTS OF ANIMALS (3 + 0) 3 credits
Detailed study including principles of control of more economic species of insects and related organisms which affect the urban homeowner and the health and well-being of man and domesticated animals. Prerequisite: IPM 391 or BIOL 360. (Same as A SC 422, 622.)

452, 652 INTEGRATED PEST MANAGEMENT STRATEGIES (3 + 0) 3 credits
Detailed examination of the philosophies and concepts of integrated pest management and the practical implementation of integrated pest management programs. Prerequisite or corequisite: IPM 322, 356, 471.

471, 671 PLANT PATHOLOGY (3 + 3) 4 credits
Nature, cause and control of plant diseases. Prerequisite: BIOL 202.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) integrated pest management, (b) entomology, (c) plant pathology.

485, 685 SPECIAL TOPICS 1 to 3 credits
Presentation and review of recent research, techniques and developments in the pest sciences. May include the areas of integrated pest management, entomology, plant pathology, weed science, pesticide chemistry and toxicology. Maximum of 6 credits.

712 ENVIRONMENTAL STRESS AND PLANT RESPONSE 3 credits
Specific adverse physico-chemical factors which influence the growth and development of green plants. Focuses on abiotic plant disease with emphasis on stresses induced by mineral deficiencies, air pollutants, toxins, temperature and light disorders and nonparasitic organism interaction. Diagnosis, etiology and controls to ameloriate these problems. Prerequisite: AGRO 327, BIOL 355, 356.

720 INSECT ECOLOGY (3 + 0) 3 credits
Principles governing activity and distribution of insects in relation to their environment. Prerequisite: IPM 391 or BIOL 360. (Same as BIOL 720.)

731 PESTICIDE RESIDUE ANALYSIS TECHNIQUES (2 + 3) 3 credits
Emphasizes proper sampling techniques, laboratory analysis, significance for pesticide residues in the environment. Designed for ecologists, agriculturalists or chemists. Prerequisite: CHEM 142, IPM 332.

756 HERBICIDES AND PLANT GROWTH REGULATORS (3 + 0) 3 credits
Chemistry of herbicides and plant growth regulators, their entry and movement; action in plants and their fate in the environment. Prerequisite: BIOL 355, 356, IPM 356.

775 ADVANCED PLANT PATHOLOGY (3 + 3) 4 credits
Detailed study of plant diseases caused by viruses, nematodes, bacteria and fungi with emphasis on the physiology of pathogenesis. Prerequisite: IPM 471.

790 SEMINAR (1 + 0) 1 credit
Research work and reports on topics of interest.

791 SPECIAL TOPICS 1 to 3 credits
Selected topics dealing with current research and developments in the pest sciences, integrated pest management and pesticide chemistry and toxicology. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 3 credits
Individual study of a special problem in (a) integrated pest management, (b) entomology, (c) plant pathology, (d) weed science, (e) pesticide chemistry and toxicology.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 2 credits *S/U only*

797 THESIS 1 to 6 credits
Thesis may be written in area of (a) integrated pest management, (b) entomology, (c) plant pathology, (d) weed science, (e) pesticide chemistry and toxicology.

798 INTERNSHIP 1 to 2 credits
Directed experience in teaching in a classroom, laboratory or Cooperative Extension setting. Preparation, delivery and evaluation of instruction. Written report required. May be repeated in different settings for a maximum of 3 credits.

INTERNAL MEDICINE (IMED)

451, 651 CLERKSHIP (2 + 30) 12 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing internal medicine.

461, 661 ELECTIVES 1 to 8 credits
Elective experiences in the major medical subspeciality including: (a) cardiology/EKG reading, (b) clinical neurology, (c) critical care, (d) dermatology, (e) endocrinology/nephrology, (f) gastroenterology, (g) general internal medicine, (h) externship, (j) hematology/oncology, (k) infectious diseases, (m) intensive care, (n) nephrology, (p) nuclear medicine, (q) physical medicine, (r) physical medicine and rehabilitation, (s) pulmonary medicine, (t) medical consultation, (u) research, (v) rheumatology, (w) geriatric medicine, (x) ambulatory care medicine, (y) pain management. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

462, 662 ELECTIVES 2 to 8 credits
Elective experiences in the major medical subspeciality including: (a) cardiology/clinical.

490, 690 INDEPENDENT STUDY 1 to 3 credits

491, 691 THEORY AND PRACTICE OF ECG INTERPRETATION (1 + 3) 2 credits
Physiology of the cardiac action potential and general theory of the electrical field created by the heart. The different lead systems in relation to spatial vectorcardiogram. Analysis of simple and complex arrhythmias. Classical patterns of contour alterations.

JOURNALISM (JOUR)

101 INTRODUCTION TO JOURNALISM (3 + 0) 3 credits
Survey of the role of newspapers, radio, television, advertising and public relations organizations. Interpretation of the day's news and analysis of media performance.

201 BASIC REPORTING (1 + 6) 3 credits
Fundamentals of reporting. Disciplines of the journalist: correct use of language, deadline pressure and accuracy. Prerequisite: JOUR 101.

203 ADVANCED REPORTING (1 + 6) 3 credits
Handling of more complicated stories and features, outside assignments and interpretive writing. Prerequisite: JOUR 201.

213 WORKSHOP IN HIGH SCHOOL JOURNALISM (0 + 6) 2 credits
Practical application of journalistic theory and technique to teaching of high school journalism, supervision of school newspapers, magazines and yearbooks. Maximum of 4 credits. Prerequisite: JOUR 203.

231 PUBLICITY METHODS (2 + 0) 2 credits
For officers and publicity chairmen, present and prospective, of civic, social, religious, professional, recreational and fraternal organizations in the handling of news of their groups for newspapers and radio stations. Not acceptable toward the requirements for the journalism major.

All journalism courses numbered 300 or above are open only to juniors, seniors and graduates with the advance approval of a faculty adviser.

301-302 IDEAS, VALUES AND CULTURES (3 + 0) 3 credits
Ideas, values and cultures as they relate to the concepts of man, society and the cosmos. Includes Western, non-Western and women's primary source material.

303 MEDIA GRAPHICS (1 + 2) 2 credits
Study and practice in the use of graphics and typography to create effective visual communications.

311 ASSIGNMENT REPORTING (1 + 6) 3 credits
Writing news and feature stories for publication, primarily in the campus newspaper. Prerequisite: JOUR 203.

313 PHOTOJOURNALISM (1 + 6) 3 credits
Techniques and principles of news, feature and public relations photography.

321 WRITING NEWS FOR BROADCAST (1 + 4) 3 credits
Study and practice of writing news for broadcast. Techniques of writing to picture and sound. History of American broadcast journalism. Prerequisite: JOUR 203.

323 BROADCAST NEWS WRITING AND PRODUCTION (1 + 4) 3 credits
Practice in writing and production of radio and television news. Use of recorders, cameras and editing devices. Organization of radio and television stations. Ethical and legal considerations. Prerequisite: JOUR 321.

331 INTRODUCTION TO ADVERTISING (2 + 0) 2 credits
Process of creating product, service and political advertising, stressing social responsibility. Prerequisite: JOUR 203.

333 ADVERTISING MEDIA (2 + 0) 2 credits
Evaluating and selecting print space and broadcast time to meet marketing objectives. Prerequisite: JOUR 331. Corequisite: JOUR 334.

334 ADVERTISING COPYWRITING (2 + 0) 2 credits
Writing for print and broadcast. Stresses use of marketing research data. Prerequisite: JOUR 331. Corequisite: JOUR 333.

335 CORPORATE COMMUNICATIONS (3 + 0) 3 credits
Principles of successful advertising and public relations for commercial and non-profit organizations. Planning, media selection, copy writing and graphics. Social responsibilities of advertisers and agents. May not be substituted for JOUR 331, 341.

341 PUBLIC RELATIONS PRINCIPLES (2 + 0) 2 credits
Principles and techniques of public relations practice in today's society. Prerequisite: JOUR 203.

343 PUBLIC RELATIONS CASE STUDIES (2 + 0) 2 credits
Application of the principles and techniques of public relations to the solving of representative problems. Prerequisite: JOUR 341.

401, 601 MEDIA LAW (3 + 0) 3 credits
Legislation and court decisions affecting the media, with stress on First Amendment, libel and constitutional rulings.

411 NEWS EDITING (2 + 2) 3 credits
Editing copy, writing headlines and laying out pages. Prerequisite: JOUR 311.

413, 613 HISTORY AND ETHICS OF JOURNALISM (3 + 0) 3 credits
Journalism from Zenger to today. Ethical questions and problems in the media.

415, 615 COMMUNITY NEWSPAPER MANAGEMENT (2 + 0) 2 credits each
Principles of journalism peculiar to the country weekly and small city daily, especially in Nevada. Editorial, circulation and advertising management. Prerequisite: JOUR 313.

417, 617 EDITORIAL WRITING (3 + 0) 3 credits
Opinion writing: editorials and columns. Prerequisite: JOUR 203.

418, 618 MAGAZINE WRITING (1 + 3) 2 credits
Writing and marketing of articles for magazines. Analysis of general interest and specialized magazines. Maximum of 4 credits. Prerequisite: JOUR 203.

419, 619 MAGAZINE EDITING (1 + 2) 2 credits
Editing of a specialized magazine. Study of the problems involved in editing and production of a variety of magazines. Maximum of 4 credits. Prerequisite: JOUR 203.

421 RADIO NEWS REPORTING (1 + 6) 3 credits
Practice in writing, interviewing and producing stories and newscasts for radio. Comparison of styles used in various formats. Preparation and broadcasting of radio news. Prerequisite: JOUR 323.

423, 623 TELEVISION NEWS REPORTING (1 + 6) 3 credits
Practice in writing, interviewing and producing stories and newscasts for television. Preparation and broadcasting of television news. Prerequisite: JOUR 421.

424 ADVANCED NEWS PRODUCING FOR BROADCAST (1 + 6) 3 credits
Practice in formatting newscasts, including use of graphics, timing, transitions, etc. Organizational and writing skills are stressed. Prerequisite: JOUR 423.

425 PUBLIC AFFAIRS REPORTING AND PRODUCING FOR BROADCAST (1 + 6) 3 credits
Production of public affairs programs for radio and television. Includes public service programming, community ascertainment, local-angle programs, talk shows and documentaries. Prerequisite: JOUR 423.

426 BROADCAST STATION OPERATION (2 + 3) 3 credits
Survey of broadcast station personnel, station organization, broadcast sales, operation of broadcast stations, and station relations with agencies, representatives, and other businesses. Prerequisite: JOUR 423.

427, 627 DOCUMENTARY PRODUCTION FOR BROADCAST (1 + 6) 3 credits
Creation of longer stories for television. Includes production of feature stories, educational pieces and investigative reports. Equal emphasis on writing and production skills. Prerequisite: JOUR 423.

429 DIRECTING FOR TELEVISION (1 + 6) 3 credits
Television production techniques. Includes the use of television graphics, audio, timing and organizational skills. Prerequisite: JOUR 423.

431 ADVERTISING PHOTOGRAPHY AND GRAPHICS (1 + 6) 3 credits
Photography for advertisements, packaging and product labels. Prerequisite: JOUR 331.

433 ADVERTISING CASE STUDIES (1 + 6) 3 credits
Development of an advertising campaign for the approval of a client. Preparation and placing of advertisements. Prerequisite: JOUR 431.

435 RETAIL ADVERTISING (2 + 3) 3 credits
Creating advertising for retail stores, service groups and professional people. Stresses pre- and post-testing techniques. Prerequisite: JOUR 331.

441 PUBLIC RELATIONS PROBLEMS (2 + 0) 2 credits
Practical experience in solving public relations problems for nonprofit organizations in the community. Prerequisite: JOUR 341.

451, 651 MAGAZINE PUBLISHING (3 + 0) 3 credits
Creating a new magazine from marketing research through production and sale. Maximum of 6 credits. Prerequisite: JOUR 203.

483, 683 PUBLIC AFFAIRS REPORTING (2 + 2) 3 credits
Covering the three branches of government: executive, legislative and judicial. Prerequisite: JOUR 203.

487, 687 MEDIA MANAGEMENT (2 + 0) 2 credits
Training, style, goals and organization of media managers. How they balance product quality and service with commercial achievement.

490, 690 SPECIAL PROBLEMS 1 to 3 credits
Pursuit of a special interest in journalism. Prerequisite: advance approval.

493 INDEPENDENT STUDY 1 to 3 credits
Special projects in journalism. Prerequisite: advance approval.

499 PROFESSIONAL INTERNSHIP (1 + 6) 3 credits *S/U only*
Supervised on-the-job experience in newspapers, magazines, radio and television stations, advertising and public relations agencies. Prerequisite: advance approval.

701 MASS MEDIA RESEARCH (3 + 0) 3 credits
Methods common to mass communication research including surveys, content analysis and experimental design. Use of computers in gathering and analyzing data.

703 MEDIA DYNAMICS IN SOCIETY (3 + 0) 3 credits
Examination of the structure, functions and performance of the mass media and their dynamic relationship to American society in the context of communication theory and intellectual thought.

705 MEDIA TECHNOLOGIES (3 + 0) 3 credits
Analysis of technological developments in information dissemination and their impact on public communication and media management.

707 ANALYTIC REPORTING (3 + 0) 3 credits
Systematic gathering of information, including public records and data bases. Methods of analyzing complex information and placing it in context for the intended audience.

771 TECHNICAL WRITING (0 + 6) 3 credits
Principles and practices for technical writing, stressing research reports, refereed journal papers, technical manuals and news releases on scientific subjects. Planning, production and social responsibilities involved.

773 SEMINAR: ISSUES IN AMERICAN MEDIA (3 + 0) 3 credits
Historical and contemporary issues on journalism, advertising and public relations.

775 SEMINAR: LEGAL RESTRAINTS ON THE MEDIA (3 + 0) 3 credits
Analysis of laws and regulations affecting the media.

777 SEMINAR: INTERNATIONAL JOURNALISM (3 + 0) 3 credits
Comparison of journalistic practices and relationships between media and government in Europe, Asia and the Third World.

779 SEMINAR: LITERARY JOURNALISM (3 + 0) 3 credits
Includes study of the styles and approaches employed by writers of fiction who emerged from journalism careers. Book-length journalism.

790 SEMINAR 1 or 2 credits
Maximum of 6 credits.

791 SPECIAL TOPICS 1 or 2 credits
Maximum of 10 credits.

792 SPECIAL PROBLEMS 1 or 2 credits

793 INDEPENDENT STUDY 1 to 3 credits
Investigation into problems in journalism. Prerequisite: advanced approval of graduate adviser.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 PROFESSIONAL RESEARCH PROJECT 4 credits *S/U only*

798 PROJECT DEVELOPMENT 2 credits *S/U only*
Prerequisite or corequisite: JOUR 797.

Inactive Courses

211 JOURNALISM IN THE HIGH SCHOOL (2 + 0) 2 credits
428, 628 ON-THE-SCENE REPORTING FOR RADIO AND TELEVISION (1 + 2) 2 credits

JUDICIAL STUDIES (J S)

402 INTRODUCTION TO NON-LAWYER JUDICIAL STUDIES (4 + 0) 4 credits
Introduction for non-lawyer special court judges of fundamental legal principles and procedures with emphasis on criminal trial procedures; covers legal research; communication skills and a mock trial.

403 SEARCH AND SEIZURE (2 + 0) 2 credits
Comprehensive examination of exclusionary rules derived from the Fourth Amendment, current trends and future developments.

404 EVIDENCE IN SPECIAL COURTS (2 + 0) 2 credits
Court rulings on evidentiary areas: relevancy; competency and privilege; opinion and expert testimony; examination of witnesses; hearsay and constitutional limitations.

405 ALCOHOL AND DRUGS (2 + 0) 2 credits
Judicial role in cases involving alcohol and substance abuse including plea bargaining, evaluation of treatment, penalties and referrals.

406 TRAFFIC COURT PROCEEDINGS (2 + 0) 2 credits
Aspects of traffic court proceedings: calendar; adjudication; arraignments; pleas; addictive behavior; admissibility of technical evidence; sentencing and corrective penalization.

407 SMALL CLAIMS (2 + 0) 2 credits
Comprehensive examination of the role of the small claims court and the judge through the analysis of administrative, judicial and public relations problems and possible solutions.

408 SENTENCING MISDEMEANANTS (2 + 0) 2 credits
Surveys the sentencing process and judge's role regarding sentencing, probation, sentence bargaining, alternatives and sanctions in misdemeanor cases.

510 GENERAL JURISDICATION (6 + 0) 6 credits *S/U only*
Comprehensive introduction to judicial system, role of judges, recent developments (legal, managerial, technological) in trials and the judiciary as a social institution.

560 CORE COLLEGE (2 + 0) 2 credits *S/U only*
Foundation of knowledge and skills in the area of juvenile law with emphasis on decision-making, dispositional alternatives and special problems relating to children.

613 CRIMINAL EVIDENCE (2 + 0) 2 credits *S/U only*
Analyzes how rules of evidence, emphasizing federal rules, are applied to criminal trials. Provides some historical perspective starting with common law.

614 CIVIL LAW (2 + 0) 2 credits *S/U only*
Examines significant developing areas of civil litigation: professional malpractice, products liability, commercial law, class actions, civil rights and comparative negligence.

615 JUDICIAL WRITING (2 + 0) 2 credits *S/U only*
Examines effective examples of good legal writing; identifies underlying principles of English composition; encourages judges to adopt clear, concise style by writing and rewriting.

616 COURT MANAGEMENT (2 + 0) 2 credits *S/U only*
Presents and analyzes a working model for trial courts intended to provide practical managerial methods to avoid or lessen court delay.

617 CIVIL EVIDENCE (2 + 0) 2 credits *S/U only*
Identification and analysis of common evidentiary problems faced by general jurisdiction courts in civil cases.

618 DECISION-MAKING PROCESS (4 + 0) 4 credits *S/U only*
Identifies the ingredients of the decision-making process and acquaints judges with the psychological, sociological and philosophical aspects of dispute resolutions.

619 GREAT ISSUES IN LAW AS IS REFLECTED IN LITERATURE (2 + 0) 2 credits
Explores significant moral and legal issues in American society. Readings from literary sources, judicial opinions and scholarly treatises.

620 CONSTITUTIONAL CRIMINAL PROCEDURE (2 + 0) 2 credits *S/U only*
Analyzes trends in the criminal justice system with particular attention to Fourth, Fifth, Sixth and Fourteenth Amendment cases.

621 THE JUDGE AND THE TRIAL (2 + 0) 2 credits *S/U only*
Detailed examination and analysis of the judge's role and responsibility before, during and after trial.

661 FAMILY LAW AND DOMESTIC RELATIONS ISSUES (2 + 0) 2 credits *S/U only*
Examination of current issues and concerns in family law with emphasis on custody and child support decisions.

662 EVIDENTIARY PROBLEMS IN THE JUVENILE AND FAMILY COURT (2 + 0) 2 credits *S/U only*
Examination of current evidentiary issues and concerns arising in juvenile and family courts.

663 ADVANCED JUVENILE JUSTICE MANAGEMENT INSTITUTE (2 + 0) 2 credits *S/U only*
Examination of management concerns for juvenile court management including budgeting, personnel recruitment, selection and performance evaluation.

710 HISTORY AND THEORY OF JURISPRUDENCE (3 + 0) 3 credits
General aspects of law from philosophical, historical and social perspectives: jurisprudence; legal history; courts and the administration of justice; and punishment, culture and society.

715 JUSTICE, LAW AND LITERATURE (3 + 0) 3 credits
Inquiry into ethical perspectives of judicial and legal experience through study and discussion of literary primary texts, including novels, plays, poems and intellectual prose.

730 LAW AND ECONOMICS (3 + 0) 3 credits
Examines economic implications and objectives of legal institutions and legal rule making: including common law, public regulations of the market and legal procedures.

735 LAW AND THE SOCIAL AND BEHAVIORAL SCIENCES (3 + 0) 3 credits
Assesses social and historical context of law, major roles and processes in legal institutions; includes major focus on use of scientific research in actual cases.

740 MEDICAL AND LEGAL ISSUES (3 + 0) 3 credits
Analysis of selected issues, combining scientific/medical and case law perspective. Topics include medical malpractice, informed consent, parents' rights, birth, AIDS, drug addiction.

745 LAW AND PUBLIC POLICY (3 + 0) 3 credits
Analyzes legal system as a heuristic activity, crime, legal policies and forensic science as aspects of the relationship between law and public policy.

797 THESIS 1 to 6 credits

LIBRARY SCIENCE (L SC)

135 USE OF THE LIBRARY (1 + 0) 1 credit
UNR libraries: general reference sources useful in preparing research papers; use of the card catalogs and arrangement of books; and the resources of special library departments and branch libraries. Self-paced workbook.

303 BIBLIOGRAPHY AND GENERAL REFERENCE (3 + 0) 3 credits*
Basic reference materials, national and trade bibliography, general reference works (encyclopedias, handbooks, etc.), special bibliographies.

305 HISTORY AND ORGANIZATION OF LIBRARIES (3 + 0) 3 credits*
Evolution of libraries and description of principal fields of library service, their organization, and special problems.

309 SELECTION AND ACQUISITION OF LIBRARY MATERIALS (3 + 0) 3 credits*
Theories, principles, and practice of selecting books and other library materials with particular emphasis on public and special libraries.

381 PRACTICE AND HISTORY OF PRINTING (0 + 6) 3 credits
History of graphic communication in conjunction with actual practice of printing: typographic design, block making, typesetting, press work. (Same as ART 381.)

444 ORAL HISTORY: THEORY AND METHOD (2 + 4) 3 credits
Oral history as research method for developing primary sources in social sciences. Practice in interviewing, editing and processing oral histories. (Same as ANTH 444.)

490 SPECIAL TOPICS IN LIBRARIANSHIP 1 to 3 credits
Exploration of a particular aspect of librarianship, e.g., a special subject area, an administrative or service function, or a technical system or process. Maximum of 9 credits when content differs.

MANAGERIAL SCIENCES (MGRS)

101 INTRODUCTION TO BUSINESS (3 + 0) 3 credits
Character of enterprise in the U.S. Organization and administration, production, human resources, information for control of management decision, marketing, finance, business and society. Not open to Business Administration upper-division students.

270 PRINCIPLES OF REAL ESTATE (3 + 0) 3 credits
Economic, legal, financial, marketing, managerial and operational aspects of real estate.

UPPER-DIVISION COURSES: Business students must have satisfactorily completed the entire lower-division business core (see section on *Upper-Division Courses* in the College of Business Administration section).

310 MARKETING PRINCIPLES (3 + 0) 3 credits
Objectives and policies of marketing managers as influenced by marketing institutions, the functions performed and consumer wants and needs. Prerequisite: completion of lower-division business core.

312 CONSUMER BEHAVIOR (3 + 0) 3 credits
Nature and determinants of consumer behavior. Attention focused on the influence of socio-psychological factors (such as personality, small groups, demographic variables, social class and culture) on the formation of consumer's attributes, consumption and purchasing behavior. Prerequisite: MGRS 310.

314 MARKET STRUCTURE AND CHANNELS (3 + 0) 3 credits
Theory, principles and channel implications of wholesale and retail distribution; factors affecting channels; physical distribution. Prerequisite: MGRS 310.

316 INDUSTRIAL MARKETING (3 + 0) 3 credits
Applications of marketing concepts to problems in planning industrial marketing strategy, structuring industrial buyer behavior, managing the marketing mix and negotiating trade relationships from a management perspective. Prerequisite: MGRS 310.

323 ORGANIZATION AND INTERPERSONAL BEHAVIOR (3 + 0) 3 credits
Analysis of the internal organization structure and of executive roles and functions in the business enterprise and other goal-directed institutions. Theory and design of organizational structure, impact of work-flow plans, leadership patterns and control systems upon human behavior. Prerequisite: completion of lower-division business core.

325 LEGAL ENVIRONMENT (3 + 0) 3 credits
Nature and function of law: contracts and private property as basic concepts in free enterprise; the legal system and evolution of legal attitudes. Prerequisite: completion of lower-division business core.

345 INDUSTRIAL PURCHASING (3 + 0) 3 credits
Purchasing organization and practice of the industrial enterprise. Includes securing the proper material at the proper time, place, price and quantity.

351 TRANSPORTATION (3 + 0) 3 credits
Development of various means of transportation and accompanying regulations; rate, traffic, service and coordination problems of our transportation system.

352 OPERATIONS MANAGEMENT (3 + 0) 3 credits
Application of basic quantitative methods to decision processes. Topics include linear programming, inventory control, queueing theory, PERT, calculus applications and decision trees. Prerequisite: completion of lower-division business core.

353 RISK AND INSURANCE (3 + 0) 3 credits
Theory of risk, introduction to risk management, principles and legal aspects of insurance, survey of property and casualty insurance. Prerequisite: EC 101 or equivalent. Meets Nevada Insurance Division regulations.

362 PRODUCTION MANAGEMENT (3 + 0) 3 credits
Application to manufacturing and service organizations. Includes capital investment analysis; capacity planning; plant layout; production processes; research and development; cost calculations; production inventory and quality control and simulation. Prerequisite: statistics, MGRS 352.

365 CORPORATION FINANCE (3 + 0) 3 credits
Financial management of the business enterprise. Topics include financial analysis, planning and forecasting, management of working capital, decisions involving long-term assets, sources and forms of long-term capital, financial structure and the cost of capital. Prerequisite: completion of lower-division business core.

367 PERSONNEL ADMINISTRATION (3 + 0) 3 credits
Management of human resource as a primary function of all managers. Emphasis on personnel processes significant in improving labor utilization and productivity. Review of pertinent legislation dealing with manpower and labor-management relations. Not applicable toward an advanced degree in managerial sciences.

370 INVESTMENTS (3 + 0) 3 credits
Analysis of investment risks, media and investment portfolios with relation to requirements and policies of individual investors. Prerequisite: MGRS 365.

373 BUSINESS LAW I (3 + 0) 3 credits
Nature, origin and philosophy of law and procedures. Law of contracts, agency, partnerships and sales. Prerequisite: completion of lower-division business core.

*Contact director of libraries for information.

374 BUSINESS LAW II (3 + 0) 3 credits
Continuation of MGRS 373. Law of corporations, secured transactions, property, negotiable instruments, insurance and bankruptcy. Prerequisite: MGRS 373.

401, 601 LIFE INSURANCE (3 + 0) 3 credits
Analysis and treatment of personal risks, use of life, health and annuity contracts in realm of estate planning, actuarial concepts, purchase decisions, regulatory problems. Prerequisite: MGRS 353.

402, 602 PROPERTY LIABILITY INSURANCE (3 + 0) 3 credits
Essentials of risk management, principles of property and liability insurance contracts pertaining to pure risks of the firm. Some emphasis on managerial problems faced by insurance companies within socio-economic and legal constraints. Prerequisite: MGRS 353.

403, 603 RISK MANAGEMENT SEMINAR (3 + 0) 3 credits
Selected topics covering the management of static business risks. Emphasis on choosing among alternative risk handling techniques. Includes employee benefit programs, risk retention and financing, business continuation uses of life insurance and estate planning for the entrepreneur.

404, 604 PROBLEMS IN BUSINESS FINANCE (3 + 0) 3 credits
Case analysis and application of financial concepts to organization and operations of business enterprises. Prerequisite: MGRS 365.

415, 615 COMMERCIAL BANK MANAGEMENT (3 + 0) 3 credits
Administration and operation of commercial banks. Topics include internal organization; loan and investment administration, regulation and supervision; earnings, expense and dividend policies; capital structure and financing policies; new business development. Prerequisite: MGRS 365.

420, 620 INTERNATIONAL FINANCE (3 + 0) 3 credits
Financing international business operations and investments, financial decision making in the multinational firm, the international monetary system, balance of payments, foreign exchange rates, international financial institutions. Prerequisite: MGRS 365.

422, 622 PROMOTIONAL MANAGEMENT (3 + 0) 3 credits
Strategic communication problems faced by marketing management; allocation of resources to promotional mix, evaluation of communication effectiveness, and coordination with other marketing strategies. Emphasizes relevancy of consumer motivation and behavior to promotional strategies. Prerequisite: MGRS 310.

452, 652 COMPARATIVE MANAGEMENT (3 + 0) 3 credits
Analysis of international similarities and differences in managerial functions, processes and effectiveness and consideration of the changes evolving in management systems in various countries. Prerequisite: MGRS 323, 352.

453, 653 ORGANIZATIONAL CHANGE AND DEVELOPMENT (3 + 0) 3 credits
Analysis of strategies to bring about change in organizational structure; tasks; individual behavior; interpersonal relationships; and relationships of groups. Prerequisite: MGRS 323.

455, 655 LOGISTICS MANAGEMENT (3 + 0) 3 credits
Physical supply and physical distribution systems, optimum location of storage and transfer sites, material handling and selection of transportation media. Prerequisite: MGRS 310, 351, 352, 362.

459, 659 ANALYSIS AND DESIGN OF LOGISTICAL SYSTEMS (3 + 0) 3 credits
The modeling process, forecasting, data analysis, inventory analysis, location analysis, vehicle scheduling, use of specially designed software packages. Prerequisite: MGRS 455.

460, 660 MANAGEMENT: THEORY AND PRACTICE (3 + 0) 3 credits
Analysis of the nature and problems of and approaches to management planning, organizing, decision making and controlling through a study of recent relevant literature and selected cases. Prerequisite: MGRS 323.

461, 661 ADVANCED OPERATIONS MANAGEMENT (3 + 0) 3 credits
Theory and application to business systems of advanced quantitative decision models such as: linear programming and sensitivity analysis, network models and algorithms, dynamic programming, probabilistic-dynamic programming, integer programming, and computer simulation. Prerequisite: MGRS 352, 362.

462, 662 BUSINESS AND SOCIETY (3 + 0) 3 credits
Social responsibilities of business executives; ethics; government relations; literature; role of the enterprise as subsystem of societal system; responsibilities to owners, work force, customers, suppliers and government.

470, 670 INTERNATIONAL MARKETING (3 + 0) 3 credits
Marketing structure and policies employed in export and import trade. Consideration of legal, cultural and economic factors in marketing abroad. Prerequisite: MGRS 310.

471, 671 MARKETING RESEARCH (3 + 0) 3 credits
Basic research techniques, survey techniques, sources of marketing information, criteria for evaluation of research studies, and practical experience in making marketing research studies. Prerequisite: MGRS 310, EC 262.

481, 681 INTERCOLLEGIATE BUSINESS GAMES (2 + 3) 3 credits
Business decision making in a competitive environment involving policy making; economic, sales and production forecasting; financial analysis; production scheduling; capital budgeting; marketing; research and development planning; pricing; advertising and inventory management. Prerequisite: MGRS 365.

482 INTERNSHIP (1 + 3 to 6) 2 to 3 credits *S/U only*
An internship with local firms, providing exposure to the real world environment in student's major.

488 POLICY FORMULATION AND ADMINISTRATION (3 + 0) 3 credits
Policy formulation and administration by top management. An overall view of company objectives, policies, organization, operation and the coordination and integration thereof. Prerequisite: MGRS 310, 323, 352, 365.

489, 689 MARKETING MANAGEMENT (3 + 0) 3 credits
Application of marketing principles and methods to case problems in merchandising, distribution channels, brand policy, planning and administering sales programs and the like. Prerequisite: MGRS 310.

490 INDEPENDENT STUDY 1 to 3 credits
Study and research in business administration. Maximum of 6 credits.

491, 691 ADVANCED SEMINAR IN MANAGEMENT (3 + 0) 3 credits
Advanced study of selected topics in management. Maximum of 6 credits.

492, 692 ADVANCED SEMINAR IN MARKETING (3 + 0) 3 credits
Advanced study of selected topics in marketing. Maximum of 6 credits.

493, 693 ADVANCED SEMINAR IN FINANCE (3 + 0) 3 credits
Advanced study of selected topics in finance. Maximum of 6 credits.

Graduate standing is required as a prerequisite for all 700-level courses in the College of Business Administration.

Inactive Courses

301 INSTITUTIONAL MANAGEMENT I (3 + 0) 3 credits
302 INSTITUTIONAL MANAGEMENT II (3 + 0) 3 credits
361 RETAILING (3 + 0) 3 credits
375 LAND RESOURCES: VALUE AND ALLOCATION (3 + 0) 3 credits
378 REAL ESTATE LAW (3 + 0) 3 credits
387 WAGE AND SALARY ADMINISTRATION (3 + 0) 3 credits
427, 627 PROBLEMS IN LABOR RELATIONS AND PERSONNEL ADMINISTRATION (3 + 0) 3 credits
430, 630 REAL ESTATE EVALUATION (3 + 0) 3 credits
431, 631 REAL ESTATE APPRAISAL PROBLEMS (3 + 0) 3 credits
477, 677 SEMINAR IN INSTITUTIONAL MANAGEMENT (3 + 0) 3 credits
604 PROBLEMS IN BUSINESS FINANCE (3 + 0) 3 credits

MATHEMATICS (MATH)

Each student is required to present to the Mathematics Department an ACT or SAT standard mathematics score and a copy of the admission certificate prior to the first registration. Students with previous college mathematics experience should contact the department chair for proper placement before enrolling.

101 INTERMEDIATE ALGEBRA (3 + 0) 3 credits
Basic properties of the real numbers; standard algebraic techniques, including exponents, factoring, fractions, radicals; problem solving; linear and quadratic equations; the concept of graphing. Prerequisite: one year of high school algebra.

Note: MATH 101 will not be offered for credit to apply toward a bachelor's degree after the 1989 spring semester. MATH 1, a new nonbaccalaureate course, will be offered for students who need additional preparation.

105 MATHEMATICS FOR THE INFORMATION AGE (3 + 0) 3 credits
Relevant concepts for informed and aware citizenship: functions, graphs, elementary probability and statistics, some history of mathematics. Prerequisite: satisfactory score on qualifying examination or MATH 101.

115 ALGEBRA AND TRIGONOMETRY (4 + 1) 4 credits
Equations, relations, functions, graphing; polynomial, rational, exponential, logarithmic, and circular functions with applications; coordinate geometry of lines and conics; analytic trigonometry; matrices, determinants; binomial theorem. Prerequisite: satisfactory score on qualifying examination or MATH 101.

173 ELEMENTARY SCHOOL MATHEMATICS I (3 + 0) 3 credits
Mathematics needed by those teaching new-content mathematics courses at the elementary school level with emphasis on the structure of the real number system and its subsystems. Designed for students seeking a teaching certificate in elementary education. Open to others only with approval of department chair. Does not satisfy the UNR mathematics requirement for graduation.

174 ELEMENTARY SCHOOL MATHEMATICS II (3 + 0) 3 credits
Continuation of MATH 173. Prerequisite: MATH 173. Does not satisfy the UNR mathematics requirement for graduation.

200 DIRECTED STUDY 1 to 3 credits
Individual study conducted under the direction of a faculty member. Limited to 6 credits except under special circumstances.

211 ELEMENTS OF CALCULUS I (3 + 0) 3 credits
Fundamental ideas of analytic geometry and calculus, rates, extrema and the applications thereof. Prerequisite: satisfactory score on qualifying examination or MATH 115.

213 CALCULUS FOR SCIENCE I (3 + 0) 3 credits
Calculus in the plane with emphasis on applications in the sciences, including curve sketching, optimization, related rates, and vectors in the plane. Prerequisite: two years of high school mathematics or equivalent and satisfactory score on qualifying examination or MATH 115.

214 CALCULUS FOR SCIENCE II (3 + 0) 3 credits
Multivariable calculus, including partial differentiation, multiple integration, calculus of vector-valued functions, optimization of functions of several variables and Lagrange multipliers. Prerequisite: one semester of calculus.

215 CALCULUS I (4 + 0) 4 credits
Fundamental concepts of analytic geometry and calculus; functions, graphs, limits, derivatives and integrals. Prerequisite: satisfactory score on qualifying examination or MATH 115.*

216 CALCULUS II (4 + 0) 4 credits
Continuation of MATH 215; transcendental functions, methods of integration, conics, vectors. Prerequisite: MATH 215.*

217 CALCULUS III (4 + 0) 4 credits
Continuation of MATH 216; infinite series, three-dimensional calculus. Prerequisite: MATH 216.

251 PROBABILITY AND STATISTICS (3 + 0) 3 credits
Sample spaces, discrete and continuous random variables, expectations, normal distributions, the Central Limit Theorem. Statistical inference, estimation and hypothesis testing. Prerequisite: one semester of calculus.

284 APPLICATION COMPUTER LANGUAGES (1 + 0) 1 credit
Development of programming skills and training in selected applications in a single programming language chosen from C, FORTRAN, APL, Ada. Prerequisite: C S 283 or equivalent. May be repeated for 1 credit in each language. (Same as C S 284.)

301 STUDIES IN THE HISTORY OF MATHEMATICS (2 + 0) 2 credits
Survey of mathematical developments from ancient times to present. Emphasis on originators, origins and consequences of significant mathematical contributions.

307 SYMBOLIC LOGIC (3 + 0) 3 credits
(See PHIL 326 for description.)

308 INTRODUCTION TO FOUNDATIONS OF MATHEMATICS (3 + 0) 3 credits
Primitive terms, concepts, axioms, axiomatic method, proof, dependence, completeness, consistency, validity, models; set theory, cardinality, real numbers and other structures; formalism, intuitionism, cultural and scientific settings. Prerequisite: MATH 217, for those majoring in the physical sciences. (Same as PHIL 308.)

311 MULTIVARIABLE CALCULUS (3 + 0) 3 credits
Mappings between Euclidean spaces, their differentials and partial derivatives; the chain rule; extremalization computations; line and surface integrals; the theorems of Gauss, Green and Stokes. Prerequisite: MATH 217, 330.

320 DIFFERENTIAL EQUATIONS (2 + 0) 2 credits
Scalar-valued differential equations; linear theory, differential operators, inhomogenous constant coefficient linear initial-value problems. Green's functions, Wronskians; non-linear first order initial-value problems. Prerequisite: MATH 217.

321 DIFFERENTIAL AND DIFFERENCE EQUATIONS I (3 + 0) 3 credits
Vector-valued linear differential equations, power series solutions, asymptotic behavior; the Legendre, Euler, and Bessel equations; Sturm-Liouville eigenvalue problems; autonomous systems, stability; finite difference methods; introduction to second order partial differential equation boundary-value problems. Prerequisite: MATH 320.

330 LINEAR ALGEBRA I (3 + 0) 3 credits
Systems of linear equations; matrix algebra; vector spaces: linear independence, bases, dimension, vector subspace configuration; linear maps, their matrix representations and structure theorems. Prerequisite: MATH 216.

331 GROUPS, RINGS AND FIELDS (3 + 0) 3 credits
Elementary structure of groups, rings and fields, including homomorphisms, automorphisms, normal subgroups, ideals and Galois theory. Prerequisite: MATH 217.

341 METRIC TOPOLOGY (3 + 0) 3 credits
Topological structures induced by metrics; topological concepts versus metric concepts; continuity, compactness, local compactness, connectedness; boundedness, total boundedness, completeness, uniform continuity; separation and countability conditions. Prerequisite: MATH 217.

351 STATISTICS (3 + 0) 3 credits
Estimation; choice of estimator, confidence intervals, stratified sampling. Hypothesis testing: power, comparative experiments, chi-square, Student's distribution and nonparametric methods. Linear regression. Prerequisite: MATH 251.

353 PROBABILITY THEORY (3 + 0) 3 credits
Finite, discrete and continuous probability spaces, random variables and their distributions, the law of large numbers, the central limit theorem. Prerequisite: MATH 217, 251.

371 CONCEPTS OF SCHOOL MATHEMATICS I (3 + 0) 3 credits
Theoretical development of the ideas underlying school mathematics. Emphasis on sets, algebra and ordering. Designed for students seeking a teaching certificate. Open to others only with the approval of department chairman.

372 CONCEPTS OF SCHOOL MATHEMATICS II (3 + 0) 3 credits
Continuation of MATH 371. Emphasis on geometry mensuration and coordinate systems. Prerequisite: MATH 371.

373 THEORY OF POSITIVE INTEGERS (3 + 0) 3 credits
Mathematical logic, quantifiers, induction, axiomatic development of the theory of positive integers; fundamental theorem of arithmetic. Emphasis is on problem solving and theorem proving. Prerequisite: MATH 215 or consent of instructor.

381 DISCRETE MATHEMATICS (3 + 0) 3 credits
Quantifiers and logical operators; sets, functions, binary relations, digraphs, and trees; inductive definitions; counting techniques, recurrence systems; analysis of algorithms, searching and sorting algorithms. Prerequisite: C S 183, MATH 215.

400, 600 INDEPENDENT STUDY 1 to 3 credits
Library work and reports on topics of mathematical interest. Limited to 6 credits except under special circumstances.

401, 601 SET THEORY (3 + 0) 3 credits
Formalism, inference, axiomatic set theory, unicity, pairs, relations, functions, ordinals, recursive definition, maximality, well ordering, choice, regularity, equinumerosity, cardinal arithmetic.

410, 610 COMPLEX ANALYSIS (3 + 0) 3 credits
Complex numbers, analytic and harmonic functions. Cauchy-Reimann equations, complex integration, the Cauchy integral formula, elementary conformal mappings. Laurent series, calculus of residues. Prerequisite: MATH 311.

411, 611 REAL ANALYSIS (3 + 0) 3 credits
Continuity, monotonicity, differentiability; uniform convergence and continuity and differentiability; Stone-Wierstrass Theorem; multivariable functions, linear transformations, differentiation, inverse and implicit functions,

*A student whose current progress is unsatisfactory in the opinion of the instructor may be required to attend supervised study sessions.

Jacobians and change of variable; Lebesgue measure and integration. Prerequisite: MATH 311, 341, 330.

412, 612 FUNCTIONAL ANALYSIS (3 + 0) 3 credits
Normed vector spaces, Banach and Hilbert spaces, linear functionals and operators, the Hahn-Banach, closed graph and uniform boundedness theorems with applications, dual spaces, self adjoint operators, compact operators. Prerequisite: MATH 311, 341, 330.

419, 619 TOPICS IN ANALYSIS (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as differential forms, analytic functions, distribution theory, measure and inregration, constructive analysis. Maximum of 6 credits.

420, 620 MATHEMATICAL MODELING (3 + 0) 3 credits
Formulation, analysis and critique of methods of mathemarical modeling; selected applications in physics, biology, economics, political science and other fields. Prerequisite: MATH 251 and 217 or 214; or MATH 251 and coregistration in MATH 217 or 214.

422, 622 OPTIMAL ANALYSIS (3 + 0) 3 credits
Analysis of extrema of real-valued functions and functionals with applications. Introduction to calculus of variations and optimal control. Prerequisite: MATH 311, 320.

423, 623 DIFFERENTIAL AND DIFFERENCE EQUATIONS II (3 + 0) 3 credits
Partial differential equations; first order equations, initial and mixed boundary-value problems for the second order Laplace, heat and wave equations; finite difference approximation. Prerequisite: MATH 320.

429, 629 TOPICS IN APPLIED ANALYSIS (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as: integral transforms, approximation of functions, nonlinear mathematics, stability theory, matrix exponentials. Maximum of 6 credits.

430, 630 LINEAR ALGEBRA II (3 + 0) 3 credits
Vector spaces; duality, direct sums; linear maps: eigenvalues, eigenvectors, rational and Jordan forms; bilinear maps, quadratic forms; inner product spaces; symmetric, skewsymmetric, orthogonal maps, spectral theorem. Prerequisite: MATH 330.

435, 635 COMBINATORICS (3 + 0) 3 credits
Graph theory and enumeration. Searching, arrangement, selection, and network flow problems. Emphasis on algorithms useful for computers. Prerequisite: MATH 330.

439, 639 TOPICS IN ALGEBRA (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as Galois theory, number theory, topological groups, combinatorial analysis, theory of graphs. Maximum of 6 credits.

441, 641 TOPOLOGY (3 + 0) 3 credits
Concepts of continuity, compactness, local compactness and connectedness in a general topological setting; separation and countability conditions; product and quotient topologies; homotopy, the fundamental group and covering spaces. Prerequisite: MATH 341.

442, 642 DIFFERENTIAL GEOMETRY (3 + 0) 3 credits
Geometry of curves and surfaces in space; Frenet's formulas; Cartan's frame fields, Gaussian curvature; intrinsic geometry of surface; congruence of surfaces; the Gauss-Bonnet theorem. Prerequisite: MATH 311.

443, 643 DIFFERENTIAL GEOMETRY AND RELATIVITY I (3 + 0) 3 credits
Manifolds, the tangent bundle, differential forms, exterior differentiation, Lie differentiation, Koszul connections, curvature, torsion, Cartan's structural equations, integration of differential forms. Prerequisite: MATH 311 or equivalent.

444, 644 DIFFERENTIAL GEOMETRY AND RELATIVITY II (3 + 0) 3 credits
Spacetimes, the Fermi-Walker connection, reference frames, particles and particle flows, electromagnetic fields, stress-energy tensors, matter models, black holes, gravitational waves, cosmological models. Prerequisite: MATH 443.

445, 645 INTRODUCTION TO RELATIVITY THEORY (3 + 0) 3 credits
Special relativity, redshift, Thomas precession; tensor fields, covariant differentiation, geodesics, curvature; Einstein field equations, a simple cosmological model, Schwarzschild spacetime, precession, Kruscal space-time, blackholes. Prerequisite: MATH 311 or equivalent.

449, 649 TOPICS IN GEOMETRY AND TOPOLOGY (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as differential topology, algebraic topology, convexity, topological vector spaces. Mathematical structures of special relativity. Maximum of 6 credits.

453, 653 MATHEMATICAL STATISTICS (3 + 0) 3 credits
Univariant and multivariant normal distributions, point and interval estimation, tests of hypotheses including multivariant and nonparametric techniques. Prerequisite: MATH 353.

454, 654 APPLIED PROBABILITY THEORY (3 + 0) 3 credits
Introduction to stochastic processes, including random walks and Markov chains with applications. Prerequisite: MATH 353.

469, 669 MATHEMATICAL TOPICS IN THE MANAGEMENT SCIENCES (1 + 0 per credit) 1 to 3 credits
Variable content chosen from such topics as linear and integer programming, nonlinear programming, game theory and optimization problems. Maximum of 6 credits.

474, 674 SETS AND NUMBERS (3 + 0) 3 credits
Axiomatic theory of sets, relations and functions; natural numbers, integers, rationals and reals constructed from sets; least upper-bound principle and its consequences; complex numbers. Prerequisite: MATH 373.

475, 675 EUCLIDEAN AND NON-EUCLIDEAN GEOMETRY (3 + 0) 3 credits
Axiom systems, models, independence, consistency; incidence, distance, betweenness, congruence, convexity; inequalities, parallels, perpendiculars; the Klein model; Saccheri quadrilaterals, limit triangles, the non-Euclidean geometry of Bolyai-Lobatchevsky. Prerequisite: MATH 373.

480, 680 COMPUTER APPLICATIONS IN EDUCATION (1 + 0 per credit) 1 to 3 credits
Microcomputer technology, computer science instruction and computer based instruction in the classroom. Evaluation of software packages. Practical experience with microcomputer systems. Not applicable for mathematics majors. Prerequisite: MATH 173 or 174. Does not satisfy the UNR mathematics requirement for graduation.

481, 681 INTRODUCTION TO NONPROCEDURAL PROGRAMMING TECHNIQUES (3 + 0) 3 credits
(a) Functional programming; application and implementation, (b) LISP processing and macro techniques, (c) logic programming; patterns and styles; (d) object oriented descriptive ptogramming. Prerequisite: MATH 386. Maximum of 12 credits — 3 in each topic.

483, 683 NUMERICAL METHODS I (3 + 0) 3 credits
Numerical solution of linear systems, including linear programming; iterative solutions of non-linear equations; computation of eigenvalues and eigenvectors, marrix diagonalization. Prerequisite: MATH 330 or equivalent. (Same as C S 483, 683.)

484, 684 NUMERICAL METHODS II (3 + 0) 3 credits
Numerical differentiation and integration; numerical solution of ordinary differential equations, two-point boundary value problems; difference methods for partial differential equations. Prerequisite: MATH 320 or equivalent.

487, 687 COMPUTER DATABASE MANAGEMENT SYSTEMS (3 + 0) 3 credits
(See C S 487, 687 for description.)

488, 688 TOPICS IN ARTIFICIAL INTELLIGENCE (3 + 0) 3 credits
(See C S 488, 688 for description.)

489, 689 TOPICS IN COMPUTER SCIENCE (1 + 0 per credit) 1 to 3 credits
(See C S 489, 689 for description.)

701-702 NUMERICAL ANALYSIS AND APPROXIMATION (3 + 0) 3 credits each
Norms of vectors and matrices, computation of eigenvalues and eigenvectors, matrix transformations, Weierstrass' approximation theorem, Chebyshev polynomials, best and uniform approximation, splines, approximation in abstract spaces.

703 COMPUTABILITY AND FORMAL LANGUAGES (3 + 0) 3 credits
(See C S 703 for description.)

704 NONPROCEDURAL PROBLEM SOLVING TECHNIQUES (3 + 0) 3 credits
(See C S 704 for description.)

705 COMPILERS AND TRANSLATORS (3 + 0) 3 credits
(See C S 705 for description.)

706 ADVANCED OPERATING SYSTEMS CONCEPTS (3 + 0) 3 credits
(See C S 706 for description.)

709 TOPICS IN ADVANCED COMPUTER SCIENCE (3 + 0) 3 credits
(See C S 709 for description.)

713-714 ABSTRACT AND REAL ANALYSIS (3 + 0) 3 credits each
Metric spaces, abstract measures, measurable functions, integration, product measures, Fubini Theorem, topological measures, Haar measure, differentiation. Radon-Nikodym Theorem, linear spaces, Hahn-Banach Theorem, Riesz Representation.

715-716 COMPLEX FUNCTION THEORY (3 + 0) 3 credits each
Analytic functions, conformal mappings, Cauchy's theorem, power series, Laurent series, the Riemann mapping theorem, harmonic functions, subharmonic functions, canonical mappings of multiply connected regions, analytical continuation.

731-732 MODERN ALGEBRA (3 + 0) 3 credits each
Groups, fields, linear dependence, linear transformations, Galois theory.

741-742 TOPOLOGY (3 + 0) 3 credits each
Topological structures, uniform spaces, metric spaces, compact and locally compact spaces, connectivity, function spaces, topological algebra, elementary homological algebra, singular homology theory, cell complexes, homotopy groups.

751 MATHEMATICAL METHODS IN OPERATIONS RESEARCH I (3 + 0) 3 credits
Application of pertinent mathematical theories to deterministic models, including linear, nonlinear, dynamic and integer programming; duality theory; network analysis. Prerequisite: MATH 311, 330.

752 MATHEMATICAL METHODS IN OPERATIONS RESEARCH II (3 + 0) 3 credits
Application of pertinent mathematical theories to probabilistic models, including queueing theory; inventory theory; reliability; decision analysis; simulation. Prerequisite: MATH 251, 311, 330.

753 STOCHASTIC MODELS (3 + 0) 3 credits
Stochastic models of system noise, Brownian motion, parameter estimation and time series. Applications and mathematical characterizations of Gaussian, Poisson, Markov and stationary random processes. Prerequisite: MATH 251, 311, 330.

773 TOPICS IN ALGEBRA (3 + 0) 3 credits
Variable content chosen from such topics as theory of equations, number theory and groups and permutations. Prerequisite: MATH 217, 330. Maximum of 9 credits.

774 TOPICS IN GEOMETRY AND ANALYSIS (3 + 0) 3 credits
Variable content chosen from such topics as plane algebraic curves, theory of surfaces pseudo-Euclidean spaces. Prerequisite: MATH 217, 330. Maximum of 9 credits.

775 TOPICS IN PROBABILITY AND STATISTICS (3 + 0) 3 credits
Variable content chosen from among such topics as Markov Chains, multivariate statistics and Brownian motion. Prerequisite: MATH 217, 251, 330. Maximum of 9 credits.

780 TOPICS IN ADVANCED MATHEMATICS 1 to 3 credits
Variable content chosen from such topics as mathematical methods in applied science, manifold theory, functional analysis or time series analysis. Maximum of 9 credits.

793 INDEPENDENT STUDY 1 to 3 credits
Library work and reports on topics of mathematical interest. Limited to 6 credits except under special circumstances.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

Inactive Courses

163 INTRODUCTION TO PROBABILITY (2 + 0) 2 credits

NOTE: New prefix listing for selected mathematics courses under computer science (C S).

C S 183 INTRODUCTION TO COMPUTER SCIENCE I (3 + 2) 4 credits
C S 283 INTRODUCTION TO COMPUTER SCIENCE II (3 + 0) 3 credits
C S 285 INTRODUCTION TO COMPUTER SYSTEMS (3 + 0) 3 credits
C S 333, 533 COMPUTER LOGIC DESIGN (3 + 0) 3 credits
C S 386, 586 COMPUTER PROGRAMMING LANGUAGES (3 + 0) 3 credits
C S 437, 637 COMPUTER GRAPHICS (3 + 1) 3 credits
C S 485, 685 COMPUTER DATA STRUCTURES (3 + 0) 3 credits
C S 486, 686 PRINCIPLES OF COMPUTER OPERATING SYSTEMS (3 + 0) 3 credits

MECHANICAL ENGINEERING (M E)

150 INTRODUCTION TO MECHANICAL DESIGN (2 + 3) 3 credits
Introduces the design process including initial conceptualization (sketching), detailed drawings (drafting), and prototype fabrication (machine shop). Discussion of descriptive geometry; graph and chart preparation.

198, 298, 398, 498 COOPERATIVE TRAINING REPORT (1 + 0) 1 credit each
Preparation of written reports based on cooperative program assignments. Required of all students in cooperative programs during the summer or other semesters when on work assignments with cooperative program employers.

201 COMPUTER PROGRAMMING (2 + 3) 3 credits
Programming in FORTRAN illustrated by topics in computational mathematics. No previous knowledge of computer programming is assumed. Corequisite: MATH 217 or equivalent.

241 STATICS (3 + 0) 3 credits
(See C E 241 for description.)

242 DYNAMICS (3 + 0) 3 credits
Kinematics and kinetics of particles and rigid bodies in two and three dimensions; relative motion; work and energy; impulse and momentum. Prerequisite: M E 241.

250 INTRODUCTION TO COMPUTER AIDED DESIGN (2 + 3) 3 credits
Design and analysis of machine components using CADAM on the IBM 4381, and AUTOCAD and CADKEY on the IBM PC System 2. Introduction to dynamic simulation and graphic display. Prerequisite: M E 150.

299 DIFFERENTIAL EQUATIONS (3 + 0) 3 credits
Methods of solving ordinary differential equations with application to physical models. Prerequisite: MATH 217. Required for mechanical engineering majors.

300 INTRODUCTION TO ENGINEERING MATHEMATICS (2 + 0) 2 credits
Methods of solving ordinary differential equations are investigated and applied. Both mathematical formulation of physical problems and solution of the resulting differential equations are stressed. Prerequisite: MATH 217.

310 SYSTEM ANALYSIS AND DESIGN (4 + 0) 4 credits
Mathematical modeling and response analysis of linear mechanical, electrical, hydraulic and pneumatic systems. Linearization of non-linear systems. Introduction to experimental modeling. Control system analysis. Prerequisite: E E 212, C E 367, M E 242, 299 or 300.

343 DYNAMICS OF MACHINERY (2 + 0) 2 credits
Dynamical behavior of machine elements and mechanisms, inertia forces on linkages, two degrees of freedom vibrations, gyroscopic effects, selected special problems. Prerequisite: M E 242.

351 MECHANICAL DESIGN (3 + 3) 4 credits
Design of machine elements, emphasizing analysis using computer languages such as FORTRAN and design using interactive computer aided design facilities. Prerequisite: M E 250, C E 372.

367 ELEMENTARY FLUID MECHANICS (3 + 0) 3 credits
Introduction to hydrostatics, conservation laws, dimensional analysis and boundary-layer theory. Corequisite: M E 242, 299 or equivalent.

368 INTERMEDIATE FLUID MECHANICS (3 + 0) 3 credits
Introductory treatment of potential theory, turbulence, boundary-layer theory, two-phase flow and numerical methods. Prerequisite: M E 367 or equivalent.

371 THERMODYNAMICS I (3 + 0) 3 credits
Principles of engineering thermodynamics. A study of the first and second laws, entropy, ideal gases and power cycles. Prerequisite: completion of physics requirements.

372 THERMODYNAMICS II (3 + 0) 3 credits
Continuation of M E 371 covering availability, nozzles, thermodynamics relations, combustion and equilibrium. Prerequisite: M E 371.

377 INTRODUCTION TO SOLAR ENERGY (2 + 0) 2 credits
History of solar utilization. Characteristics of solar radiation. Design of structures to use solar energy. Principles of conversion of solar energy to other forms of energy. Prerequisite: PHYS 201.

391 INSTRUMENTATION (2 + 2) 3 credits
Theory and practice of instrumentation and experimentation including both static and dynamic measurement. Prerequisite: M E 242, 367.

402, 602 NUMERICAL METHODS IN ENGINEERING (3 + 0) 3 credits
Numerical methods for curve fitting, differentiating and integrating are introduced and applied to physical problems. Prerequisite: M E 299 or 300.

403, 603 PARTIAL DIFFERENTIAL EQUATIONS IN ENGINEERING (3 + 0) 3 credits
Techniques of solving and application of partial differential equations are investigated. Bessel, Legendre and Mathieu functions are introduced. Prerequisite: M E 299 or 300.

410, 610 INTRODUCTION TO SYSTEM CONTROL (3 + 0) 3 credits
Mathematics of linear systems and their control. Prerequisite: M E 310.

411, 611 INTRODUCTION TO ROBOTICS (3 + 0) 3 credits
Included topics are forward and inverse kinematics, motion kinematics, force/torque relations, trajectory planning, dynamics and control of robots. Prerequisite: M E 242.

430, 630 MATERIALS (2 + 0) 2 credits
Properties of materials as they affect selection and design. Prerequisite: METE 350.

440, 640 INTERMEDIATE DYNAMICS (3 + 0) 3 credits
Kinematics and dynamics of rigid bodies in space. General theory of rotating coordinate frames, Euler's angles, Euler's equations of motion, angular momentum, work-energy principles. Prerequisite: M E 242.

444, 644 SPACE MECHANICS (3 + 0) 3 credits
Reference frames, Euler Angles, Orbital mechanics, mechanics of powered flight, satellite dynamics and lunar trajectories. Prerequisite: M E 201, 242.

445, 645 ADVANCED MECHANICS (3 + 0) 3 credits
Unsymmetrical bending, shear center, strain energy, complementary energy with applications, continuous elastically supported beams, beam columns, buckling of bars, electric resistance strain gauging. Prerequisite: C E 372.

446, 646 COMPOSITE MATERIALS (3 + 0) 3 credits
Stress-strain relations of a lamina; micromechanics and macromechanics of laminate; bending, buckling and vibration of laminated composite-material beams, plates and shells. Prerequisite: C E 372.

452 DESIGN SYNTHESIS (2 + 3) 3 credits
Creation and optimization of mechanical systems using Computer Aided Design (CAD) facilities. Heat transfer, fluid flow and economic aspects are included. Prerequisite: M E 451, 461.

453, 653 MECHANICAL VIBRATIONS (3 + 0) 3 credits
Theory of mechanical vibrations with applications to machinery. Includes critical speeds, torsional vibrations, isolation, damping, absorbers, uniform beams, etc. Lectures, experiments, problems. Prerequisite: M E 242, 299 or 300.

461, 661 HEAT TRANSFER (3 + 0) 3 credits
Basic laws of heat transfer by conduction, convection and radiation are introduced and applied to engineering problems. Analytical, numerical and graphical solutions to problems are studied. Prerequisite: M E 367 or equivalent, M E 299 or 300, and 371.

463, 663 COOLING ELECTRONIC EQUIPMENT (2 + 0) 2 credits
Introduction to heat transfer modes, including conduction, convection and radiation. Discussion of thermal problems in electronic packages. Does not satisfy M E 461 requirement. Prerequisite: M E 299 or 300.

464 HEAT TRANSFER LAB (0 + 3) 1 credit
Laboratory covering conduction, convection and radiation areas. Prerequisite: M E 391. Corequisite: M E 461.

465, 665 DESIGN OF THERMAL SYSTEMS (3 + 0) 3 credits
Applications of heat transfer, economics and optimization theory to modeling of thermal equipment. Use of numerical methods and computer simulations, including Lagrange multipliers, search methods and dynamic, geometric and linear programming. Corequisites: M E 461, 492.

472, 672 AIR CONDITIONING (3 + 0) 3 credits
Heating, ventilation and air conditioning (HVAC) requirements to produce thermal comfort. Use of psychrometric chart, the design of duct distribution systems, blower selection criteria and equipment selection. Winter and summer load calculations. Prerequisite: M E 371.

473, 673 REFRIGERATION (3 + 0) 3 credits
Analysis of vapor compression cycle, absorption refrigeration and staged cryogenic systems. Desirable properties of refrigerants and brines, piping arrangement and sizing. Heat exchange and sizing criteria. Prerequisite: M E 372.

474, 674 ACTIVE SOLAR ENGINEERING I (2 + 3) 3 credits
Nature and availability of solar energy. Technology of collection and use. Design, construction and testing of solar collectors and systems. Prerequisite: M E 371.

475, 675 POWER SYSTEMS DESIGN (3 + 0) 3 credits
Contemporary power systems, including geothermal power, cogeneration, waste burning systems and solar thermal systems. Prerequisite: M E 371, 461.

476, 676 INTERNAL COMBUSTION ENGINES (3 + 0) 3 credits
Otto and Diesel cycle engines and gas turbines. Thermodynamics review, combusion, ideal cycles, real engine cycles, fuels and fuel metering, exhaust gas analysis, air pollution. Prerequisite: M E 371.

477, 677 PASSIVE SOLAR ENGINEERING (2 + 3) 3 credits
The design of buildings which interact with climate and solar energy to maintain comfort conditions. Includes computer modeling. Prerequisite: M E 371.

480, 680 GAS DYNAMICS I (3 + 0) 3 credits
Fundamentals of compressible flow; one dimensional flow, shock waves, area change, heat transfer, friction in subsonic and supersonic flow. Prerequisite: M E 367.

481, 681 GAS DYNAMICS II (3 + 0) 3 credits
Continuation of M E 480, applications to ducts, nozzles, diffusers, wind tunnels, flow measurements; oblique shock waves, method of characteristics. Prerequisite: M E 480.

482, 682 AERODYNAMICS (3 + 0) 3 credits
Lift and drag characteristics of bodies and aerodynamics characteristics of the complete airplane. Prerequisite: M E 368 or 461.

484, 684 COMPUTATIONAL FLUID MECHANICS AND HEAT TRANSFER (3 + 0) 3 credits
Application of computational methods to the numerical simulation of the conservation equations which govern fluid mechanics and heat transfer. Knowledge of FORTRAN is required. Prerequisite: M E 368 or 461.

491 MECHANICAL ENGINEERING LABORATORY (1 + 3) 2 credits
Selected experiments in the areas of fluid mechanics, solid mechanics, heat transfer, solar energy, thermodynamics and mechanical vibrations. Prerequisite: M E 391.

492 SEMINAR IN ENGINEERING ECONOMY (1 + 3) 2 credits
Instruction and individual studies in engineering economy with special application to mechanical engineering.

493 SENIOR LABORATORY (0 + 2) 1 credit
Projects related to courses. Prerequisite: M E 391, mechanical engineering major.

494 PROJECTS LABORATORY (0 + 2) 1 credit
Group and/or individual projects related to student's area of concentration. Prerequisite: M E 391, mechanical engineering major.

499 SPECIAL PROJECTS I, II 1 to 4 credits each
Study and/or experimentation in areas of special interest to mechanical engineers. Maximum of 6 credits. Advance department approval is required.

700 INTRODUCTION TO INTEGRAL METHODS WITH APPLICATIONS (3 + 0) 3 credits
Green's functions; Poisson's kernals; LaPlace and Fourier transforms and additional topics related to boundary value problems. Prerequisite: M E 403 or equivalent.

701 ADVANCED MATHEMATICAL METHODS FOR ENGINEERS (3 + 0) 3 credits
Regular and singular perturbation theory, multiple-scale analysis; asymptotic expansions with application to mechanical systems. Prerequisite: M E 403 or equivalent.

702 ADVANCED NUMERICAL METHODS (3 + 0) 3 credits
Multi-dimensional problems using boundary element, finite difference and weighted residual methods.

710 ADVANCED SYSTEM DYNAMICS AND OPTIMAL CONTROL (3 + 0) 3 credits
State space analysis of deterministic, continuous systems, observability, controllability, Lyapunov functions and stability theorems, the theory of optimal processes and Pontryagin's maximum principle.

730 ENERGY AND VARIATIONAL METHODS (3 + 0) 3 credits
Equations of mechanics, energy and variational principles; Galerkin, Ritz and finite-element analysis of plate and shells. Prerequisite: M E 445, 645 or C E 724.

740 ADVANCED DYNAMICS (3 + 0) 3 credits
Fundamentals of analytical mechanics. Behavior of dynamical systems, geometric theory. Stability of multi-degree-of-freedom autonomous and nonautonomous systems. Prerequisite: M E 440, 640.

741 ADVANCED VIBRATIONS (3 + 0) 3 credits
Vibration of multi-degree of freedom systems with emphasis on modal analysis. Introduction to vibration of continuous systems, exact and approximate solutions. Prerequisite: M E 342, 453, 653.

750 ADVANCED MACHINE DESIGN (1 + 6) 3 credits each
(a) Creative design of machines and systems, including advanced analysis and synthesis, (b) continuation of 750a with emphasis on theory and application of photoelastic strain analysis. Prerequisite: M E 452.

760 CONDUCTION HEAT TRANSFER (3 + 0) 3 credits
Formulation of conduction problems in various coordinate systems. Solution by separation of variables, Laplace transforms, complex combination and approximate methods. Prerequisite: M E 461. Corequisite: M E 403 or equivalent.

761 CONVECTION HEAT TRANSFER (3 + 0) 3 credits
Equations of continuity, momentum, energy and mass diffusion. Laminar solutions including the Graetz problem, similarity parameters, external and internal flows. Integral methods. Turbulence. Prerequisite: M E 461.

762 RADIATION HEAT TRANSFER (3 + 0) 3 credits
Radiation properties of surfaces, radiation exchange in enclosures, radiative transfer in absorbing, emitting and scattering media, combined radiation with conduction and convection. Prerequisite: M E 461.

770 STATISTICAL THERMODYNAMICS (3 + 0) 3 credits
Introduction to the statistical thermodynamics of the pure component and of mixtures. An introduction to the kinetic theory of gases; thermodynamics of irreversible phenomena. Prerequisite: M E 372, 700.

772 ADVANCED THERMODYNAMIC/FLUID SYSTEM DESIGN (3 + 0) 3 credits
System design and analysis with emphasis on dynamic behavior. (a) Environmental systems, (b) powers systems. Prerequisite: M E 372.

780 MECHANICS OF IDEAL FLUIDS (3 + 0) 3 credits
Vorticity dynamics; planar and three-dimensional potential flows. Introduction to wave theory and hydrodynamic stability. Prerequisite: M E 368 or equivalent.

781 MECHANICS OF VISCOUS FLUIDS (3 + 0) 3 credits
Fundamental laws of motion for a viscous fluid; exact solutions of the Navier-Stokes equations; study of laminar, turbulent boundary layers including approximate numerical methods. Prerequisite: M E 368 or equivalent.

791 SPECIAL TOPICS 1 to 4 credits
Literature search and analytical study of special problems. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 4 credits
Study and experimentation in areas of special interest.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

MEDICAL TECHNOLOGY (MEDT)

Registration in all medical technology courses is restricted to UNR medical technology majors who were enrolled prior to the 1986 Fall Semester. The medical technology major and all medical technology prefix courses will be discontinued effective June 1, 1990.

The medical technology program was renamed clinical laboratory medicine for those entering fall 1986.

311 HEMATOLOGY, CLINICAL MICROSCOPY AND BODY FLUIDS (3 + 0) 3 credits
Structure and function of blood, coagulation mechanism, and pathogenesis of diseases affecting blood and bone marrow, renal microanatomy, morphology of urine sediment and other body fluids, and disease correlation. Prerequisites: BIOL 262, 263, CHEM 142 or 243.

312 HEMATOLOGY, CLINICAL MICROSCOPY AND BODY FLUIDS LAB (0 + 6) 2 credits
Coagulation mechanism, enumerative procedures, cellular morphology, and microscopic analysis of urinary sediment and body fluids by clinical laboratory techniques. Corequisite: MEDT 311.

321 IMMUNOHEMATOLOGY (2 + 0) 2 credits
Immunologic principles as applied to human blood group systems. Criteria for donor selection and the use of blood and blood components in therapy are presented. Prerequisite: BIOL 263.

322 IMMUNOHEMATOLOGY LABORATORY (0 + 3) 1 credit
Laboratory techniques used in blood grouping, antibody identification, and compatibility testing as applied to clinical diagnosis and therapy. Corequisite: MEDT 321.

331 CLINICAL MICROBIOLOGY I (3 + 0) 3 credits
Characteristics, transmission, and medical significance of pathogenic bacteria isolated from humans to include evaluation of culture results. Prerequisite: BIOL 251.

332 CLINICAL MICROBIOLOGY I LABORATORY (0 + 6) 2 credits
Normal flora and pathogenic bacteria found in human specimens are studied, isolated, and identified by clinical laboratory techniques. Corequisite: MEDT 331.

333 CLINICAL MICROBIOLOGY II (3 + 0) 3 credits
Characteristics, transmission, and medical significance of fungi, parasites, higher bacteria, and viruses isolated from human specimens. Prerequisite: BIOL 251.

334 CLINICAL MICROBIOLOGY II LABORATORY (0 + 6) 2 credits
Fungi, parasites, higher bacteria, and viruses are studied and identified by clinical laboratory techniques. Corequisite: MEDT 333.

411 ADVANCED HEMATOLOGY (1 + 0) 1 credit
Advanced study of hemoglobinopathies, cell morphology in disease, hemorrhagic and thrombotic disorders, leukocyte and erythrocyte cytochemistry, and cytogenetics. Prerequisite: BIOL 263, CHEM 142 or 343.

412 ADVANCED HEMATOLOGY LABORATORY (0 + 3) 1 credit
Specialized hematologic procedures applied to diagnosis of blood dyscrasias, genetic studies, and hemostatic disorders. Corequisite: MEDT 411.

421 CLINICAL CHEMISTRY I (3 + 0) 3 credits
Fundamental principles of electronics and instrumentation. Critical examination of metabolism and correlation with methodology and clinical significance for carbohydrates, proteins, nonprotein nitrogen compounds and vitamins. Prerequisite: PHYS 152; BIOL 262, 263; CHEM 101, 102, 142, 143 or 343, 344, 330; B CH 301; MEDT 301.

422 CLINICAL CHEMISTRY I LABORATORY (0 + 6) 2 credits
Qualitative and quantitative analysis of blood, urine and body fluids with emphasis on manual methods, instrumentation and quality control. Corequisite: MEDT 421.

423 CLINICAL CHEMISTRY II (3 + 0) 3 credits
Biophysiological regulation, methodology, and clinical significance of electrolytes, enzymes, lipids, hormones and drugs in blood, urine and body fluids. Prerequisite: MEDT 421.

424 CLINICAL CHEMISTRY II LABORATORY (0 + 3) 1 credit
Qualitative and quantitative analysis of blood gases and pH, titrations, enzyme kinetics and toxicological techniques. Corequisite: MEDT 423.

MEDICINE (MED)

402, 602 ADVANCED PROBLEM SOLVING (1 + 3) 2 credits *S/U only*
Application of biological science knowledge and concepts to simulated clinical problems. Application, demonstration and role modeling of problem-solving techniques in medicine. Maximum of 4 credits.

461, 661 ELECTIVES 2 to 8 credits
Experience in the interdisciplinary medical subspecialities emphasizing (a) administrative internship, (b) physical diagnosis, (c) radiology.

473, 673 PHYSICAL DIAGNOSIS II (1 + 3) 2 credits *S/U only*
Medical history taking and physical examination with emphasis on abnormal and pathological findings, doctor-patient relationships, medical record keeping and medical problem solving.

601 BIOMEDICAL PROBLEM SOLVING (1 + 3) 2 credits *S/U only*
Application of biological science knowledge and concepts to simulated clinical problems. Application, demonstration and role modeling of problem-solving techniques in medicine. Maximum of 4 credits.

670 PHYSICAL DIAGNOSIS I (1 + 3) 2 credits *S/U only*
Knowledge and skills of the physical examination with emphasis on normal findings, doctor-patient relationships, introduction to medical history taking, medical record keeping and medical problem solving.

METALLURGICAL ENGINEERING (METE)

101 INDUSTRY ORIENTATION LECTURES (1 + 0) 1 credit
(See CH E 101 for description.)

103 COMPUTER APPLICATIONS (2 + 0) 2 credits
(See CH E 103 for description.)

151 INTRODUCTION TO MATERIALS (3 + 0) 3 credits
Basic concepts of material science. Structure and properties of all solid materials. Testing and processing of materials.

203 SURVEY OF EXTRACTION METALLURGY (3 + 0) 3 credits
Overall view of the art and science of extraction metallurgy including the concentration of ores, the extraction of metals from ores, the refining of metals, and environmental implications of these processes.

232 PRINCIPLES OF METALLURGICAL AND CHEMICAL ENGINEERING (3 + 0) 3 credits
Scientific bases for process engineering stoichiometry, gas behavior combustion and mass and energy balances. Problem solving is emphasized. Field trip. To progress to subsequent courses identified by CH E or METE, a grade of C or higher must be earned in this course. Corequisite: MATH 215. (Same as CH E 232.)

301 METALLURGICAL INDUSTRY SEMINAR (1 + 0) 1 credit
Written and oral engineering reports covering work during junior year or equivalent library research in metallurgical industry. Library search or computer use may be required to supplement work experience.

311 METALLURGICAL ANALYSIS (0 + 3) 1 credit
Special methods not ordinarily included in chemical analysis as applied to metallurgical products.

322 MINERAL PROCESSING I (3 + 0) 3 credits
Principles and practices of mineral preparation and concentration.

324 MINERAL PROCESSING LABORATORY (0 + 3) 1 credit
Experiments demonstrating principles of mineral processing.

332 UNIT PROCESSES OF CHEMICAL METALLURGY I (3 + 0) 3 credits
Quantitative and descriptive treatment of the unit processes used in the recovery and refining of metals by high temperature methods. Field trip. (Same as CH E 332.)

350 ELEMENTS OF MATERIALS SCIENCE (3 + 0 or 3) 3 or 4 credits
Internal structure of materials, the dependence of properties upon these structures, and the behavior of materials in service.

373 FLUID MECHANICS (3 + 0) 3 credits
(See CH E 373 for description.)

401, 601 CORROSION OF METALS (3 + 0) 3 credits
Thermodynamic and kinetic basis for the electrochemical theory of corrosion. Potential-pH diagrams. Polarization curves. Forms of corrosion to include: general and galvanic corrosion, pitting and stress corrosion cracking. Methods of corrosion prevention.

416, 616 X-RAY METALLOGRAPHY (2 + 3) 3 credits
Generation and properties of X-rays; radiography; diffraction techniques; structure determination; spectroscopy and microscopy.

421, 621 MINERAL PROCESSING II (3 + 0) 3 credits
Continuation of METE 322 with emphasis on flotation. Prerequisite: CHEM 353.

423, 623 SURFACE CHEMISTRY OF MINERALS (3 + 0) 3 credits
Thermodynamics of surfaces, electrostatic and electrokinetic phenomena, adsorption at interfaces, and properties of monolayers as applied to processing of minerals. Prerequisite: CHEM 354. (Same as CH E 423.)

425, 625 HYDROMETALLURGICAL REACTIONS (3 + 0) 3 credits
Systematic treatment embracing dissolution of minerals, leaching, precipitation, and complex formation in aqueous systems. Prerequisite: CHEM 354.

431, 631 UNIT PROCESSES OF CHEMICAL METALLURGY II (3 + 0 or 3) 3 or 4 credits
Continuation of METE 332, covering low-temperature unit processes such as leaching, precipitation, electrolysis, and both liquid and resin ion exchange. Laboratory exercises for illustrations. Field trip. Prerequisite: METE 332. Laboratory optional.

433-434, 633-634 ADVANCED METALLURGY 1 to 4 credits each
Advanced studies in mineral dressing or chemical metallurgy (including laboratory investigations.)

443 INDUSTRIAL INSTRUMENTATION (2 + 0) 2 credits
Analysis and specification of industrial instrumentation systems; elements of process control strategies and analysis. Computer use in data logging. Prerequisite: METE 373.

450 DESIGN I (2 + 0) 2 credits
(See CH E 450 for description.)

451, 651 PHYSICAL METALLURGY (2 + 3) 3 credits
Supplementary and advanced treatment of topics introduced in METE 350.

462, 662 THERMODYNAMICS OF IRREVERSIBLE PROCESSES (3 + 0) 3 credits
Thermodynamic treatment of irreversible metallurgical, chemical, and electrochemical processes, transport processes, coupling phenomena, etc. Prerequisite: Ch E 361 or M E 371 and CHEM 353. (Same as CH E 462.)

472 INTRODUCTION TO CERAMICS (3 + 0) 3 credits
Structures and imperfections, atom mobility, grain boundaries, ceramic phase diagrams, transformation, grain growth and sintering, properties and applications. Prerequisite: MATH 320, METE 350.

482 DESIGN II (1 + 6) 3 credits
(See CH E 482 for description.)

484, 684 HEAT TRANSFER (3 + 0) 3 credits
(See CH E 484 for description.)

493, 693 MASS TRANSFER (3 + 0) 3 credits
(See CH E 493 for description.)

495, 695 SPECIAL PROBLEMS 1 to 3 credits
Individual research problems in metallurgy. Maximum of 6 credits.

700 APPLIED MATHEMATICS IN CHEMICAL AND METALLURGICAL ENGINEERING (4 + 0) 4 credits
Application of advanced mathematical procedures to the treatment and interpretation of chemical and metallurgical engineering data. Use of ordinary and partial differential equations, transforms, the calculus of finite differences and numerical methods in chemical and metallurgical engineering problems. Prerequisite: MATH 320 or M E 300, CH E 437 or 438, METE 431.

701-702 ADVANCED METALLURGY 1 to 5 credits each
(a) General metallurgy, (b) metallurgical analysis, (c) mineral dressing, (d) pyrometallurgy, (e) hydrometallurgy, (f) electro-metallurgy, (g) nonferrous metallurgy, (h) ferrous metallurgy, (j) physical metallurgy, (k) metallography, (m) heat treatment, (n) mechanical metallurgy, (p) history of metallurgy. These courses consist of either lectures, periodic conferences, supervised reading, laboratory or field work. May be repeated more than once to pursue different studies.

703 ADVANCED PHYSICAL METALLURGY (3 + 0) 3 credits
Advanced treatments of mechanical deformation, dislocation theory, surfact structure, solidification, annealing, phase transformations, hardening mechanisms in steel and other selected topics. Prerequisite: METE 451.

711 ADVANCED CORROSION PRINCIPLES (3 + 0) 3 credits
Advanced electrochemical theory of corrosion mechanism. Experimental technique in study of corrosion. Evaluation of current research progress in various topics in corrosion taken from the literature. Prerequisite: METE 401.

715 X-RAY DIFFRACTION (1 + 6) 3 credits
Theory of X-ray diffraction and methods used in obtaining and interpreting X-ray diffraction diagrams.

721 ALLOY SELECTION AND FAILURE ANALYSIS (3 + 0) 3 credits
Fundamentals of alloying element behavior in metals. Alloying for mechanical strength and corrosion resistance. Identification and prevention of various failure modes including fracture, corrosion and wear. Prerequisite: METE 350 or equivalent.

725 PROCESS ENGINEERING OF COMMINUTION (2 + 3) 3 credits
Crushing and griding theory and its application in simulation and control of comminution circuits. Prerequisite: MATH 320 or M E 300.

726 PIPELINE TRANSPORT OF SLURRIES (2 + 1) 3 credits
Principles of the flow of liquid-solid slurries in pipes and rotational viscometers and application to the design of slurry pipelines. Prerequisite: MATH 320 or M E 300.

728 INTERFACIAL PHENOMENA (3 + 0) 3 credits
Surface chemical and physical phenomena associated with the boundary between two phases. Prerequisite: MATH 320 or M E 300, CHEM 354.

731 ADVANCED PROCESS CONTROL (3 + 0) 3 credits
Selection of topics of interest in Process Control Research including: control ap-

plications of process dynamic modeling, dynamic testing and analysis, simulation of dynamic systems.

738 CERAMIC MATERIALS SCIENCE AND ENGINEERING (3 + 0) 3 credits
Special methods for production, processing and utilization of the more refractory metals. Prerequisite: METE 433.

741 ADVANCED KINETICS AND REACTOR DESIGN (3 + 0) 3 credits
Complex reaction rates, networks; catalytic processes, gas-solid reactions; batch, plug flow, perfectly mixed flow reactor equations; stability analysis; homogeneous, heterogenous models; fluidized bed reactors. Prerequisite: CH E 440.

751 PHYSICS OF METALS (3 + 0) 3 credits
Theoretical study of the metallic state. Emphasis upon crystal structure, elastic and plastic properties, crystal imperfections and thermal and magnetic properties.

760-761 ADVANCED CHEMICAL AND METALLURGICAL THERMODYNAMICS (4 + 0) 4 credits
Applications of thermodynamics to physicochemical hydrodynamic and pyrometallurgical unit processes. Prerequisite: MATH 320 or M E 300, CH E 361, 437 or 438, METE 431.

762 STATISTICAL THERMODYNAMICS (3 + 0) 3 credits
Introduction to statistical thermodynamics with applications to metallurgy and chemical engineering. Prerequisite: CH E 361.

764 ADVANCED FLUID DYNAMICS (3 + 0) 3 credits
Advanced concepts in theoretical and applied fluid and heat dynamics involving steady state, transient and dyclic phenomena in chemical and metallurgical engineering. Prerequisite: MATH 320, CH E 373 or METE 373.

765 ADVANCED MASS TRANSFER (3 + 0) 3 credits
Multicomponent diffusion, mass transport models, advanced concepts in analysis and design of continuous and multistage separation processes, advanced topics including recent literature. Prerequisite: MATH 320, CH E 493 or METE 493.

790 MINERAL INDUSTRY SEMINAR 1 to 3 credits
Review and discussion by staff members and graduate students of individual research or important new publications concerning the mineral industry and related sciences. Maximum of 6 credits. Prerequisite: graduate standing or faculty member. (Same as GEOL 790, MINE 790.)

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits.

Inactive Courses

441, 641 METALLURGY OF REACTIVE METALS (2 + 0) 2 credits
452, 652 INTRODUCTION TO THE STRUCTURE AND PROPERTIES OF SOLIDS (3 + 0) 3 credits
752 MAGNETIC PROPERTIES OF SOLIDS (3 + 0) 3 credits

MICROBIOLOGY (MICR)

401, 601 MEDICAL MICROBIOLOGY (7 + 6) 9 credits
Fundamental concepts of immunochemistry, cellular immunology, clinical immunology, medical bacteriology, virology, medical mycology and parasitology as they apply to medicine and infectious diseases.

482, 682 MEDICAL BACTERIOLOGY (2 + 3) 3 credits
Cellular and molecular mechanisms of bacterial pathogenesis. Prerequisite: BIOL 101 or equivalent.

483, 683 MEDICAL MYCOLOGY (1 + 6) 3 credits
Application of mycological techniques to clinical specimens in the identification of disease-causing fungi. Prerequisite: BIOL 101 or equivalent.

484, 684 MEDICAL VIROLOGY (2 + 3) 3 credits
Systematic treatment of the major groups of viruses involved in human disease. Emphasis on principles of virus pathogenesis, replication, culture and laboratory identification. Prerequisite: CHEM 202 or equivalent.

487, 687 PROBLEMS IN INFECTION AND IMMUNITY (1 + 0 per credit) 1 to 3 credits
Research and/or seminar-oriented elective in either bacteriology, immunology, mycology, or virology.

490 INDEPENDENT STUDY 1 to 4 credits

701-702 EXPERIMENTAL METHODS IN MOLECULAR BIOLOGY I AND II (0 + 9) 3 credits each
Intensive laboratory experience in molecular biology research methods. Oral and written reports on each research project required. Prerequisite: B CH 400, 600 or equivalent.

711 RECOMBINANT DNA TECHNIQUES (0 + 9) 3 credits
Intensive laboratory experience covering basic principles and techniques of gene cloning. Methods for growing and isolating vectors, gel analysis of restriction fragments and selection of specific recombinant DNA molecules. Prerequisite: B CH 400, 600 or equivalent. Advance approval of department.

780 INTRODUCTORY CELLULAR IMMUNOLOGY (3 + 0) 3 credits
Basic concepts of cellular immunology including immunoglobulin structure, products of the major histocompatibility complex, lymphocyte activation and differentiation and mechanisms of damage mediated by the immune system.

784 MOLECULAR MECHANISMS OF VIRUS REPLICATION (3 + 0) 3 credits
Current issues in virus DNA, RNA and protein synthesis. Emphasis on mechanisms of control of gene expression utilizing model animal and bacterial virus groups.

785 EXPERIMENTAL IMMUNOCHEMISTRY (1 + 6) 3 credits
Emphases emcompass the qualitative and quantitative methods for measurement of immunoglobulins. Mechanisms of antigen and antibody interaction are considered. Prerequisite: B CH 400, 600 or equivalent.

786 CELLULAR IMMUNOLOGY (1 + 6) 3 credits
Mechanisms of antigen processing and antigen stimulation at the cellular levels. Prerequisite: B CH 400, 600 or equivalent.

787 CELLULAR AND MOLECULAR BIOLOGY OF CANCER (3 + 0) 3 credits
Introduction to the basic biology of cancer; development of, and emphasis on, insights from current research; with perspectives relating this research to human cancer.

790 GRADUATE SEMINAR (1 + 0) 1 credit
Reports of current research in cellular and molecular biology by both internal and external researchers. For majors in the cellular and molecular biology program only.

793 INDEPENDENT STUDY 1 to 6 credits
For majors in the cellular and molecular biology program only.

794 COLLOQUIM (1 + 0) 1 credit
Presentation and analysis of original research in (a) gene regulation, (b) virology, (c) molecular biology methodology, (d) neoplasia, (e) hormone and drug receptors, or (f) immunology. Maximum of 8 credits. For majors in the cellular and molecular biology program or advance approval.

797 THESIS 1 to 6 credits
For majors in the cellular and molecular biology master's program only.

799 DISSERTATION 1 to 24 credits
For majors in the cellular and molecular biology doctoral program only.

MILITARY SCIENCE (MIL)

101 INTRODUCTION TO MILITARY SCIENCE (2 + 0) 2 credits
Mission, organization, and function of the Armed Services; the role of the military in relation to national objectives and security; the evolution of weapons and warfare.

102 BASIC LEADERSHIP AND ORGANIZATION (2 + 0) 2 credits
Fundamentals of good leadership to include different theories; fundamental organization and operation of the Army.

201 MILITARY TOPOGRAPHY AND ORIENTEERING (2 + 0) 2 credits
Proper use and appreciation of military maps, photos, and compasses and the development of orienteering skills to include cross-country navigation over unfamiliar terrain.

202 HISTORY OF THE CONDUCT OF WAR (2 + 0) 2 credits
Analysis of the conduct of warfare, reviewing the doctrine and philosophy of Clausweitz, Jomni, Sun Tzu, Moltke. A review of U.S. military history from 1776.

203 BASIC TOPICS IN LEADERSHIP SKILLS (1 or 2 + 0) 1 or 2 credits
Presentation of basic military leadership skills in such areas as land navigation, first aid, desert survival, winter survival, and marksmanship. May be repeated to a maximum of 4 credits provided different subject areas are studied for each period of enrollment.

204 BASIC SUMMER CAMP 2 credits
Six-week camp designed to substitute for the first two years of ROTC. Includes map reading, national security, military history, and various other military subjects. Course conducted at a military reservation designated by the Army.

301 LEADERSHIP IN SMALL UNIT OPERATIONS (3 + 0) 3 credits
Introduction to the principles and techniques of combat tactics and management at the platoon level. Emphasis is placed on considered factors in the decision-making process; techniques of command and control of troops; introduction to the missions, roles, and contributions of the several branches of the Army. Prerequisite: completion of basic program.

302 ADVANCED LEADERSHIP DEVELOPMENT (3 + 0) 3 credits
Enhances student understanding of the planning and coordinating steps in the decision-making process and the principles and techniques of command, control, and management at all levels. Emphasizes clarity of written and oral expression and the need for deliberate analysis of problems to produce logical solutions. Prerequisite: completion of basic program.

303 ADVANCED SUMMER CAMP 2 credits
Advanced cadets spend six weeks at an Army installation to learn practical skills in tactics, field living, leadership, weaponry, technical military equipment, military customs and traditions, physical fitness, confidence building, and personnel management. Prerequisite: MIL 301 and 302.

304 ADVANCED TOPICS IN LEADERSHIP (1 or 2 + 0) 1 or 2 credits
Includes student research and presentation of leadership styles, leadership characteristics, staff procedures, planning, and organization. Maximum of 4 credits provided different subject areas are studied for each period of enrollment.

401 SEMINAR ON THEORY AND DYNAMICS OF THE MILITARY TEAM (3 + 0) 3 credits
Explores core values governing officer behavior; the concepts for military organizations; the theory of military organizations; and tactical employment of forces emphasizing company-sized operations. Prerequisite: completion of basic program.

402 SEMINAR IN LEADERSHIP AND MANAGEMENT (3 + 0) 3 credits
Stresses administrative and logical matters which confront the commander at platoon and company levels. Introduction to principles of personnel, fiscal, and supply management, and the philosophy and purpose of military law. Prerequisite: completion of basic program.

MINING ENGINEERING (MINE)

A. MINERAL INDUSTRY EMPLOYMENT 0 credits
Work for a mining company at least one summer vacation and prepare an acceptable report on the experience. Required for mining engineering majors.

101 INTRODUCTION TO MINING (1 + 0) 1 credit
Introduction to techniques, practices and problems in modern mining. Field trip required.

102 MINERAL MAP MAKING (1 + 3) 2 credits
Introduction to the basic principles of modern drawing and cartography as used in mineral engineering reports.

210 MINING METHODS (3 + 0) 3 credits
Introduction to mining systems with emphasis on methods, equipment and terminology of surface and underground mine operations. Prerequisite: MINE 101, 102 or equivalent.

213 COMPUTER PROGRAMMING (1 + 3) 2 credits
Development of procedures to solve numerical and nonnumerical earth science problems by digital computer, using flow charts and FORTRAN IV.

218 MINING ENGINEERING LABORATORY (0 + 3) 1 credit
Application of unit operations in underground mining. Field evaluation of blasting patterns, support methods and materials handling. Fulfills MSHA training requirement. Prerequisite: MINE 210.

301 COAL MINING (2 + 0) 2 credits
Geology of coal, its constitution and uses. Underground and surface mining of coal including mining methods and equipment. Prerequisite: MINE 210.

310 MATERIALS HANDLING (3 + 0) 3 credits
Design and evaluation of materials handling systems in surface and underground mines. Hoisting, conveyors, track and rubber-tired haulage, load-haul systems. Prerequisite: M E 241, 342, MINE 210.

324 COMPUTER APPLICATIONS (1 + 3 or 6) 2 or 3 credits
Use of digital computers in the earth sciences, with emphasis on developing student's ability to use computers in industry or research. Prerequisite: MINE 213.

342 MINE SURVEYING (0 + 3) 1 credit
Theory and mathematics of mine surveying.

343 APPLIED MINE SURVEYING (0 + 6) 2 credits
Surface and underground surveying techniques in exploration and mining operations. A charge is made for field expenses. Prerequisite: C E 241.

344 MINE ENVIRONMENTAL CONTROL (2 + 3) 3 credits
Theory and practice of creating safe, healthy, and efficient working environments underground. Mine ventilation techniques. Prerequisite: M E 371, C E 367.

351 MINING LAW (2 + 0) 2 credits
U.S. and foreign, federal and state laws affecting the mineral industry and pertaining to mineral land acquisition, corporations, ethics, mining, taxation, water, environment, labor, safety, and welfare.

361 OPERATIONS RESEARCH METHODS (3 + 0) 3 credits
Introduction to the theory of Operations Research and its application in the mining industry. Prerequisite: AG 270, MINE 213.

400 MINING COMMUNICATION (1 + 0) 1 credit
Study of written and oral skills in engineering and management communication. Video taped technical talk given to class. Report required on senior field ttip.

406 SENIOR REPORT 1 to 3 credits
Formal, comprehensive report on a subject approved by the student's adviser and department chairman.

411, 611 MINE ECONOMICS (2 + 0) 2 credits
Introduction to management accounting principles, balance sheet and income statement, depreciation, depletion and cash flow. Financial evaluation using present value theory, equipment evaluation and replacement. Risk and sensitivity analysis. Prerequisite: MINE 210, 310; AG 270; MINE 361 or equivalent.

413, 613 MINERAL INVENTORY ESTIMATION (2 + 0) 2 credits
Principles of sampling and the study of the major methods for mineral reserve estimation including polygonal, inverse distance squared and geostatistical. Grade tonnage curves for normal and log normal distribution. Variograms and kriging of mineral reserves. Prerequisite: MINE 213, AG 270 or equivalent.

418, 618 MINE FEASIBILITY (1 + 3) 2 credits
Data, techniques, and layout required for a formal mine feasibility report to be prepared on a given mineral deposit. Prerequisite: MINE 411, 413.

425, 625 MINE POWER AND DRAINAGE (3 + 0) 3 credits
Electrical and compressed air power in the design of underground mining and mine water drainage systems. Prerequisite: C E 367, M E 371, E E 212.

445, 645 DRILLING AND BLASTING (3 + 0) 3 credits
Current theory and practice in drilling and blasting. Prerequisite: MINE 448.

446, 646 THEORY OF EXPLOSIVES (2 + 3) 3 credits
Thermodynamic theory and the blasting action of explosives.

448, 648 ROCK MECHANICS I (2 + 3) 3 credits
Uniaxial and triaxial stress-strain analysis and structural analysis of rocks in the design of underground openings. Prerequisite: M E 241, GEOL 332.

449, 649 ROCK MECHANICS II (2 + 3) 3 credits
Application of Rock Mechanics in underground and open-pit mining. Includes excavation, rock burst, and slope stability. Prerequisite: MINE 448, 648.

454, 654 MINING AND SURFACE ENVIRONMENT (2 + 0) 2 credits
Effects of mining, milling, and smelting on the surface environment, and their control to allow maximum conservation and minimum waste of natural resources. Field trip.

472, 672 WORLD MINERAL ECONOMICS (3 + 0) 3 credits
Minerals in World Affairs. Interdependence of nations on minerals and the economic and political problems caused by their unequal geographic distribution and divided political control.

495, 695 SPECIAL PROBLEMS 1 to 3 credits each
Individual research problems in mining engineering. Maximum of 6 credits.

701-702 ADVANCED MINING ENGINEERING 1 to 5 credits each
(a) General mining, (b) excavation, (c) drilling, (d) blasting, (e) equipment, (f) transportation, (g) design, (h) surface mining, (j) underground mining, (k) safety, (m) ventilation, (n) mining economics, (p) mine administration, (r) mining law, (s) mineral economics, (t) history of mining, (u) mineral explorations, (v) rock mechanics, (w) mining conservation, (x) nonmetallic mining.

These courses consist of either lectures, periodic conferences, supervised reading, laboratory or fieldwork. May be repeated more than once to pursue different studies.

729 ADVANCED COMPUTER APPLICATIONS 1 to 3 credits
Computer systems, languages, and economics. Major individual earth science project on computer. Prerequisite: MINE 213 or 324.

745 ADVANCED ROCK MECHANICS (2 + 3) 3 credits
Field and laboratory studies of applied rock mechanics. Prerequisite: MINE 448, 449.

749 ADVANCED BLASTING METHODS DESIGN 1 to 3 credits
Modern theories in the use of explosives and the design of blasting systems. Prerequisite: MINE 446.

790 MINERAL INDUSTRY SEMINAR 1 to 3 credits
(Same as METE 790).

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

Inactive Courses

316 STATISTICAL ANALYSIS IN THE EARTH SCIENCES (2 + 0) 2 credits
405 SENIOR REPORT 1 to 3 credits
482, 682 ECONOMICS OF THE BASE METALS (3 + 0) 3 credits

MUSIC (MUS)

INDIVIDUAL INSTRUCTION: Special fee of $125.00 per half period lesson.

101 MUSIC FUNDAMENTALS AND EAR TRAINING (3 + 0) 3 credits
Notation, terminology, intervals, scales and chords. Designed to furnish a foundation for musicianship.

103 CLASS BRASS INSTRUCTION (1 + 2) 2 credits
Fundamental instruction in each of the instruments and in class teaching procedures. Simple selections, employing various keys and rhythms.

104 CLASS WOODWIND INSTRUCTION (1 + 2) 2 credits
Fundamental instruction in each of the instruments and in class teaching procedures. Simple selections, employing various keys and rhythms.

106, 306 PEP BAND (0 + 3) 1 credit each
A performing group for university events. Maximum of 2 credits each.

111, 311 CONCERT CHOIR (0 + 3) 1 credit each
Performance of representative chotal music of all periods. Assists in the presentations of the symphonic choir and is featured in local concerts and on tour. Corequisite: MUS 119 or 319. Maximum of 4 credits each.

113 CLASS VOCAL INSTRUCTION (1 + 0) 1 credit
Fundamentals of tone production, breath control, and practical techniques involved in reading and interpreting songs. Maximum of 4 credits.

117, 317 MARCHING AND CONCERT BAND (0 + 3) 1 credit each
Marching techniques and performances; performance of concert literature (after marching season). Prerequisite: previous band experience. Maximum of 4 credits each.

118, 318 SYMPHONIC BAND AND WIND ENSEMBLE (0 + 3) 1 credit each
Performance of representative literature for large bands and chamber winds. Prerequisite: previous band experience and audition. Maximum of 4 credits each.

119, 319 SYMPHONIC CHOIR (0 + 3) 1 credit each
Presentation of large-scale choral works. Maximum of 4 credits each.

120 SURVEY OF JAZZ (3 + 0) 3 credits
Chronological study of jazz music and musicians with emphasis on directed listening.

121 MUSIC APPRECIATION (3 + 0) 3 credits
Historical and cultural background of music. A general course in music appreciation open to all students. Representative works are heard and analyzed.

122 MASTERWORKS OF MUSIC (3 + 0) 3 credits
Major representative works of the standard repertory with emphasis on their historical and cultural milieu. Concert attendance required.

123 CLASS STRING INSTRUCTION (1 + 2) 2 credits
Elementary instruction in violin, viola, cello and bass.

124 CLASS PERCUSSION INSTRUCTION (1 + 2) 2 credits
Elementary instruction in the various percussion instruments.

125, 325 UNIVERSITY ORCHESTRA (0 + 3) 1 credit each
One or more concerts of representative orchestra literature are given each semester. Maximum of 4 credits each.

131, 151 JAZZ IMPROVISATION (1 + 1) 1 credit
Performance oriented study of improvisation in the jazz idiom. Audition required. Maximum of 4 credits each.

151, 351, 751 PIANO (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 351 or 751.

153 VOICE (½ or 1 + 0) 1 to 3 credits each
MUS 218 is a corequisite for MUS 153 for students enrolling for 3 credits. Maximum of 12 lower-division credits.

155, 355, 755 BRASS INSTRUMENTS (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 355 or 755.

157, 357, 757 WOODWIND INSTRUMENTS (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 357 or 757.

159, 359, 759 STRINGS (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 359 or 759.

161, 361, 761 PERCUSSION (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: audition for 361 or 761.

163, 363, 763 ORGAN (½ or 1 + 0) 1 to 4 credits each
Maximum of 16 lower-division credits, 16 upper-division credits, 4 graduate credits. Prerequisite: MUS 282 or equivalent. Prerequisite: audition for 363 or 763.

181-182 FUNCTIONAL PIANO I AND II (0 + 2) 1 credit each
Class instruction for students with limited or no keyboard experience.

201 MUSIC HISTORY I (3 + 0) 3 credits
Survey of Western music: origins through the Baroque period.

202 MUSIC HISTORY II (3 + 0) 3 credits
Classical and Romantic periods.

203 MUSIC HISTORY III (3 + 0) 3 credits
Twentieth century.

205, 405, 605 UNIVERSITY CHAMBER MUSIC ENSEMBLE (0 + 2) 1 credit each
Performance of chamber music literature. Maximum of 4 credits each.

207-208 THEORY I AND II (3 + 0) 3 credits each
Counterpoint and harmony (written and keyboard). Prerequisite for MUS 208 is 207.

209-210 SIGHTSINGING AND DICTATION I and II (0 + 2) 1 credit each
Solfege and dictation, rhythmic and melodic.

215, 415, 615 BRASS QUINTET (0 + 2) 1 credit
Performing ensemble specializing in brass quintet literature. Maximum of 4 credits each.

218 VOCAL REPERTORY COACHING (1 + 0) 1 credit
Performance of art song literature of all styles and periods. Emphasis on performance of complete cycles and on contemporary song literature. Open to vocalist and pianist. Maximum of 4 credits.

220, 420, 620 BRASS ENSEMBLE (0 + 2) 1 credit
A performance organization specializing in brass ensemble literature from the Renaissance to the present. Maximum of 4 credits each.

221 SPECIAL STUDIES IN MUSIC LITERATURE (2 or 3 + 0) 2 or 3 credits
Special topics may include: Jazz in America; the Classical Style; the American Musical Theatre. Maximum of 6 credits.

222 ELECTRONIC MUSIC AND SOUND RECORDING TECHNIQUES (1 + 2) 2 credits
Electronic music, analog and digital. Includes techniques of electro-acoustical recording (tape and computer sequencing).

229, 429, 629 TECHNIQUES OF PIANO ACCOMPANIMENT (1 + 1) 1 credit each
Practical experience in accompanying vocal and instrumental performers. Prerequisite: audition required. Maximum of 4 credits each.

230, 430, 630 UNR CONCERT JAZZ BAND (0 + 2) 1 credit each
A performing ensemble specializing in jazz and rock literature and performance practices. Maximum of 4 credits each.

270 OPERA THEATRE I (0 + 2) 1 credit
Beginning music theatre techniques for singers, pianist-coaches, stage directors, including production and performance. Maximum of 4 credits.

281-282 FUNCTIONAL PIANO III AND IV (0 + 2) 1 credit each
Class instruction for students with minimal keyboard experience or as a continuation of MUS 181-182.

301-302 THEORY III AND IV (3 + 0) 3 credits each
Continuation of MUS 207-208, including study of diatonic and chromatic harmony. Prerequisite: MUS 207-208 or equivalent.

303 KEYBOARD HARMONY (2 + 0) 2 credits
Keyboard approach to the study of chord progressions, the realization of figures basses, and harmonization of melodies and basses. Designed for piano and organ majors.

307-308 SIGHTSINGING AND DICTATION III AND IV
(0 + 2) 1 credit each
Advanced solfege and dictation, rhythmic and melodic. Prerequisite: MUS 210.

310 ORCHESTRATION (3 + 0) 3 credits
Arranging music for full orchestra, band and chorus. Transposition, voicing, transcriptions from piano score. Prerequisite: MUS 301-302.

321 CHORAL CONDUCTING (2 + 0) 2 credits
Skill in adapting standard conducting patterns to musical interpretation of representative choral music. Practical leadership experience may be gained by directing the University Singers.

322 INSTRUMENTAL CONDUCTING (2 + 0) 2 credits
Technique of the baton and score reading. Practical leadership experience may be gained by directing the band, orchestra or ensembles.

323 MUSIC METHODS FOR ELEMENTARY MUSIC SPECIALIST
(3 + 0) 3 credits
Methods, materials and special approaches for teaching elementary classroom instrumental and vocal music, grades K-6. Prerequisite: MUS 208.

324 FUNDAMENTALS AND METHODS FOR ELEMENTARY TEACHERS
(3 + 0) 3 credits
Basic music fundamentals for classroom teachers; methods of teaching songs, using instruments, creative activities, listening, movement and rhythmic response.

337 STAGE BAND ARRANGING (2 + 2) 2 credits
Analysis of the jazz harmonic idiom as applied to the instrumentation of the modern dance orchestra in which arrangements are written and played. Prerequisite: MUS 207-208.

350 KEYBOARD LITERATURE (2 + 0) 2 credits
Literature for harpsichord, organ and piano with particular reference to the historical and musical characteristics of the works. Recordings and student performances are utilized. Prerequisite: functional keyboard reading ability.

352 CHORAL MUSIC METHODS (3 + 0) 3 credits
Organization of choral groups in the public schools; materials, techniques and problems. Prerequisite: MUS 207-208, 113 and participation in University Band, University Singers or University Community Symphony.

353, 753 VOICE (½ or 1 + 0) 1 to 4 credits
Maximum of 16 upper-division credits, 4 graduate credits. Prerequisite: audition required.

354 INSTRUMENTAL MUSIC METHODS (3 + 0) 3 credits
Organization of bands, orchestra, instrumental ensembles in the public schools; materials, techniques and problems. Prerequisite: MUS 207-208, and participation in University Band, University Singers or University Community Symphony.

401 ADVANCED STAGE BAND ARRANGING (2 + 0) 2 credits
Analysis of materials and techniques developed in MUS 337. Writing and performance of arrangements on professional level are required. Prerequisite: MUS 337 or equivalent.

406, 606 PERFORMANCE PRACTICE (2 + 0) 2 credits
Performance practices of various eras and effect on presentation of representative works during the present and in their own time. Maximum of 6 credits. Prerequisite: MUS 201-202.

407, 607 SYMPHONIC LITERATURE (2 + 0) 2 credits
Detailed study and analysis of the development of the symphony. Prerequisite: MUS 201-202.

408 FORM AND ANALYSIS (3 + 0) 3 credits
Analysis of song forms, variations, rondo and sonata forms. Prerequisite: MUS 301-302.

409-410, 609-610 COMPOSITION (2 + 0) 2 credits each
Original writing in the smaller forms for a variety of media with preparation for and presentation in public performance. Prerequisite: MUS 301-302.

414, 614 CHORAL LITERATURE (2 + 0) 2 credits
History and analysis of representative choral works from 1600 to the present. Prerequisite: MUS 201-202.

418 INTERMEDIATE VOCAL REPERTORY COACHING (1 + 0) 1 credit
Performance of art song literature of all styles and periods. Emphasis on performance of complete cycles and on contemporary song literature. Open to vocalists and pianists. Prerequisite: MUS 218. Maximum of 4 credits.

422, 622 MUSIC OF TODAY (2 + 0) 2 credits
Recent trends in music and their relationship with the past. Analysis of special harmonic, melodic and structural features of 20th century music. Prerequisite: MUS 201-202.

423, 623 CHAMBER MUSIC LITERATURE (2 + 0) 2 credits
Music written for small groups in Baroque, Classical, 19th and 20th century periods. Prerequisite: MUS 201-202.

424, 624 AMERICAN MUSIC (2 + 0) 2 credits
Detailed examination of the music of the U.S. from the Revolutionary War to the present. Prerequisite: MUS 201-202.

426, 626 VOCAL LITERATURE (2 + 0) 2 credits
Solo and chamber vocal music from the Renaissance to the present. Prerequisite: MUS 201-202.

427 MARCHING BAND PROBLEMS (2 + 0) 2 credits
Organization, development and rehearsal techniques used in the marching band, including pageantry and precision drill. Prerequisite: prior experience and approval of instructor.

428, 628 OPERA LITERATURE (2 + 0) 2 credits
Detailed consideration of selected operas of the various nationalities and periods in music history. Prerequisite: MUS 201-202.

447, 647 DIRECTORS' WORKSHOP (1 + 0) 1 credit
Scheduled during Tahoe Music Camp; designed to use band, choral and orchestral groups for demonstration. Special attention to new repertoire, program planning and supervised conducting. Individual conferences are scheduled with guest and resident music camp faculty. Maximum of 3 credits.

448, 648 ADVANCED BAND ADMINISTRATION AND RELATED PROBLEMS (2 + 0) 2 credits
Organizing the program, administering the physical plant and equipment, establishing favorable teacher-pupil relations, directing the musical program and reviewing recent developments in the field. Prerequisite: teaching experience or exceptional background in the area.

449, 649 CHORUS PROBLEMS (2 + 0) 2 credits
Demonstration and lecture on aspects of vocal technique and organization involved in directing high school and college choruses.

450, 650 PIANO MATERIALS AND METHODS (2 + 0) 2 credits
Mechanics of piano teaching; technical and pedagogical literature, typical problems and solutions, the historical development of piano pedagogy.

470 OPERA THEATRE II 1 to 3 credits
More advanced music theatre techniques, including major roles for singers in UNR Opera Theater productions and one-act opera projects for directors and pianist-coaches. Maximum of 8 credits.

483, 683 PIANO SEMINAR (0 + 2) 1 credit
Special problems in performance, literature and pedagogy. Maximum of 4 credits.

484, 684 WORKSHOP/CONFERENCE IN MUSIC
(0 + 2 per credit) 1 to 3 credits
Topics in music and music education. Maximum of 6 credits

485, 685 INTERNSHIP IN MUSIC EDUCATION
(0 + 2 per credit) 1 to 3 credits
Application of course content included in MUS 323, 352 or 354 in the schools or community agencies under the supervision of school or agency personnel and university staff members. Prerequisite: MUS 323, 352 or 354.

495, 695 INDEPENDENT STUDY 1 to 3 credits

498 SEMINAR IN MUSIC (2 + 0) 2 credits
Synthesizes formal training in performance, theory and the history of music. Prerequisite: MUS 201, 320, 308; piano proficiency.

499 SENIOR RECITAL 0 credits *S/U only*
(a) Applied music. Full recital. (b) Music education. One-half recital.

618 VOCAL REPERTORY COACHING (1 + 0) 2 credits
Performance of art song literature of all styles and periods. Emphasis on performance of complete cycles and on contemporary song literature. Open to vocalists and pianists. MUS 218, 418 offered for 1 credit. Maximum of 4 credits.

621 ADVANCED INSTRUMENTAL PERFORMANCE (0 + 3) 1 credit
Offered for (a) marching and concert band, (b) symphonic band and wind ensemble, (c) university orchestra, or (d) jazz improvisation. Prerequisite: prior college orchestra or band experience and superior ability as a performer. Maximum of 4 credits.

627 ADVANCED CHORAL PERFORMANCE (0 + 3) 1 credit
Study and performance of representative choral music of all periods, including major choral works. Appearance in concerts locally and on tour required, as well as work beyond ensemble participation, such as that of assistant conductor, section leader or soloist. Offered for (a) concert choir, or (b) symphonic choir. Maximum of 4 credits.

705 ADVANCED OPERA PERFORMANCE 1 or 2 credits
Performance of major roles in University Opera productions. Maximum of 4 credits.

709 CONTEMPORARY THEORY AND PRACTICE (3 + 0) 3 credits
Advanced harmonic practice and contemporary analytical procedures concentrating on music since 1900. Prerequisite: MUS 301-302.

721 ADVANCED CHORAL CONDUCTING (2 + 0) 2 credits
Skills required for effective direction of choral groups. Prerequisite: MUS 321 or equivalent. Maximum of 4 credits.

722 ADVANCED INSTRUMENTAL CONDUCTING (2 + 0) 2 credits
Advanced techniques of instrumental conducting. The techniques of interpretation and study of band and orchestra scores. Prerequisite: MUS 322 or equivalent. Maximum of 4 credits.

730 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Bibliography and research methods in music.

731 ADVANCED MUSIC HISTORY (3 + 0) 3 credits
Intensive study of western music from the Medieval, Renaissance and Baroque periods. Prerequisite: MUS 201-202.

732 ADVANCED MUSIC HISTORY (3 + 0) 3 credits
Intensive study of western music from the Classical, Romantic and Modern periods. Prerequisite: MUS 201-202.

740 MUSIC EDUCATION RESEARCH MATERIALS AND TECHNIQUES (3 + 0) 3 credits
Introduction to music education research literature, techniques, interpretation of research findings, research design in descriptive, experimental and philosophical studies; use of computer searches. Prerequiste: MUS 349.

741 NEW DEVELOPMENTS IN MUSIC EDUCATION (3 + 0) 3 credits
Significant new directions in elementary and secondary music curricula; impact of Orff, Kodaly, Suzuki and other arts; education approaches. Prerequisite: MUS 349.

749 SECONDARY INSTRUMENT OR VOICE (½ + 0) 1 credit
Individual instruction. Maximum of 2 credits.

790 SEMINAR IN MUSIC 1 to 3 credits
Special problems in music history or theory with their professional implications. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits
For master of music (Plan B) students.

797 THESIS 1 to 6 credits
(a) Research, master of arts, (b) performance, master of music. With approval of the student's committee a professional paper may meet 2 of the 6 performance credits.

Inactive Courses

303 KEYBOARD HARMONY (2 + 0) 2 credits
348 ADVANCED INSTRUMENTAL TECHNIQUES (2 + 0) 2 credits
403 COUNTERPOINT (3 + 0) 3 credits
446 PRECISION DRILL WORKSHOP (1 + 3) 1 credit
700-701 ADVANCED COMPOSITION (2 + 0) 2 credits each
702 THE AESTHETICS AND PHILOSOPHY OF MUSIC (2 + 0) 2 credits
715 STUDIES IN ELIZABETHAN AND TUDOR MUSIC (2 + 0) 2 credits
724 PHILOSOPHY OF MUSIC EDUCATION (2 + 0) 2 credits

NURSING (NURS)

300 SPECIAL TOPICS 1 to 3 credits *S/U only*
Topics may be chosen from one or more of the following: (a) adult nursing, (b) maternal-child nursing, (c) psychiatric/mental health nursing, (d) issues in nursing, (e) foundations of nursing, (f) levels of health care needs. Open to graduate nurses needing content in specific areas but who are not candidates for an undergraduate nursing degree. 1 credit each. Maximum of 6 credits.

301 HEALTH ASSESSMENT (2 + 3) 1 to 3 credits
Theory of and practice in nursing assessment skills required to provide primary health care.

302 MATERNAL-CHILD SKILLS (1 + 3) 1 to 2 credits
Theory and practice of nursing skills necessary to implement care with childbearing clients, newborns, infants, children, adolescents and developing families in the secondary care setting. Prerequisite: NURS 301. Corequisite: NURS 325, 326.

314 NURSING THEORY I (1 to 5 + 0) 1 to 5 credits
Nursing process applied to health assessment of individuals/families. Principles and concepts of nursing, behavioral and natural sciences provide basis for content. Prerequisite: approval for progression to upper-division nursing. May be taken concurrent with or prior to NURS 315.

315 NURSING PRACTICE I (0 + 3 per credit) 1 to 6 credits
Application of the nursing process in the health assessment of clients/families in a variety of primary care settings. The clinical practicum for Nursing Theory I. Prerequisite: approval for progression to upper-division nursing; NURS 314 completed or taken concurrently.

322 HERITAGE OF NURSING (3 + 0) 3 credits
Social, political, economic, cultural and historical factors influencing nursing as a discipline. Intended for nursing and non-nursing majors.

324 FOUNDATIONS OF NURSING (1 + 0 per credit) 1 or 2 credits
Core concepts derived from applied sciences utilized in professional nursing. Prerequisite: NURS 301, 314, 315.

325 MATERNAL-CHILD NURSING: THEORY (1 + 0 per credit) 1 to 3 credits
Nursing process applied to the care of developing families; maternal-newborn, infants, children, adolescents. Prerequisite: NURS 301, 314, 315.

326 MATERNAL-CHILD NURSING: PRACTICUM (0 + 3 per credit) 1 to 6 credits
Application of the nursing process as it relates to the care of mothers and newborns, infants, children, adolescents. Correlated clinical practicum of Nursing Theory II. Prerequisite: NURS 301, 314. Corequisite: NURS 302, 325.

391 INDEPENDENT STUDY 1 to 6 credits
Opportunity for students to master areas of knowledge through independent organization and assimilation of materials under guidance of faculty advisers.

401 ADULT PSYCHOPHYSIOLOGICAL SKILLS (1 + 3 per credit) 1 or 2 credits
Theory and practice of nursing skills necessary to implement care with acutely ill adults in secondary care settings. Prerequisite: NURS 301, 314, 315. Corequisite: NURS 415, 416.

402 TERTIARY CARE/LEADERSHIP SKILLS (1 + 3) 1 to 2 credits
Theory of nursing skills necessary to implement tertiary care with patients or clients and theory of leadership skills in secondary care and community settings. Prerequisite: NURS 301, 302, 401. Corequisite: NURS 424, 425.

414 ISSUES IN NURSING (1 + 0 per credit) 1 or 2 credits
Core concepts utilized in health care delivery. Prerequisite: NURS 301, 314, 315.

415 ADULT PSYCHOPHYSIOLOGICAL NURSING: THEORY (1 + 0 per credit) 1 to 3 credits
Examination of the nursing process as it relates to the care of the acutely ill adult and his family. Prerequisite: NURS 301, 314, 315.

416 ADULT PSYCHOPHYSIOLOGICAL NURSING: PRACTICUM (0 + 3 per credit) 1 to 6 credits
Application of the nursing process as it relates to the secondary health care needs of adults and their families. Correlated clinical practicum with Nursing Theory III. Prerequisite: NURS 301, 314. Corequisite: NURS 401, 415.

424 NURSING THEORY IV (1 + 0 per credit) 1 to 5 credits
Focus on nursing process as applied to nursing management of the chronically ill client/family, and for groups of clients/families.

425 NURSING PRACTICE IV (0 + 3 per credit) 1 to 6 credits
Application of the nursing process in the nursing management of clients/families with tertiary health care needs in a variety of settings. Includes nursing leadership experience in a clinical practice area of interest. Prerequisite or corequisite: NURS 424.

444 FUNDAMENTALS OF NURSING RESEARCH (1 + 3 per credit) 1 to 3 credits
Research methodology with specific emphasis on its application to nursing practice, trends, and current issues. Prerequisite: completion of junior year nursing sequence, statistics completed or taken concurrently.

445 NURSING RESEARCH PRACTICUM (1 + 3 per credit) 2 or 3 credits
Practicum in ongoing research projects developed in NURS 444. Emphasis on data collection methods, analysis, interpretation, and report writing. Prerequisite: NURS 444.

490, 690 SPECIAL PROBLEMS AND PRACTICES IN NURSING 1 to 10 credits
Individual or group study in areas relevant to nursing theory and/or practice. Maximum of 10 credits.

491 INDEPENDENT STUDY 1 to 6 credits
(See NURS 391 for description.)

701 ROLE OF THE NURSE ADMINISTRATOR (3 + 0) 3 credits
Functions of the nurse administrator in any health care organization are analyzed and appraised for predicted application.

702 PRACTICUM IN NURSING ADMINISTRATION (0 + 9 to 18) 3 to 6 credits
Application and testing of organizational and administrative theory within a selected health care setting. Prerequisite or corequisite: NURS 701.

706 THEORETICAL FOUNDATIONS OF NURSING (3 + 0) 3 credits
Analysis of conceptual nursing frameworks with focus on issues related to theory development in nursing.

708 NURSING THEORIES AND FAMILY HEALTH PATTERNS (3 + 0) 3 credits
Analysis of functional and dysfunctional family health patterns in relation to nursing practice. Synthesis of nursing and family theories with emphasis on nursing interventions. Prerequisite: NURS 706. Corequisite: NURS 710.

710 ADVANCED NURSING PRACTICE I (3 + 9) 6 credits
Analysis of models of health/illness; focusing on human responses to variations in health state. Emphasis on explanatory decisions within biopsychosocial framework. Includes clinical practice. Prerequisite: NURS 706. Corequisite: NURS 708.

711 ADVANCED NURSING PRACTICE II (3 + 9) 6 credits
Analysis of relationships of biophysical and psychosocial processes in various health states. Emphasis on analysis of managerial decisions. Includes clinical practice. Prerequisite: NURS, 706, 710.

720 RESEARCH IN NURSING (2 + 3) 3 credits
Introduction to process of scientific inquiry and literature of nursing research. Includes development of research proposal. Prerequisite: NURS 706.

730 THEORETICAL FOUNDATIONS FOR CHANGE (3 + 0) 3 credits
Exploration and analysis of current health issues affecting advanced nursing practice. Emphasis on the nurse as a change agent within health care organizations. Prerequisite: NURS 710, 711.

791 SPECIAL TOPICS 1 to 3 credits
Guided literature review and analysis.

793 INDEPENDENT STUDY 1 to 6 credits
Independent research or project in an area of special interest.

794 COLLOQUIA 3 credits
Discussion of advanced selected topics by students and faculty.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 2 credits
Required of all students who wish to complete a master of science degree in nursing under Plan B.

797 THESIS 1 to 6 credits
Required of all students who wish to complete a master of science degree in nursing under Plan A.

798 ADVANCED NURSING PRACTICE III (0 + 9) 3 credits
Synthesis of family nurse clinician role. Analysis of managerial decisions, emphasis on planning, implementation, evaluation of nursing interventions. Prerequisite: NURS 706, 710, 711. Corequisite: NURS 730.

OBSTETRICS AND GYNECOLOGY (OBGY)

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experiences with preceptorial supervision and daily conferences to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing obstetrics and gynecology.

461, 661 ELECTIVES 2 to 8 credits
Elective experiences in the major subspecialities of obstetrics and gynecology including: (a) advanced gynecology, (b) obstetrics/gynecology pathology, (c) clinical obstetrics, (d) gynecological oncology, (e) obstetrics/gynecology radiology, (f) office obstetrics/gynecology, (g) surgical anatomy, (h) societal perceptions, (j) bioethical issues, (k) history of obstetrics/gynecology, (m) nutrition in pregnancy, (n) nutrients in prenatal care, (p) obstetrical/gynecological literature. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

490, 690 INDEPENDENT STUDY 1 to 4 credits
Individualized in-depth study of a specific area of obstetrics and gynecology.

PATHOLOGY AND LABORATORY MEDICINE (PATH)

601 GENERAL HUMAN PATHOLOGY (3 + 3) 4 credits
Basic pathology including reactions to disease, i.e., inflammation, repair, neoplasia, circulatory disturbances, cytogenics, and forensic principles, demonstrated by gross and microscopic laboratory exercises. Prerequisite: ANAT 601, PHSY 601.

602 SYSTEMIC HUMAN PATHOLOGY (4 + 6) 6 credits
General pathophysiological principles applied to diseases of organ systems. Laboratory consists of seminars, autopsies, CPCs and in-depth study of gross and microscopic appearances of diseased organs. Prerequisite: PATH 601.

603 LABORATORY MEDICINE I (1 + 3) 2 credits
Theory and practical applications for ordering and interpreting laboratory tests. Special emphasis on clinical chemistry and microbiology. Involves performing certain simple laboratory tests.

604 LABORATORY MEDICINE II (2 + 0) 2 credits
Theory and practical applications for ordering and interpreting laboratory tests. Special emphasis on clinical chemistry and microbiology. Involves performing certain simple laboratory tests.

472, 672 MEDICAL PHOTOGRAPHY AND PHOTOMICROGRAPHY (2 + 3) 3 credits
Application of sophisticated macroscopic and microscopic photographic techniques and methods to depict normal and abnormal gross and microscopic features. Primarily for medical students.

490, 690 INDEPENDENT STUDY 1 to 4 credits
Research in subject of interest to pathology with approval of departmental committee. Medical students only. Maximum of 8 credits.

PEDIATRICS (PEDI)

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing pediatrics.

461, 661 ELECTIVES 2 to 8 credits each
Elective experiences in the major pediattics subspeciality areas including: (a) adolescent medicine, (b) behavioral pediatrics, (c) neonatal-perinatal medicine, (f) allergy and immunology, (g) cardiology, (h) neonatal medicine, (j) endocrinology, (k) perinatology, (m) pediatric hematology/onocology, (n) JCU/pulmonary. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

490, 690 INDEPENDENT STUDY 1 to 3 credits

491, 691 CARE OF THE HANDICAPPED CHILD (3 + 25) 2 credits
Participation in the care of children with handicapping conditions for one week in July at Camp Galilee in Glenbrook, Nevada. For any student enrolled in the School of Medicine.

PHARMACOLOGY (PHAR)

401, 601 MEDICAL PHARMACOLOGY I (9 + 0) 9 credits
Principles, mechanisms of action, thetapeutic indications, contra-indications, side-effects and toxic manifestations of pharmacological agents. Prerequisite: B CH 401, PHYS 402 or equivalent.

492, 692 PROBLEMS IN CLINICAL PHARMACOLOGY AND THERAPEUTICS (1 + 0 per credit) 1 to 4 credits
Discussion and literature search of therapeutic problems in specific case histories; indications and contraindications of drug therapy in relation to basic pharmacologic properties; expected beneficial results, possible side effects, adverse reactions, and drug interactions.

495, 695 SEMINAR (1 + 0) 1 credit
Presentation on special topics in pharmacology. Maximum of 2 credits.

497, 697 SELECTED TOPICS (1 to 3 + 0) 1 to 4 credits
Emphasizes current literature of pharmacologic interest. Maximum of 8 credits. Prerequisite: background course in pharmacology.

499, 699 DIRECTED RESEARCH (0 + 3 per credit) 1 to 4 credits
Guided research in any of the areas of mutual interest to the student and faculty. Maximum of 8 credits.

730 CELLULAR AND MOLECULAR PHARMACOLOGY (3 + 0) 3 credits
Basic topics in cellular physiology and molecular mechanisms of drug action. Prerequisite: PHAR 601.

790 GRADUATE SEMINAR (1 + 0) 1 credit
Reports of current research. Prerequisite: major in pharmacology or cell and molecular biology.

793 INDEPENDENT STUDY 1 to 6 credits
Prerequisite: major in pharmacology or cell and molecular biology.

794 COLLOQUIM (1 + 0) 1 credit
Presentation and analysis of original research. Prerequisite: major in pharmacology or cell and molecular biology. Maximum of 8 credits.

797 THESIS 1 to 6 credits
Prerequisite: major in pharmacology or cell and molecular biology.

799 DISSERTATION 1 to 24 credits
Prerequisite: major in pharmacology or cell and molecular biology.

PHILOSOPHY (PHIL)

100 CRITICAL THINKING AND REASONING (3 + 0) 3 credits
Nonsymbolic introduction to logical thinking in everyday life, law, politics, science, advertising; common fallacies; the uses of language, including techniques of persuasion.

110 INTRODUCTION TO PHILOSOPHY (3 + 0) 3 credits
Basic problems in different areas of philosophy such as ethics, political theory, metaphysics and epistemology.

112 WORLD RELIGIONS (3 + 0) 3 credits
Main moral and religious doctrines of Hinduism, Buddhism, Confusianism, Taoism, Islam, Judaism and Christianity.

114 INTRODUCTION TO SYMBOLIC LOGIC (3 + 0) 3 credits
Principles of correct reasoning, using modern symbolic techniques of the propositional calculus and simple quantification theory.

125 INTRODUCTION TO ETHICAL THEORY (3 + 0) 3 credits
Representative classical ethical theories, e.g., Aristotle, Hume, Kant, utilitarianism, emotive ethics.

130 INTRODUCTION TO METAPHYSICS (3 + 0) 3 credits
Selected problems concerning human nature and reality, e.g., the mind-body problem, freedom and determinism, the existence of God, space and time.

202 INTRODUCTION TO THE PHILOSOPHY OF THE ARTS (3 + 0) 3 credits
Topics include aesthetic standards, artistic cteativity and the nature of art and its role in society.

203 INTRODUCTION TO EXISTENTIALISM (3 + 0) 3 credits
Readings from Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger. An examination of the existentialist concepts "being" and "nonbeing," "estrangement," "dread," "anxiety" and "freedom."

207 INTRODUCTION TO SOCIAL AND POLITICAL PHILOSOPHY (3 + 0) 3 credits
Theories concerning the nature of society and political structure. Readings from classical and contemporary philosophers.

211 ANCIENT PHILOSOPHY (3 + 0) 3 credits
Major figures in history of philosophy from the pre-Socratics through the early medieval thinkers.

212 MEDIEVAL PHILOSOPHY (3 + 0) 3 credits
Major figures in philosophy from the early Church fathers to Ockham.

213 MODERN PHILOSOPHY (3 + 0) 3 credits
Philosophy from the Renaissance through the 18th century. Readings from Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume and Kant.

224 INTRODUCTION TO PHILOSOPHY OF SCIENCE (3 + 0) 3 credits
Philosophical problems and implications of scientific inquiry, such as the nature of laws, theories, explanations, scientific revolutions, limits of knowledge, space and time.

301-302 IDEAS, VALUES AND CULTURES I AND II (3 + 0) 3 credits each
Ideas, values and cultures as they relate to concepts of man, society and the cosmos. Includes Western, non-Western and women's primary source material.

308 INTRODUCTION TO FOUNDATIONS OF MATHEMATICS (3 + 0) 3 credits
(See MATH 308 for description.)

314 19TH CENTURY PHILOSOPHY (3 + 0) 3 credits
Readings from Hegel, Schopenhauer, Marx, Nietzsche, Bentham, Mill, Bradley and others. Prerequisite: 3 credits in philosophy.

315 20TH CENTURY PHILOSOPHY (3 + 0) 3 credits
Significant movements in 20th century philosophy such as phenomenology, pragmatism, logical positivism, British analytic philosophy, and the later Wittgenstein and his followers. Prerequisite: 3 credits in philosophy.

316 AMERICAN PHILOSOPHY (3 + 0) 3 credits
Development of philosophical thought in America with particular emphasis on pragmatism. Prerequisite: 3 credits in philosophy.

323 PHILOSOPHY OF RELIGION (3 + 0) 3 credits
Nature and validity of religious experience. Topics include various conceptions of the nature of God, His existence, the problems of immortality and evil and the possibility of religious knowledge. Prerequisite: 3 credits in philosophy.

325 PHILOSOPHY OF HISTORY (3 + 0) 3 credits
Discussion of historical methods, the idea of progress and meaning in history. Prerequisite: 3 credits in philosophy.

326 SYMBOLIC LOGIC (3 + 0) 3 credits
Developments in modern logic, including characteristics of deductive systems, analysis of propositions and techniques of deduction. Prerequisite: PHIL 114. (Same as MATH 307.)

401, 601 ETHICS (3 + 0) 3 credits
Detailed discussion of major ethical theories. Prerequisite: 6 credits in philosophy.

402, 602 AESTHETICS (3 + 0) 3 credits
Investigation of modern trends in aesthetics. Prerequisite: 6 credits in philosophy.

403, 603 THEORY OF KNOWLEDGE (3 + 0) 3 credits
Examination of the nature of knowledge emphasizing the problem of our knowledge of the external world. Prerequisite: 6 credits in philosophy.

404, 604 METAPHYSICS (3 + 0) 3 credits
Theories concerning the nature of reality. Prerequisite: 6 credits in philosophy.

405, 605 PHILOSOPHY OF MIND (3 + 0) 3 credits
Various theories concerning the relation between mind and body. Other topics

may include an analysis of thinking, intending and a discussion of the possibility of private languages, etc. Prerequisite: 6 credits in philosophy.

406, 606 PHILOSOPHY OF LANGUAGE (3 + 0) 3 credits
Examination of selected problems in the philosophy of language such as meaning, reference, truth and analyticity. Prerequisite: 6 credits in philosophy.

407, 607 SOCIAL AND POLITICAL PHILOSOPHY (3 + 0) 3 credits
Detailed discussion of theories of society and the nature of political obligation. Prerequisite: 6 credits in philosophy.

410, 610 PLATO (3 + 0) 3 credits
Development of Plato's thought, focusing upon the dialogues of his middle and late period. Prerequisite: 6 credits in philosophy.

411, 611 ARISTOTLE (3 + 0) 3 credits
Detailed study of selected major works in Aristotle. Prerequisite: 6 credits in philosophy.

413, 613 BRITISH EMPIRICISTS (3 + 0) 3 credits
Detailed study of the major writings of Locke, Berkeley and Hume. Prerequisite: 6 credits in philosophy.

414, 614 CONTINENTAL RATIONALISTS (3 + 0) 3 credits
Detailed study of the major writings of Descartes, Spinoza and Leibniz. Prerequisite: 6 credits in philosophy.

415, 615 KANT (3 + 0) 3 credits
Intensive study of the *Critique of Pure Reason* and related works. Prerequisite: 6 credits in philosophy.

465, 665 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3 + 0) 3 credits
Interdepartmental course examining the basic presuppositions and procedures in the physical sciences. (Same as PHYS 465.)

481, 681 PROBLEMS IN THE HISTORY AND PHILOSOPHY OF SCIENCE (3 + 0) 3 credits
(See HIST 481, 681 for description.)

494, 694 SELECTED TOPIC IN PHILOSOPHY (3 + 0) 3 credits
Major topic or issue in philosophy. May be repeated to a maximum of 9 credits when content differs. Prerequisite: 6 credits in philosophy.

499, 699 INDIVIDUAL RESEARCH 1 to 6 credits
Pursuit by the advanced student of special interests in philosophy. Maximum of 12 credits.

708 SEMINAR IN PHILOSOPHICAL PSYCHOLOGY (3 + 0) 3 credits
(See PSY 708 for description.)

711 SEMINAR IN MAJOR FIGURES IN THE HISTORY OF PHILOSOPHY (3 + 0) 3 credits
Maximum of 9 credits when content differs.

712 SEMINAR IN MAJOR MOVEMENTS IN THE HISTORY OF PHILOSOPHY (3 + 0) 3 credits
Maximum of 9 credits when content differs.

713 SEMINAR IN PHILOSOPHICAL PROBLEMS (3 + 0) 3 credits
Intensive analysis of major topic or issue in philosophy. Maximum of 9 credits when content differs.

737 TEACHING METHODS IN PHILOSOPHY (1 + 0) 1 credit
Effective procedures of teaching philosophy on the college or university level. Maximum of 4 credits.

793 INDEPENDENT STUDY 1 to 6 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits
Maximum of 6 credits.

Inactive Courses

321 PHILOSOPHY OF EDUCATION (3 + 0) 3 credits
794 COLLOQUIA (3 + 0) 3 credits

PHYSICS (PHYS)

Stated course prerequisites must be observed unless an equivalent preparation is approved by the department.

101 INTRODUCTORY PHYSICS (3 + 0) 3 credits
Elementary course designed to give the student an understanding of some of the basic principles of physics. Knowledge of elementary high school algebra and geometry is desirable.

106 ENVIRONMENTAL SCIENCE (3 + 0) 3 credits
Introduction for the nonspecialist to the principles which control the behavior of atmosphere and oceans; circulation of atmosphere and oceans; weather and climate; weather prediction and its economic implications; clouds and precipitation; pollution of the atmosphere; application to urban problems.

109 PLANETARY ASTRONOMY (3 + 0) 3 credits
Descriptive introduction to current concepts of the solar system. Modern observational techniques and their results. Supplementary use of telescopes and planetarium facilities. Elementary algebra is occasionally used.

110 STELLAR ASTRONOMY (3 + 0) 3 credits
Descriptive introduction to stellar and galactic systems. The life cycle of stars. Theories of the universe and its formation. Supplementary use of telescopes and planetarium facilities. Elementary algebra is occasionally used.

117 METEOROLOGY (3 + 0) 3 credits
Description of the behavior of the atmosphere with special emphasis on the physical processes involved in the weather.

151-152 GENERAL PHYSICS (3 + 0) 3 credits each
General physics primarily for students in arts and science, medicine, and agriculture. Lectures, experimental demonstrations and problem work. Prerequisite: elementary algebra, geometry, knowledge of trigonometry.

153-154 GENERAL PHYSICS LABORATORY (0 + 2) 1 credit each
To accompany PHYS 151-152. Experimental work, largely quantitative in character, designed to illustrate fundamental physical principles and to develop skill and accuracy in methods of physical measurement. Prerequisite: elementary algebra, geometry, knowledge of trigonometry.

201 PHYSICS FOR SCIENTISTS AND ENGINEERS I (3 + 0) 3 credits
Discussions of vectors, rectilinear and plane motion, particle dynamics, work and energy, momentum, rotational mechanics, oscillations, gravitation, fluids, elastic waves and sound. Prerequisite or corequisite: MATH 215.

202 PHYSICS FOR SCIENTISTS AND ENGINEERS II (3 + 0) 3 credits
Discussions of electric charge, field, potential, current, dielectrics, circuit elements, magnetic fields and materials, electromagnetic oscillations, light, reflection, optical systems, interference, diffraction, and polarization. Prerequisite: PHYS 201. Corequisite: MATH 216.

203 PHYSICS FOR SCIENTISTS AND ENGINEERS III (3 + 0) 3 credits
Discussions of thermodynamic laws, kinetic theory, relativity, wave aspects of particles, quantum mechanics, statistical mechanics, band theory, semiconductors, radioactivity, nuclear physics, elementary particles. Prerequisite: PHYS 202, MATH 215, 216.

204 PHYSICS FOR SCIENTISTS AND ENGINEERS I (0 + 2) 1 credit
Laboratory experiments on vectors, motion, particle, dynamics, work and energy, momentum, rotational mechanics, oscillatory motions, wave motion and sound. Prerequisite or corequisite: MATH 215.

205 PHYSICS FOR SCIENTISTS AND ENGINEERS II (0 + 2) 1 credit
Laboratory experiments on electric charge, field, potential circuit elements, magnetic fields, light, reflection, refraction, interference, diffraction and polarization. Prerequisite: PHYS 201. Corequisite: MATH 216.

206 PHSYICS FOR SCIENTISTS AND ENGINEERS III (0 + 3) 1 credit
Laboratory experiments on thermodynamic laws, kinetic theory, wave aspects of particles, quantum mechanics, solid state physics, semiconductors, radioactivity, nuclear physics and elementary particles. Prerequisite: PHYS 202, MATH 215, 216.

293 DIRECTED STUDY 1 to 3 credits
Individual study conducted under the direction of a faculty member. Maximum of 6 credits. Prerequisite: PHYS 151 or 201.

351 MECHANICS (3 + 0) 3 credits
Newtonian mechanics. Mathematical formulation of dynamics of a particle and systems of particles including applications to atomic physics. Prerequisite: general physics and calculus. Differential equations desirable.

352 MECHANICS (3 + 0) 3 credits
Continuation of PHYS 351. Mechanics of continuous media using Fourier series. Introduction to generalized coordinates including methods of Lagrange and Hamilton. Prerequisite: PHYS 351.

355 PHYSICAL ELECTRONICS (2 + 3) 3 credits
Physical principles of electronic instrumentation used in physics. Emphasis on

modern scientific instrumentation, components, circuits, active elements, systems. Prerequisite: general physics and calculus. Differential equations concurrently.

361-362 LIGHT AND PHYSICAL OPTICS (3 + 0) 3 credits each
Topics in physical optics including interference, diffraction and polarization, with applications. Nature of light. Survey of geometrical optics and optical instruments. Prerequisite: general physics and calculus.

363-364 OPTICS AND SPECTROSCOPY LABORATORY
(0 + 3) 1 credit each
Basic optical measurements. Theory and use of spectrometers, spectrographs and interferometers. Excitation and recording of emission spectra. Corequisite: PHYS 361-362.

411, 611 INTRODUCTION TO ATMOSPHERIC PHYSICS (3 + 0) 3 credits
Atmospheric scattering of light; visibility; optical phenomena. Elements of radiative heat transfer and of cloud physics. Description of the upper atmosphere. Prerequisite: PHYS 203 or 152, 154, MATH 310, 320.

412, 612 INTRODUCTION TO AIR POLLUTION (3 + 0) 3 credits
Aerosol and gas phase classification and measurement; regulatory requirements and control technology. Application to smog, acid deposition, the ozone layer. Local and long range transport. Prerequisite: PHYS 151, 152, 203 or equivalent.

421, 621 MODERN PHYSICS I (3 + 0) 3 credits
Introduction to relativity and quantum mechanics. Prerequisite: PHYS 203 or equivalent, differential equations. Advanced calculus desirable.

422, 622 MODERN PHYSICS II (3 + 0) 3 credits
Applications of relativity and quantum mechanics to atomic and nuclear structure. Prerequisite: PHYS 421.

423, 623 ADVANCED LABORATORY TECHNIQUES I (0 + 3) 1 credit
Application of contemporary devices for the acquisition and interpretation of data obtained from physical systems encountered in atomic, nuclear, solid state and particle physics. Prerequisite: PHYS 203, 206.

424, 624 ADVANCED LABORATORY TECHNIQUES II (0 + 3) 1 credit
Continuation of PHYS 423, 623. Prerequisite: PHYS 203, 206.

426, 626 INTRODUCTION TO SOLID STATE PHYSICS (3 + 0) 3 credits
Most important properties of solids, including crystal symmetries, lattice, vibrations, conductivity, magnetism, transport phenomena, the free electron model and band theory. Prerequisite: PHYS 421.

461, 661 HEAT AND THERMODYNAMICS (2 + 0) 2 credits
Fundamentals of thermodynamics including equations of state, laws of thermodynamics, entropy and thermodynamic processes. Principles and methods of temperature measurement, calorimetry and heat transfer calculations. Prerequisite: general physics and calculus through partial differentiation.

462, 662 KINETIC THEORY AND STATISTICAL MECHANICS
(2 + 0) 2 credits
Mean-free-path methods applied to diffusion, low-pressure flow, heat conduction and other phenomena in gases. Transport theory of Maxwell, Boltzman, Chapman, Phase space, distribution functions, other elements of statistical mechanics. Prerequisite: general physics and calculus.

466, 666 INTRODUCTION TO MICROCOMPUTER INTERFACING
(2 + 3) 3 credits
Introductory theory combined with laboratory work involving digital electronics, microcomputer programming, analog to digital conversion and data acquisition with microcomputers. Prerequisite: PHYS 355.

473-474, 673-674 ELECTRICITY AND MAGNETISM (3 + 0) 3 credits each
Electrostatics, magnetic fields, and electomagnetism. Maxwell's equations, theory of metallic conduction, motion of charged particles, radiation. Prerequisite: general physics, differential equations.

483-484, 683-684 SPECIAL TOPICS IN PHYSICS
(1 to 3 + 0) 1 to 3 credits each
Topics of current interest which are not incorpotated in regular offerings. Prerequisite: PHYS 201, 202 or 203.

493, 693 SPECIAL PROBLEMS 1 to 3 credits each
Laboratory or research work not specifically given in courses listed above. Maximum of 6 credits.

701 MATHEMATICAL PHYSICS (3 + 0) 3 credits
Designed to acquaint the student with some of the specific mathematical preliminaries to advanced study of theoretical physics. Prerequisite: graduate standing in physics.

702 CLASSICAL MECHANICS (3 + 0) 3 credits
Newtonian mechanics from an advanced point of view. Variational principles, Lagrange's and Hamilton's equations, central forces, rigid body motion, canonical transformations, Hamilton-Jacobi theory, small oscillations. Prerequisite: graduate standing in physics, PHYS 701.

704 COMPUTATIONAL TECHNIQUES IN PHYSICAL SCIENCE
(3 + 0) 3 credits
Quantitative solutions of selected problems in classical, modern and atmospheric physics to develop skills in problem formulation, computer application and graphical output. Prerequisite: Fortran programming skill.

706 COMPUTING AND STATISTICAL SIMULATION (2 + 0) 2 credits
Computer simulation of random processes obeying specified probability distributions and time series frequency and relationships; theoretical derivations, coding structure and correct use of the computer. Prerequisite: Acquaintance with computers and Fortran coding skill.

707 SOLID STATE PHYSICS (3 + 0) 3 credits
Solid state properties related to the crystal lattice and the behavior of electrons in the lattice: band structure, electrontransport, phonons, X-ray diffraction, magnetism. Prerequisite: undergraduate solid state physics.

708 NUCLEAR PHYSICS (3 + 0) 3 credits
Nuclear properties including forces, moments and decay modes. Scattering, reactions and nuclear models. Prerequisite: graduate standing in physics.

711 ELECTROMAGNETIC THEORY I (3 + 0) 3 credits
General properties of vector fields with special application to electrostatic and magnetostatic fields. Solutions to boundary value problems. General electromagnetic equations and conservation theorems. Energy and momentum in the electromagnetic field. Prerequisite: graduate standing in physics.

712 ELECTROMAGNETIC THEORY II (3 + 0) 3 credits
Continuation of PHYS 711. Motions of charged particles in electromagnetic fields. Electromagnetic theory of radiation, electrodynamics and special relativity. Reflections, refractions and dispersion of electromagnetic waves. Prerequisite: PHYS 711.

721 QUANTUM THEORY I (3 + 0) 3 credits
Development of quantum theory. Schroedinger equation, operators, expectation values. Matrix formalism of Heisenberg, eigenvalue problems, wave packets, conjugate variables and uncertainty principle. Solution of wave equation for square potentials, harmonic oscillator and hydrogen-like atoms. Prerequisite: graduate standing in physics.

722 QUANTUM THEORY II (3 + 0) 3 credits
Peturbation theory, both time-independent and time-dependent. Degeneracy, interaction of matter with radiation, selection rules. Scattering theory. Born approximation and other approximation methods. Dirac notation and an introduction to spin. Prerequisite: PHYS 721.

732 STATISTICAL MECHANICS (3 + 0) 3 credits
Ensembles, fluctuations and statistical basis of laws of thermodynamics. Distribution functions with application to cooperative phenomena, partition functions and quantum statistics. Prerequisite: graduate standing in physics.

740 FLUID DYNAMICS (3 + 0) 3 credits
Navier-Stokes equations; viscous and inviscid fluids; vorticity; boundary layer theory. Theoretical and numerical techniques; application to incompressible flow in the atmosphere. Prerequisite or corequisite: PHYS 701.

741 ATMOSPHERIC MOTIONS I (3 + 0) 3 credits
General circulation, meteorological analysis, hurricane, tropical and extra tropical cyclones. Prerequisite or corequisite: PHYS 701, 740.

742 ATMOSPHERIC MOTIONS II (3 + 0) 3 credits
Principles of fluid dynamics applied to the atmosphere. Analysis of atmospheric models used in numerical computations for several scales of motion. Prerequisite: PHYS 741.

743 CLOUD AND AEROSOL PHYSICS (3 + 0) 3 credits
Aerosol nucleation, growth and coagulation, cloud droplet and ice crystal nucleation and growth; cloud thermodynamics and chemistry; precipitation and electrification processes; measurement and modeling techniques. Prerequisite: PHYS 701.

745 ATMOSPHERIC TURBULENCE (3 + 0) 3 credits
Mechanical and statistical theory of turbulence. Application to convection, eddy diffusion, temperature, and wind profiles and related topics. Prerequisite: PHYS 742.

748 MEASUREMENT IN THE ATMOSPHERE (3 + 3) 4 credits
Measurement of physically meaningful parameters in a heterogeneous turbulent medium. Direct and remote sensing, data reduction, theory of instru-

ment design. Prerequisite: an upper-division electronics course (PHYS 355 or equivalent) and a working knowledge of computer programming. Prerequisite or corequisite: PHYS 742, 743.

749 PHYSICAL METEOROLOGY (3 + 0) 3 credits
Introduction to radiative computations and diagrams as related to the atmosphere. Interaction of electromagnetic radiation with atmospheric particulates and molecules. Prerequisite: graduate standing in physics.

750 WEATHER MODIFICATION (3 + 0) 3 credits
Physics of precipitation growth and mechanisms of modification of fogs, orographic and cumulus clouds. Aerosol production, chemical composition, delivery and dispersion. Evaluation techniques. Prerequisite: PHYS 743.

761 THEORETICAL SPECTROSCOPY (3 + 0) 3 credits
One- and two-electron atomic spectra, multiplet splitting, Zeeman, Stark, and Paschen-Back effects; molecular spectra, chiefly diatomic molecules, molecular symmetries; nuclear spectroscopy and analysis of the shell model. Prerequisite: PHYS 701, 702, 721, 722.

762 PHYSICS OF FUNDAMENTAL INTERACTIONS (3 + 0) 3 credits
Elementary particles, symmetries, and conservation laws. Strong and weak interactions. Applications to nuclear level structure. Prerequisite: PHYS 761. Recommended: PHYS 711-712.

771 ADVANCED TOPICS (1 to 3 + 0) 1 to 3 credits
Consists of lectures dealing with various aspects of one of the fields listed. (a) dynamics, (b) fluid mechanics, (c) plasma physics, (d) quantum theory, (e) nuclear physics, (f) atomic and molecular physics, (g) electron and ion physics, (h) low-temperature physics, (j) solid and/or liquid state, (k) cosmic rays, (m) relativity, (n) elementary particles, (p) astrophysics, (r) atmospheric physics, (s) geophysics, (t) meteorology of wind and solar energy, (u) air pollution, (v) remote sensing of the atmosphere, (w) cloud electrification, (x) atmospheric aerosol technology. Maximum of 12 credits in different fields. Prerequisite: PHYS 701-702 or 711-712 or 721-722 or 704, 740.

790 SEMINAR (1 + 0) 1 credit
Recent developments in theoretical and experimental physics. Maximum of 6 credits.

792 SPECIAL PROBLEMS 1 to 6 credits
Special study of advanced topics not specifically in courses or seminars. Maximum of 6 credits. Prerequisite: graduate standing in physics.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

108 INTRODUCTION TO SPACE SCIENCE (3 + 0) 3 credits
311 ENVIRONMENTAL PHYSICS: THE OCEANS AND ATMOSPHERE (3 + 0) 3 credits
391 INTRODUCTION TO ASTROPHYSICS (3 + 0) 3 credits
451-452, 651-652 ACOUSTICS (2 + 0) 2 credits each
455-456, 655-656 PHYSICS OF THE EARTH (3 + 0) 3 credits each
465, 665 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3 + 0) 3 credits
744 UPPER ATMOSPHERE (3 + 0) 3 credits

PHYSIOLOGY (PHSY)

438, 638 BIOMEDICAL INSTRUMENTATION (2 + 2) 3 credits
Principles of modern electronic design including microcomputer applications, transducer technology, digital design, interface design, biomedical information systems. Prerequisite: E E 372, 382. (Same as E E 438, 638.)

490, 690 INDEPENDENT STUDY 1 to 4 credits

499, 699 DIRECTED RESEARCH 1 to 4 credits
Guided research in any of the areas of mutual interest to the student and faculty. Maximum of 8 credits.

601 MEDICAL PHYSIOLOGY I (5 + 3) 6 credits
Basic principles and mechanisms of function of membrane physiology, neurophysiology and muscle physiology. Prerequisites: B CH 401 and ANAT 601.

602 MEDICAL PHYSIOLOGY II (4 + 3) 5 credits
Basic principles and mechanisms of function of cardiovascular, respiratory, renal, gastrointestinal, endocrine and reproductive physiology. Prerequisite: PHSY 601.

700 ADVANCED NEUROPHYSIOLOGY (3 + 3) 4 credits
Principles of axonology, muscle physiology, synaptology, sensory mechanisms, autonomic nervous function and neurophysiology of the brain and spinal cord. Prerequisite: BIOL 366; B CH 301, 302; MATH 215 or equivalent.

701 ADVANCED MAMMALIAN SYSTEMS AND ORGANS PHYSIOLOGY (4 + 3) 5 credits
Principles of pulmonary, renal, cardiovascular, gastrointestinal and endocrine function. Prerequisite: PHSY 700.

790 GRADUATE SEMINAR 1 credit
Reports of current research in physiology for both internal and external researchers.

793 INDEPENDENT STUDY 1 to 6 credits

POLITICAL SCIENCE (P SC)

P SC 103 is a prerequisite for all other political science courses except P SC 100.

100 CONSTITUTION OF NEVADA (1 + 0) 1 credit
Nevada Constitution, including the historical development of Nevada from Territory to Statehood. Satisfies Nevada Constitution requirement. Not open to students who have obtained credit for P SC 103, 208, or HIST 102, 111, 217. (Offered through Correspondence Division only.)

103 PRINCIPLES OF AMERICAN CONSTITUTIONAL GOVERNMENT (3 + 0) 3 credits
Constitutions of the U.S. and Nevada with additional attention to various principles and current problems of government. Satisfies U.S. and Nevada Constitution requirements.

104 GREAT ISSUES OF POLITICS (3 + 0) 3 credits
Methods for systematic inquiry into selected issues in politics, such as liberty, authority and the role of elites.

205 INTRODUCTION TO ETHNIC POLITICS (3 + 0) 3 credits
Causes, content, and impact of ethnic politics, with emphasis on historical, analytical and comparative perspectives.

208 AMERICAN STATE AND LOCAL GOVERNMENTS (3 + 0) 3 credits
Organization, working principles, and functional processes of state and local governments in the U.S. (satisfies the legislative requirement for the Nevada Constitution).

210 AMERICAN PUBLIC POLICY (3 + 0) 3 credits
Analysis of the interplay of forces involved in policy-making at all levels of American government. The impact of policy on individuals and institutions.

211 COMPARATIVE GOVERNMENT AND POLITICS (3 + 0) 3 credits
Analysis of similarities and differences in the governing processes of different societies.

231 WORLD POLITICS (3 + 0) 3 credits
International relations stressing the principles of a systematic approach to world politics.

300 CONGRESSIONAL INTERNSHIP (6 + 0) 6 credits *S/U only*
Selected students serve in senator's or congressman's office in Washington. Prerequisite: 9 political science credits, including P SC 304 or examination.

301 LEGISLATIVE INTERNSHIP 3 or 6 credits *S/U only*
Selected students serve during regular session of Nevada Legislature. Prerequisite: 9 political science credits, including P SC 304 or examination.

304 THE LEGISLATIVE PROCESS (3 + 0) 3 credits
Analysis of legislative process in the political process—nation, state and community. Emphasis on legislative behavior and legislative decision-making.

305 THE AMERICAN PRESIDENCY (3 + 0) 3 credits
Constitutional position of the President and development of the presidential powers; recruitment and party leadership; functional requirements of executive leadership; presidential participation in legislation and adjudication.

309 THE JUDICIAL PROCESS (3 + 0) 3 credits
Administration of justice in American courts, emphasizing the nature and function of law, court organization, participants in the system, trial processes, impact of court rulings.

323-324 HISTORY OF POLITICAL THOUGHT (3 + 0) 3 credits each
Analytical and critical survey of political theories from the Classical Period to the present.

336 MANAGING INTERNATIONAL INTERDEPENDENCE (3 + 0) 3 credits
Strategies and institutions for managing problems and opportunities of global and regional interdependency: United Nations system; international economic institutions; European community; North American integration. Prerequisite: P SC 231 or EC 458.

341 ELEMENTS OF PUBLIC ADMINISTRATION (3 + 0) 3 credits
Introduction to administrative theory, politics and responsibilities; bureaucracy; and public financial and personnel administration.

354 POLITICS AND WOMEN (3 + 0) 3 credits
Women's political movements, differential political socialization processes and the economic and legal status of women.

400, 600 THE SUPREME COURT AND PUBLIC POLICY (3 + 0) 3 credits
Major decisions of recent terms of the Supreme Court; their impact upon federal-stare relations, the executive and legislative branches and contemporary social issues. Prerequisite: American national government course. (Satisfies the legislative requirement for the U.S. Constitution.)

404, 604 JURISPRUDENCE (3 + 0) 3 credits
Problems of legal theory from the analytical, philosophical and sociological points of view. Particular attention to modern theories of law.

406, 606 URBAN POLITICS (3 + 0) 3 credits
Analysis of policy alternatives and governmental systems in urban areas. The role of officials, planners, interest groups and citizens in influencing the direction of policy.

407, 607 AMERICAN POLITICAL PARTIES AND ELECTORAL BEHAVIOR (3 + 0) 3 credits
Analysis of the nature, structure and functions of American political parties and electoral participation. Special emphasis on theories of elections, voting habits and patterns and campaigns in American politics.

409, 609 CONSTITUTIONAL LAW (3 + 0) 3 credits
Role of the Supreme Court in the political system, emphasizing constitutional development and judicial analysis of social and political issues; includes a study of administrative law. (Satisfies the legislative requirement for the U.S. Constitution.)

410, 610 POLITICAL TERRORISM AND VIOLENT POLITICAL MOVEMENTS (3 + 0) 3 credits
Groups and movements that use terrorism, guerrilla warfare and other violent techniques to challenge political regimes; causes and consequences of political violence within nations. Prerequisite: P SC 211 or 231.

411, 611 GOVERNMENT AND POLITICS IN WESTERN EUROPE (3 + 0) 3 credits
Political systems of the major Western European states and the social situations from which they have arisen.

415, 615 GOVERNMENT AND POLITICS IN LATIN AMERICA (3 + 0) 3 credits
Comparison of the structure and dynamics of Latin American politics and government.

416, 616 GOVERNMENT AND POLITICS IN THE SOVIET UNION AND EASTERN EUROPE (3 + 0) 3 credits
Communist states compared as to political culture, structures, forces, control and other problems.

417, 617 GOVERNMENT AND POLITICS IN ASIA (3 + 0) 3 credits
Analysis of political forces, systems, and processes in selected Asian states.

418, 618 PROBLEMS IN DEVELOPED POLITICAL SYSTEMS (3 + 0) 3 credits
Aspects of political life common to such areas as Europe and North America. Maximum of 6 credits.

421, 621 POLITICAL ECONOMY (3 + 0) 3 credits
Examination of governmental policies as they are influenced by political theories and economic doctrines.

423, 623 CONTEMPORARY POLITICAL THEORY (3 + 0) 3 credits
Survey of theories linking political systems with socio-economic systems, e.g., politics in preindustrial and industrial societies, totalitarianism and democracy related to industrialization, postindustrialization theories.

426, 626 AMERICAN POLITICAL THOUGHT (3 + 0) 3 credits
American political thought from the colonial period to the present, including, among others, Puritanism, Republicanism, Jacksonian Democracy, Transcendentalism, Pragmatism and Social Darwinism.

430, 630 THE HOLOCAUST, GENOCIDE, AND HUMAN RIGHTS (3 + 0) 3 credits
Violation and protection of human rights in international law and practice; the Nazi extermination of European Jews and other instances of genocide. Prerequisite: P SC 231.

432, 632 AMERICAN FOREIGN POLICY (3 + 0) 3 credits
Environmental influences on U.S. policy; post-World War II problems; interests, principles, objectives, policies and commitments of current policy. Prerequisite: P SC 231.

433, 633 CONDUCT OF AMERICAN FOREIGN AFFAIRS (3 + 0) 3 credits
Organization and administrative machinery involved in the conduct of American foreign affairs. Prerequisite: P SC 231.

434, 634 SOVIET FOREIGN POLICY (3 + 0) 3 credits
International role of the Soviet Union in comparative perspective, emphasizing defense policies; links with other Communist parties and states; decision-making in crises. Prerequisite: P SC 231.

435, 635 INTERNATIONAL POLITICAL ECONOMY: NORTH-SOUTH RELATIONS (3 + 0) 3 credits
Theories of Third World development emphasizing the role of the state; selected political-economic issues of concern for the Third World. Prerequisite: P SC 231 or 336.

437, 637 INTERNATIONAL CONFLICT (3 + 0) 3 credits
Classical and contemporary literature on the causes of war among nations and the conditions of international peace. Prerequisite: P SC 231.

438, 638 THE MIDDLE EAST IN WORLD AFFAIRS (3 + 0) 3 credits
Political life in the Middle East with particular emphasis on the Arab-Israeli conflict, the politics of oil and problems of development and instability. Prerequisite: P SC 211 or 231.

439, 639 PROBLEMS OF WORLD POLITICS (3 + 0) 3 credits
Analysis of selected contemporary problems of world politics. Prerequisite: P SC 231. Maximum of 6 credits.

441, 641 PUBLIC FINANCIAL ADMINISTRATION (3 + 0) 3 credits
Analysis of fiscal agencies in federal, state and local governments and discussion of the problems and processes of governmental budgeting, accounting, auditing, purchasing, tax administration and treasury management.

442, 642 PUBLIC PERSONNEL ADMINISTRATION (3 + 0) 3 credits
Methods of recruiting, examining, training and other techniques utilized in the management of employees in government service.

443, 643 THE POLITICS OF ADMINISTRATION (3 + 0) 3 credits
Process of translating legislative and executive decision into administrative action; effect of structure upon policy; manipulating and following public opinion; formal and informal decision-making.

444, 644 COMPARATIVE PUBLIC ADMINISTRATION (3 + 0) 3 credits
Ecology of public administration. Examination of basic administrative concepts in different cultural settings, in both technologically advanced countries and the developing nations.

445, 645 THEORIES OF PUBLIC ADMINISTRATION (3 + 0) 3 credits
Development and application of theories of public administration, especially their relevance to complex organizations, decision-making, group behavior and politics.

446, 646 ADMINISTRATIVE LAW (3 + 0) 3 credits
Legal setting of public administrative, adjudicative and rule-making authority. Remedies for abuse of administrative authority. Prerequisite: P SC 341.

447, 647 INTERGOVERNMENTAL RELATIONS (3 + 0) 3 credits
Analysis of the interactions between federal, state and local governments. Theoretical foundations of federalism, issues of public policy and administration.

450, 650 PUBLIC SERVICE INTERNSHIP 1 to 6 credits
Students serve in federal, state or local government offices or in nongovernmental public service organizations. Prerequisite: P SC 341 recommended. *S/U only for 450; regular grading for 650.*

451, 651 PUBLIC OPINION AND POLITICAL PSYCHOLOGY (3 + 0) 3 credits
Analysis of the psychological aspects of politics in relation to public opinion, propaganda, personality and political socialization.

452, 652 CITIZEN PARTICIPATION, PRESSURE GROUPS AND POLITICAL MOVEMENTS (3 + 0) 3 credits
Examination of non-violent ways citizens directly and indirectly influence government beyond voting; interest group activity, protest behavior and direct involvement in government. Prerequisite: P SC 210.

453 ETHNIC POLITICS IN THE UNITED STATES (3 + 0) 3 credits
Changing roles and special problems of ethnic groups in American politics and

in comparative perspective with emphasis on the American Indian, Mexican-American and Black communities. Maximum of 6 credits. Prerequisite: P SC 205.

455, 655 ENERGY AND RESOURCE POLICY (3 + 0) 3 credits
Politics shaping American energy and resource policies examined within international, federal and partisan contexts. Special attention given to Western regional and public lands controversies. Prerequisite: P SC 210.

456, 656 PROBLEMS IN AMERICAN PUBLIC POLICY (3 + 0) 3 credits
Analysis of selected contemporary problems in American public policy. Maximum of 6 credits.

457, 657 ENVIRONMENTAL POLICY (3 + 0) 3 credits
Evaluation of policies in environmental areas. (Same as ENV 457.)

481, 681 RESEARCH IN POLITICAL SCIENCE (2 + 2) 3 credits
Concepts and methods of political science research: includes legal research, information retrieval, interviews and surveys and development of quantitative data. Prerequisite: PSY 210 or SOC 210 or equivalent.

497, 697 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

701 SEMINAR IN AMERICAN POLITICS (3 + 0) 3 credits
Exploration of selected approaches to American politics. Emphasis on analysis of problems. Maximum of 9 credits.

711 SEMINAR IN COMPARATIVE POLITICS (3 + 0) 3 credits
Maximum of 9 credits.

723 SEMINAR IN POLITICAL THEORY (3 + 0) 3 credits
Maximum of 9 credits.

726 SEMINAR IN AMERICAN POLITICAL THEORY (3 + 0) 3 credits

731 SEMINAR IN INTERNATIONAL RELATIONS (3 + 0) 3 credits
Maximum of 9 credits.

741 SEMINAR IN PUBLIC ADMINISTRATION (3 + 0) 3 credits
Maximum of 9 credits.

750 SEMINAR IN PUBLIC POLICY (3 + 0) 3 credits
Aspects of policy formulation, content, implementation and evaluation at the local, state or national level. Maximum of 9 credits.

781 POLITICAL SCIENCE AS A DISCIPLINE (3 + 0) 3 credits
Examination of conceptual foundations of political science.

782 ADVANCED RESEARCH METHODS IN POLITICAL SCIENCE (2 + 2) 3 credits
Techniques and methodologies currently employed in political science, including statistical measures, survey research and the relating of research to theory. Prerequisite: PSY 210 or SOC 210 or equivalent.

791 SPECIAL TOPICS 1 to 3 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 3 credits *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

401-402 POLITICAL SCIENCE SYMPOSIUM (3 + 0) 3 credits each
412, 612 GOVERNMENT AND POLITICS IN AFRICA (3 + 0) 3 credits
419, 619 PROBLEMS OF DEVELOPING POLITICAL SYSTEMS (3 + 0) 3 credits
436, 636 INTERNATIONAL ORGANIZATION (3 + 0) 3 credits
703 SEMINAR IN CONSTITUTIONAL LAW (3 + 0) 3 credits

PSYCHIATRY AND BEHAVIORAL SCIENCES (PCHY)

402, 602 HUMAN BEHAVIOR II (4 + 0) 4 credits
Substance abuse, human sexuality, and basic principles of psychopathology and psychotherapy as applied to behavioral problems in medicine.

451, 651 CLERKSHIP (1 + 21) 8 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing psychiatry.

461, 661 ELECTIVES 2 to 8 credits each
Elective experiences in the major subspeciality areas of psychiatry and behavioral sciences including: (a) addictive disorders, (b) drug and alcohol abuse, (c) medical hypnosis, (d) outpatient psychiatric assessment, (f) sports medicine, (g) marital therapy, (h) clinical research in psychiatry and medicine. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

468, 668 INDIVIDUAL STUDY IN BEHAVIORAL SCIENCE 1 to 3 credits
Library research in selected topics in behavioral science and discussions with faculty. Maximum of 6 credits.

469, 669 DIRECTED RESEARCH IN BEHAVIORAL SCIENCE 1 to 3 credits
Guided research in any area of mutual interest to the student and faculty. Maximum of 6 credits.

490 INDEPENDENT STUDY 1 to 4 credits

601 HUMAN BEHAVIOR I (3 + 0) 3 credits
Human development, stress, communication and interpersonal and family dynamics as applied to behavioral problems in medicine.

660 INTRODUCTION TO CLINICAL MEDICINE (2 + 3) 3 credits
Interpersonal skills necessary to establish and maintain constructive student-physician-patient relationships, principles and skills of medical interviewing and history taking, personal responsibility toward the patient and their family, professional treatment of patient information.

PSYCHOLOGY (PSY)

101 INTRODUCTORY PSYCHOLOGY (3 + 0) 3 credits
Survey of the discipline of psychology, introducing psychological theories, research methods and principles of behavior.

102 PSYCHOLOGY OF PERSONAL AND SOCIAL ADJUSTMENT (2 + 0) 2 credits
Deals with personality adjustment in normal persons. Adjustment techniques and reactions to frustration and conflict in the context of various social groups are considered. Prerequisite: PSY 101.

205 ELEMENTARY ANALYSIS OF BEHAVIOR (2 + 2) 3 credits
Survey of principles of reinforcement theory in the analysis of behavior. Principles of learning demonstrated in the laboratory. Prerequisite: PSY 101.

210 STATISTICAL METHODS (3 + 2) 4 credits
Practice with statistical methods especially useful in the presentation and interpretation of psychological, sociological and educational data, including elementary computer programming. Prerequisite: PSY 101 or SOC 101; a standard score of 18 or better in the mathematics portion of the ACT or a grade of C or better in MATH 101. (Same as SOC 210.)

233 CHILD PSYCHOLOGY (3 + 0) 3 credits
Psychological aspects in the development of children through preadolescence. Examination of behavioral, social, cognitive, affective and cultural factors. Theory and research on developmental stages. Prerequisite: PSY 101.

234 PSYCHOLOGY OF ADOLESCENCE (3 + 0) 3 credits
Psychological and social psychological growth and development during adolescence in contemporary Western society. Covers puberty to early adulthood. Prerequisite: PSY 101.

261 SOCIAL PSYCHOLOGY I: THE PERSON AND SOCIAL INFLUENCE (3 + 0) 3 credits
Nature of the person and of interpersonal relationships, their formation and maintenance and their institutional, ideological and societal contexts; empirical examination of beliefs, attitudes, influence. Prerequisite: PSY 101 or SOC 101. (Same as SOC 261.)

275 UNDERGRADUATE RESEARCH (1 to 3 + 0) 3 credits
Independent or collaborative empirical research. Maximum of 6 credits. Prerequisite: PSY 101.

299 SPECIAL TOPICS (1 to 5 + 0) 1 to 5 credits
Suitable topic under the supervision of a staff member. Maximum of 5 credits. Prerequisite: PSY 101.

301 EXPERIMENTAL PSYCHOLOGY (2 + 4) 4 credits
Lecture and laboratory course in the application of scientific methods to the study of behavior and mental processes. Prerequisite: PSY 101 and 210.

321 EDUCATIONAL PSYCHOLOGY (3 + 0) 3 credits
Educational applications of psychology to learning, discipline, and social, emo-

tional and intellectual behavior. Educational and psychological tests and measurements. Prerequisite: PSY 101.

325 PARAPSYCHOLOGY (3 + 0) 3 credits
Review of professional psychological investigations of parapsychological phenomena from William James to the present, with emphasis upon experimental developments since 1970. Prerequisite: PSY 101.

333 ENVIRONMENTAL PSYCHOLOGY (3 + 0) 3 credits
Investigation of human environment interactions: perception of and behavior in environment, both natural and built and including the city as a special habitat. Prerequisite: PSY 101.

350 PSYCHOLOGICAL ANALYSIS OF CHRISTIAN IDEAS (3 + 0) 3 credits
Developments in contemporary psychology relating humanistic, Jungian, phenomenological and behaviorist psychologies to the religious ideas exemplified by Christian docttines as practiced at various periods of the Christian era, including contemporary American movements. Prerequisite: PSY 101.

362 SOCIAL PSYCHOLOGY II: GROUP STRUCTURE AND PROCESS (3 + 0) 3 credits
(See SOC 362 for description.)

375 UNDERGRADUATE RESEARCH (1 to 3 + 0) 1 to 3 credits
Independent or collaborative empirical research. Maximum of 6 credits. Prerequisite: PSY 101.

391 INDUSTRIAL AND PERSONNEL PSYCHOLOGY (3 + 0) 3 credits
Application of psychological principles to personnel problems of government, business and industry. Topics include selection, management and supervision, morale and productivity. Prerequisite: PSY 101.

392 RESEARCH METHODS (3 + 0) 3 credits
(See SOC 392 for description.)

403, 603 PHYSIOLOGICAL PSYCHOLOGY (2 + 2) 3 credits
Physiological mechanisms associated with reflex action, emotions, motor skills, thinking and language. Effects of drugs, internal secretions and neural lesions on behavior. Prerequisite: PSY 101.

405, 605 PERCEPTION (3 + 0) 3 credits
Basic principles by which man perceives his environment. Topics can include the perception of form, color, space and depth. Prerequisite: PSY 101.

406, 606 APPLIED BEHAVIOR ANALYSIS (3 + 0) 3 credits
Application of behavioral principles and techniques in the home, school, hospital and institution. Emphasis on motivational and learning procedures for use with problem behaviors in children and adults. Prerequisite: PSY 101 or 203-204.

408, 608 HISTORY OF PSYCHOLOGY (3 + 0) 3 credits
Historical background of psychology from the Greek period to the present. Development of psychology as a science and advances during this century. Prerequisite: PSY 101.

410, 610 PHILOSOPHICAL CRITICISMS OF PSYCHOLOGICAL RESEARCH (3 + 0) 3 credits
Review of criticisms of psychological research by philosophers in the tradition of ordinary language analysis. Prerequisite: PSY 101.

412, 612 INTRODUCTION TO PSYCHOLOGICAL ASSESSMENT (3 + 0) 3 credits
Theoretical and psychometric bases of psychological assessment. Survey of standard test, interview and observational techniques for evaluating behavioral, cognitive and personaility characteristics of individuals. Prerequisite: PSY 101.

421, 621 CONDITIONING AND LEARNING (3 + 0) 3 credits
Factors and conditions which enhance or retard learning. Survey of learning theories and basic principles of classical conditioning, instrumental conditioning and discrimination learning. Prerequisite: PSY 101.

422, 622 SOCIAL PSYCHOLOGICAL THEORIES (3 + 0) 3 credits
(See SOC 422 for description.)

427, 627 COMPUTER APPLICATIONS IN SOCIAL AND BEHAVIORAL SCIENCES (3 + 0) 3 credits
(See SOC 427, 627 for description.)

431, 631 COGNITIVE PSYCHOLOGY (3 + 0) 3 credits
Current developments in cognitive psychology with major emphasis on research in human learning, memory, information processing, problem-solving, concept formation and thinking. Prerequisite: PSY 101.

433, 633 PSYCHOLOGICAL ASPECTS OF RACIAL DIFFERENCES (3 + 0) 3 credits
Multicultural view of existence in the U.S. from the perspective of ethnic minorities. Psychological implications and consequences of racial identity, socio-cultural factors and racism. Prerequisite: PSY 101.

435, 635 PERSONALITY (3 + 0) 3 credits
Survey of major theories of personality. Personality development, structure and dynamics. Examination of major areas of research on personality. Prerequisite: PSY 101.

441, 641 ABNORMAL PSYCHOLOGY (3 + 0) 3 credits
Psychology of abnormal behavior—primarily neuroses and psychoses—stressing symptomatology, etiology, dynamics and problems in diagnosis. Prerequisite: PSY 101. PSY 641 not open to psychology majors.

444, 644 PSYCHOLOGY OF EXCEPTIONAL CHILDREN (3 + 0) 3 credits
Devoted to the study of children who are mentally deficient or mentally superior and children with sensory deficiencies or orthopedic handicaps. Prerequisite: PSY 101.

451, 651 BASIC PRINCIPLES OF PSYCHOTHERAPY (3 + 0) 3 credits
Basic psychological principles and theoretical approaches of individual psychotherapy. Prerequisite: PSY 101.

463, 663 SOCIAL PSYCHOLOGY III: SOCIAL PSYCHOLOGY OF EDUCATION (3 + 0) 3 credits
Effects on learning of such social psychological factors as family, social class, school social structure, classroom structure and allocation of the teacher role are considered. Prerequisite: PSY 101 or SOC 101, PSY 261 or SOC 261 or PSY 362 or SOC 362. PSY 663 not open to psychology majors. (Same as SOC 463.)

472, 672 EXPERIMENTAL ANALYSIS OF BEHAVIOR (3 + 0) 3 credits
Review of current research in the experimental analysis of behavior. Prerequisite: PSY 101.

473, 673 RADICAL BEHAVIORISM (3 + 0) 3 credits
Survey of Skinner's work. Emphasis on the role of private events in a natural science, the analysis of verbal behavior and the conduct of psychological research. Prerequisite: PSY 101.

475 HONORS THESIS (3 + 0) 3 credits
Research investigation conducted and written in thesis form. Prerequisite: admission to departmental honors program in psychology.

480, 680 MOTIVATION (3 + 0) 3 credits
Basic principles of motivation. Examination of major themes and contemporary research in the field. Application of motivational psychology to special areas, including educational and business. Prerequisite: PSY 101.

481, 681 PRINCIPLES OF ANIMAL BEHAVIOR (3 + 0) 3 credits
Review of field and laboratory studies on the determinants and mechanisms of animal behavior to establish relations between behavior of similar and different species. Prerequisite: PSY 101, BIOL 101. (Same as BIOL 481, 681.)

482, 682 ANIMAL BEHAVIOR LABORATORY (0 + 3) 1 credit
Observational study of behavior, in both laboratory and field, of various animal species. Emphasis on elements of ethogram preparation and between-species comparisons. Prerequisite: previous or concurrent registration in PSY 481 or 681 or BIOL 481 or 681. (Same as BIOL 482.)

483, 683 ANIMAL COMMUNICATION (3 + 0) 3 credits
Review of field and laboratory studies on animal communication and human nonverbal communication. Prerequisite: PSY 101, BIOL 101.

499, 699 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Study in a suitable topic under supervision of a faculty member. Maximum of 9 credits. Prerequisite: PSY 101.

Prerequisite for following 700-level courses: admission to graduate standing in the Department of Psychology.

704 PSYCHOLOGICAL INTERVENTION I (3 + 0) 3 credits
Principles and methods of psychological intervention with children. Theoretical rationale, symptoms, causes and target behaviors. Special techniques, including operant procedures and other psychotherapeutic methods. Prerequisite: enrollment in clinical psychology program.

705 PSYCHOLOGICAL INTERVENTION II (3 + 0) 3 credits
Principles and methods of psychological intervention with adults. Special techniques, including individual and group psychotherapy, desensitization, psychodrama, hypnotherapy and encounter groups. Prerequisite: enrollment in clinical psychology program.

706 INTERMEDIATE STATISTICS I (3 + 0) 3 credits
Theory and application of statistical inference with special emphasis on probability, parametric and nonparametric techniques including simple and complex analysis of variance, multiple comparison techniques and trend analysis. Prerequisite: PSY 210 or equivalent. (Same as SOC 706.)

707 INTERMEDIATE STATISTICS II (3 + 0) 3 credits
Theory and application of statistical inference with special emphasis on multivariate models, including multiple and partial regression, factor analysis, path analysis and discriminant function analysis. Prerequisite: PSY 706. (Same as SOC 707.)

708 SEMINAR IN PHILOSOPHICAL PSYCHOLOGY (3 + 0) 3 credits
Selected topics in recent philosophical psychology. Prerequisite: PSY 408. (Same as PHIL 708.)

710 EXPERIMENTAL DESIGN (3 + 0) 3 credits
Theory and application of principles used in the construction of experimental designs primarily as derived from the analysis of variance. Prerequisite: PSY 706, 707.

711 PSYCHOLOGICAL ASSESSMENT I (3 + 0) 3 credits
Theory and practice of psychological assessment of children. Interview, test, and observational techniques for evaluating behavioral, developmental, cognitive, perceptual-motor and personality factors.

712 PSYCHOLOGICAL ASSESSMENT II (3 + 0) 3 credits
Theory and practice of psychological assessment of adults. Special techniques including interview, systematic observation, intelligence and personality tests, and functional behavioral analysis.

714 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: ADULT I (3 + 0) 3 credits
Supervised theoretical and experiential application of adult psychotherapy and assessment approaches in clincial psychology. Prerequisite: admitted to clinical psychology program.

715 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: ADULT II (3 + 0) 3 credits
Supervised theoretical and experiential application of advanced adult and couple approaches in psychotherapy and assessment. Prerequisite: admitted to the clinical psychology program

716 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: CHILD I (3 + 0) 3 credits
Supervised theoretical and experiential application of child-family approaches in psychotherapy, assessment and community psychology. Prerequisite: admitted to the clinical psychology program.

717 THEORY AND APPLICATION OF CLINICAL PSYCHOLOGY: CHILD II (3 + 0) 3 credits
Supervised theorerical and experiential application of advanced child-family approaches in psychotherapy, assessment and community psychology. Prerequisite: admitted to the clinical psychology program.

718 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
Theory construction and the application of research methods in social psychology. (Same as SOC 718.)

720 SEMINAR IN SENSATION AND PERCEPTION (3 + 0) 3 credits
Experiments and problems in sensation and perception. Prerequisite: PSY 405 or equivalent.

721 ADVANCED PSYCHOPHYSIOLOGY (3 + 0) 3 credits
Current developments and animal physiological research relating to general principles of sensation, perception and behavior. Prerequisite: PSY 403 or equivalent.

725 SOCIALIZATION (3 + 0) 3 credits
(See SOC 725 for description.)

726 INTERPERSONAL TRANSACTIONS (3 + 0) 3 credits
(See SOC 726 for description.)

727 GROUP BEHAVIOR (3 + 0) 3 credits
(See SOC 727 for description.)

728 COLLECTIVE BEHAVIOR AND MASS SOCIETY (3 + 0) 3 credits
(See SOC 728 for description.)

730 SEMINAR IN MOTIVATION AND LEARNING (3 + 0) 3 credits
Contemporary theory and research in the areas of motivation, emotion, and learning. Prerequisite: PSY 421 or 480 or equivalent.

731-732 THEORIES OF LEARNING (3 + 0) 3 credits each
Examination of research on learning and theories which attempt to explain the processes of learning. Prerequisite: PSY 421 or equivalent.

733 PSYCHOBIOLOGY OF LANGUAGE (3 + 0) 3 credits
Critical review and discussion of the literature concerning the relationship of cognitive and communicative behavior to linguistic behavior with particular emphasis on research with animals.

736 ADVANCED STUDIES IN DEVELOPMENTAL PSYCHOLOGY (3 + 0) 3 credits
Principles, theories, and research in human development with emphasis on the normal individual. Includes supervised research in special problems. Prerequisite: PSY 233 or 234 or 444 or equivalent.

737 SURVEY RESEARCH METHODS (3 + 0) 3 credits
(See SOC 737 for description.)

738 METHODS AND INNOVATIONS IN ASSESSMENT (3 + 0) 3 credits
Theory of assessment of persons and situation. Survey of newer assessment techniques and instruments. Methods of constructing tests and other assessment devices. Prerequisite: graduate standing in behavioral sciences. (Same as SOC 738.)

739 RESEARCH METHODS IN CLINICAL AND PERSONALITY PSYCHOLOGY (3 + 0) 3 credits
Historical and philosophical background of psychological research. Theory construction, experimental design and scientific writing. Current trends in clinical and personality research methodology.

740 BEHAVIOR PROBLEMS (3 + 0) 3 credits
Behavioral problems encountered in clinical practice. Developmental, emotional and organic disturbances; alcoholism, marital discord, drug abuse and other psychological problems of contemporary living. Prerequisite: PSY 441 or equivalent.

741 NONPATHOLOGICAL PROBLEMS OF BEHAVIOR AND PERSONALITY (3 + 0) 3 credits
Emphasis on the concerns of normal individuals such as competence, aggression, achievement and anxiety; recent trends in research and contributions of major and micropersonality theorists.

744-745 SEMINAR IN PERSONALITY (3 + 0) 3 credits each
Contemporary theory and research on personality. Recent trends and issues.

748 COMMUNITY PSYCHOLOGY (3 + 0) 3 credits
Mental health problems of population, including psychological epidemiology and mental health needs of communities. Mental health consultation and education. Crisis intervention. Prerequisite: graduate standing in behavioral or health sciences.

749 SEMINAR IN COMMUNITY PSYCHOLOGY (3 + 0) 3 credits
Advanced study of community psychology. Emphasis on community intervention approaches, systems analysis and community change. Prerequisite: graduate standing in behavioral or health sciences.

750-751 SEMINAR IN CLINICAL PSYCHOLOGY (3 + 0) 3 credits each
Consideration of contemporary theory, research and practices in the field of clinical psychology.

752 GRADUATE RESEARCH 1 to 5 credits
Research projects in psychology carried out under supervision. Maximum of 6 credits.

753 RESEARCH PRACTICUM (1 to 3 + 0) 1 to 3 credits
Research apprenticeship in ongoing research projects. Familiarization with aims and methods of psychological research.

755 INDIVIDUAL READING 1 to 5 credits
Supervised reading with regular conferences between student and instructor. Maximum of 9 credits.

761-762 CONTEMPORARY ISSUES IN PSYCHOLOGY (3 + 0) 3 credits each
Consideration in depth of selected topics of contemporary interest. Maximum of 6 credits each.

763 SPECIAL TOPICS IN EXPERIMENTAL PSYCHOLOGY (3 + 0) 3 credits
Consideration of selected current research problems and conceptual issues in experimental psychology.

764 SPECIAL TOPICS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
Consideration of selected current research problems and conceptual issues in social psychology. Maximum of 9 credits. (Same as SOC 764.)

771 INTRODUCTION TO CLINICAL PSYCHOLOGY (3 + 0) 3 credits
Nature and history of clinical psychology, models of psychological intervention, diagnostic issues, evaluation of psychotherapy, ethical and professional standards, current professional issues. Prerequisite: admitted to the clinical psychology program.

772 RURAL MENTAL HEALTH (3 + 0) 3 credits
Special characteristics of rural mental health and the clinical psychologist's function as consultant in rural communities.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

203-204 ADVANCED GENERAL PSYCHOLOGY (3 + 0) 3 credits each

RANGE, WILDLIFE AND FORESTRY (RWF)

A number of courses require field trips and laboratory exercises that involve additional student expenses. Many courses are offered on an alternate year basis. Consult with the department prior to registration.

100 PRINCIPLES OF RESOURCE MANAGEMENT (3 + 0) 3 credits
Scientific and managerial principles applied to forest, range, wildlife, hydrology and soil resources. One or two field trips.

200 PRINCIPLES OF FOREST MANAGEMENT (2 + 0) 2 credits
Concepts and policies involved in forest management with sustained yield and multiple use.

201 WILDLIFE BIOLOGY AND MANAGEMENT (3 + 0) 3 credits
Foundations, concepts and skills of wildlife biology and management, including wildlife physiology, behavior, population dynamics, economics, ecology and human attitudes as applied to the wildlife resources. Corequisite: BIOL 201 or equivalent.

271 WILDERNESS SURVIVAL (3 + 0) 3 credits
Skills and concepts to survive under wilderness conditions, including attitude, fire building, shelters, terrain hazards, location and preparation of edible plants and animals, clothing and equipment. Training and preparation necessary to make mountain and desert wildlands an enjoyable recreation resource.

291 RANGE AND FOREST FIRE SCIENCE (1 + 3) 2 credits
Scientific principles and concepts of fire behavior, fire weather, fire control and fire prevention. The use of fire in forest and range management with emphasis on prescribed burning.

303 FOREST PRODUCTS (2 + 3) 3 credits
Introduction to wood anatomy; technological studies of major wood processing industries and wood product properties. Methods and costs of wood product fabrication. Mandatory field trips. Prerequisite: RWF 393, 407.

304 HYDROLOGY FOR NATURAL RESOURCE MANAGEMENT (3 + 0) 3 credits
Principles and methods of managing range and forest land in terms of water quantity, quality and timing. One or two field trips required. Prerequisite: MATH 110 or equivalent.

316, 416 INTERNSHIP (1 to 3 + 0) 1 to 3 credits *S/U only*
Coordinated work study programs in industry or government under the direction of a faculty adviser. Written progress reports are prepared periodically and at the conclusion of the internship.

323 FISHERY MANAGEMENT (2 + 3) 3 credits
Fish ecology, habitat requirements, cultural practices and techniques as applied to modern fishery management. Prerequisite: BIOL 212.

341 PRINCIPLES OF RANGE MANAGEMENT (2 + 3) 3 credits
Conservation, management and multiple use of range resources. Prerequisite: BIOL 201 or 202 or equivalent. Field trips required.

345 RANGE AND FOREST PLANTS (2 + 6) 4 credits
Identification, distribution, and management of the major range plants and forest trees occurring in the western U.S.

346 RANGELAND RESOURCES FIELD TRIP 2 credits
One-week field trip for students with an interest in resource management. Range, wildlife, forest, recreation and watershed problems and practices on private and public lands. Prerequisite: BIOL 333, 334 or RWF 341, 393.

348 RANGE IMPROVEMENTS (2 + 3) 3 credits
Artificial revegetation, fencing, water development; manipulation of vegetation (controlling) mechanically, chemically and by fire. Field trips required. Prerequisite: RWF 341.

351 PHOTOGRAMMETRY AND COMPUTER MAPPING (2 + 3) 3 credits
Measurements and interpretation of aerial photography and other remotely sensed data. Conventional and digital mapping techniques for land measurements. Prerequisite: RWF 100, MATH 110.

361 RECREATION RESOURCE MANAGEMENT (3 + 0) 3 credits
Historical, sociological, ecological and legal basis for recreation resource management. Policies and programs of recreation resource management agencies. Prerequisite: RWF 100.

393 DENDROLOGY AND SILVICS (3 + 3) 4 credits
Identification, taxonomy, distribution and silvical characteristics of forest trees of the U.S. and Canada. Emphasizes commercial species. Prerequisite: BIOL 101 or 102.

401, 601 LOGGING SYSTEMS (2 + 3) 3 credits
Analysis and development of timber harvest plans for different forest types and silvicultural treatments with consideration of the transportation system, logging methods and costs, silvicultural and watershed protection principles, and taxation and legal requirements. Mandatory field trip. Prerequisite: RWF 393, 407.

402, 602 FOREST MANAGEMENT (3 + 0) 3 credits
Organization of forest properties for sustained production of wood products; determination of rotation, regulation of cut and growing stock, management plans and forest valuation. Prerequisite: RWF 393, 407.

403, 603 ADVANCED FOREST MENSURATION (2 + 3) 3 credits
Advanced studies related to forest products influencing growth and yield in even-aged and all-aged forests. Advanced principles of inventory planning. Current trends in forest mensuration, electronic data processing of forest inventory data. Prerequisite: RWF 393, 407.

404, 604 INTRODUCTION TO AEROSPACE REMOTE SENSING (3 + 2) 3 credits
(See GEOL 404 for description.)

405, 605 SILVICULTURE AND REGIONAL SILVICULTURE (4 + 3) 5 credits
Theory and methods of controlling establishment, composition, growth and quality of forest stands. Application of silvicultural practices to important species and forest types of the U.S. Mandatory field trips. Prerequisite: RWF 200, 345 or 393.

406, 606 FOREST TREE PHYSIOLOGY AND GENETICS (4 + 0) 4 credits
Photosynthesis, respiration, water relations, nutrition, shoot and root development, reproduction and genetics of forest trees. Application of physiological and genetic principles in predicting effects of silvicultural practices on tree growth and in tree improvement. Prerequisite: RWF 393.

407, 607 QUANTITATIVE RANGE AND FOREST TECHNIQUES (4 + 3) 5 credits
Range methods and forest mensuration techniques commonly used in quantifying natural resources. Statistical analyses and interpretation are stressed. Prerequisite: AGEC 270, MATH 110, RWF 345 or 393.

411, 611 ENVIRONMENTAL LAW (3 + 0) 3 credits
(See C E 411, 611 for description.)

414, 614 HYDROLOGIC FLUID DYNAMICS (3 + 0) 3 credits
(See GEOL 414, 614 for description.)

421, 621 UPLAND GAME AND WATERFOWL MANAGEMENT (3 + 3) 4 credits
Ecology and management of upland game and waterfowl. Field trips required. Prerequisite: BIOL 212, 376.

422, 622 SOIL PHYSICS (2 + 3) 3 credits
Physical properties of soil components; soil structure,, temperature, aeration, soil-water interactions; methods of measurements; application to tillage and soil management. Prerequisite: MATH 110, AGRO 222. (Same as AGRO 422, 622.)

425, 625 BIG GAME MANAGEMENT (3 + 0) 3 credits
Big game ranges and populations and their management. Prerequisite: BIOL 212, 378.

427, 627 WILDLIFE HABITAT MANAGEMENT (2 + 3) 3 credits
Cultural practices, including mechanical, chemical and biological techniques to manipulate terrestrial environments, meeting specific habitat objectives. Field trips required. Prerequisite: BIOL 212, RWF 302.

435, 635 CONSERVATION OF NATURAL RESOURCES (3 + 0) 3 credits
(See GEOG 435 for description.)

442, 642 REMOTE SENSING (2 + 3) 3 credits
Introduction to remote sensing techniques. Study of spectral signatures in the electromagnetic spectrum. Digital analysis. Inventory and monitoring applications for natural resources management. Prerequisite: RWF 351, 551.

444, 644 SOIL MORPHOLOGY AND CLASSIFICATION (2 + 3) 3 credits
Morphological description and identification of soils; kinds of soils; principles

of soil mapping; use of soil maps, soil genesis; predicting behavior from morphology and taxonomic identity; some field classes. Prerequisite: AGRO 222; GEOL 101 recommended.

450, 650 RANGE RESOURCE PLANNING (2 + 3) 3 credits
Planning principles applied to rangeland resources management. Allotment and habitat management planning, environmental impact statements, agency planning processes and coordinated planning. Prerequisite: RWF 341.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range management, (d) outdoor recreation, (e) hydrology/hydrogeology, (f) soils. Maximum of 6 credits.

481, 681 HYDROLOGY FOR RESOURCE MANAGEMENT (3 + 0) 3 credits
Survey of processes of water movement and storage on the earth, their measurement, prediction and application to resource management; the hydrologic cycle. Prerequisite: PHYS 152, GEOL 101 or AGRO 222, AGEC 270.

482, 682 SMALL WATERSHED HYDROLOGY (4 + 3) 5 credits
The role of land conditions in dealing with problems of applied hydrology with emphasis on the small watershed, limited data and land management situations. Prerequisite: AGRO 222, GEOL 101.

483, 683 HYDROLOGY OF IRRIGATED AGRICULTURE (3 + 0) 3 credits
Water supply and diversion for irrigation. Production functions and evapotranspiration modeling. Shallow groundwater management and safe disposal of drainage effluent. Prerequisite: MATH 110, AGRO 222 or equivalent.

484, 684 WATERSHED ANALYSIS AND PLANNING (0 + 6) 2 credits
Field study for students interested in hydrology/hydrogeology and advanced study of principles, technical problems and procedures encountered in managing watersheds. Alternate years. Prerequisite: RWF 304 or 482 or 483 or equivalent.

485, 685 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Presentation and review of recent research, innovations and developments. These may include such areas as multiple resource management, photogrammetric interpretation, water quality and game preserve management. Maximum of 6 credits.

490, 690 ENVIRONMENTAL ISSUES IN PUBLIC LAND MANAGEMENT (3 + 0) 3 credits
Critical presentations and discussions of selected topics.

493, 693 RANGE AND FOREST ECOLOGY (2 + 3) 3 credits
Ecologic and economic interpretations of major range and forest communities. The application of autecological synecological principles to range and forest ecosystems. Ecosystem influences and modeling. Field trips required. Prerequisite: BIOL 212 or equivalent.

494, 694 RANGE AND FOREST ADMINISTRATION AND POLICY (3 + 0) 3 credits
Public administration applied to forest and rangeland resource management. Development history of resource agencies and policies. Administrative procedures, policy formation, decision-making, and public participation principles as related to the present and future political environment of natural resource protection, development and management.

497, 697 FOREST AND RANGE SOILS (3 + 0) 3 credits
Soil types associated with forests and range. Biological, physical and chemical soil properties, productivity relations and management implications. Field trips required. Prerequisite: AGRO 222.

701 ADVANCED RESOURCE MANAGEMENT 1 to 3 credits
Special advanced course work in (a) forestry, (b) wildlife, (c) range management, (d) outdoor recreation, (e) hydrology/hydrogeology, (f) soils. Maximum of 6 credits.

702 SOIL CHEMISTRY (2 + 3) 3 credits
Concepts of soil chemistry. Considers the physical and chemical properties of soils: mineralogical and chemical composition, ion exchange phenomena, chemistry of salt-affected and acid soils, trace element chemistry. Methods of analysis and interpretation. Prerequisite: AGRO 327, CHEM 330. (Same as AGRO 702.)

711 RESEARCH METHODS (3 + 0) 3 credits
Research principles applied to natural resource problems. Experimental design, field data collection, statistical analysis, interpretation, presentation of results and preparation of publications. Prerequisite: AGEC 270, MATH 110.

714 WILDLIFE ECOLOGY AND BEHAVIOR (3 + 0) 3 credits
Seminar or lectures on topics and problems in current literature dealing with predators and herbivores, group living, mating systems and distributional patterns. Prerequisite: BIOL 378, 381.

715 WILDLIFE HABITAT INTERRELATIONSHIPS (3 + 0) 3 credits
Critical review of current literature on wild animals and their relationship to habitat including the influence on animal behavior, animal ecology and plant ecosystems. Prerequisite: RWF 427.

716 ADVANCED WILDLIFE MANAGEMENT (3 + 0) 3 credits
Intensive review of management of a wildlife species: the animal, population characteristics and habitat. Prerequisite: RWF 425.

725 PLANT PHYSIOLOGICAL ECOLOGY (3 + 0) 3 credits
Microenvironment and energy balance of plants. Acquisition of water, carbon and nutrients. Application of mechanistic, physiological processes to ecological relationships between plants and their environment. Prerequisite: BIOL 320 or 486, BIOL 347 or RWF 493, B CH 412 or BIOL 355.

741 IRRIGATION WATER MANAGEMENT (3 + 0) 3 credits
Evapotranspiration modeling and irrigation scheduling for optimal crop yield and water conservation. Effect of irrigation management on drainage quantity and quality. Drainage water disposal. Prerequisite: RWF 483, 683 or equivalent.

745 RANGELAND GRAZING (3 + 0) 3 credits
Co-evolutionary development of plant communities and native ungulate grazing. Development of modern livestock grazing strategies. Prerequisite: RWF 341.

746 ADVANCED ANALYSIS METHODS IN NATURAL RESOURCES (2 + 3) 3 credits
Applied use and interpretation of multivariate and modeling techniques for natural resources and biological studies. Prerequisite: MATH 213, 183 or E E 131, AGEC 270 or MATH 251, 313, 320, 330 recommended.

760 RANGE ECOSYSTEM ANALYSIS (1 + 3) 2 credits
Procedure for the investigation of range ecosystems, plant biomass, animal biomass, nutrition, vegetation-soil relationships, stratification, and vegetation sampling, mineral cycling, processes, systems and modeling. Prerequisite: course in statistics.

782 HYDROLOGY/HYDROGEOLOGY SEMINAR (0 + 3) 1 credit
Preparation of written reports and/or oral presentations. Guest lecturers. Maximum of 3 credits. (Same as GEOL 782.)

790 SEMINAR (1 + 0) 1 credit
Presentations of potential research projects and research results by graduate students and faculty. Maximum of 2 credits.

793 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range management, (d) outdoor recreation, (e) hydrology/hydrogeology, (f) wildland conservation. Maximum of 6 credits in each topic.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 to 2 credits *S/U only*
Required of all graduate students who wish to complete the master of science degree under Plan B.

797 THESIS 1 to 6 credits
Thesis may be written in area of (a) forestry, (b) wildlife management, (c) range management, (d) hydrology/hydrogeology, (e) outdoor recreation.

799 DISSERTATION 1 to 24 credits

Inactive Courses

391 WILDLAND PROTECTION (2 + 3) 3 credits
420, 620 INTEGRATED NATURAL RESOURCE MANAGEMENT (2 + 3) 3 credits
426, 626 GAME MAMMAL POPULATIONS (3 + 0) 3 credits
786 SNOW HYDROLOGY (1 + 6) 3 credits

RECREATION, PHYSICAL EDUCATION AND DANCE (RPED)

Special fees apply to many activity courses which are in addition to regular registration fee. Consult with the department prior to registration.

100-199 RECREATION-PHYSICAL EDUCATION ACTIVITY CLASSES
A maximum of three credits from 100-199 may be taken during any one semester or summer session except for special programs listed in the class

schedule. When beginning, intermediate or advanced classes are scheduled in an activity, the student should consult the department to determine in which level to enroll. A student may enroll in the same class four times for credit.

200-797 RECREATION-PHYSICAL EDUCATION THEORY CLASSES

100-199 ACTIVITY CLASSES (0 + 2) 1 credit *S/U only*

AQUATICS
101 Diving
102 Life Saving
103 Sailing
104 Scuba
105 Swimming, Beginning*
106 Swimming, Intermediate
107 Swimming, Advanced
108 Swimming, Synchronized
109 Water Skiing, Beginning

DANCE**
110 Modern Dance, Beginning*
111 Modern Dance, Intermediate
112 Modern Dance, Advanced
115 Dance, Social
116 Dance Styles: Afro-Haitian, Tap, or Musical Comedy
117 Dance, Improvisation
118 Dance, Repertory
119 Dance, Jazz
120 Ballet, Beginning*
121 Ballet, Intermediate
122 Ballet, Advanced

GAMES (COURT)
125 Gymnastics
126 Basketball
127 Team Handball
128 Badminton
129 Softball
130 Handball, Beginning*
131 Handball, Inter.-Adv.
132 Racquetball, Beginning*
133 Racquetball, Inter.-Adv.
134 Squash
135 Tennis, Beginning*
136 Tennis, Intermediate
137 Tennis, Advanced
138 Volleyball, Beginning*
139 Volleyball, Inter.-Adv.

MOUNTAIN SPORTS
140 Angling and Casting
141 Backpacking
142 Bike Touring
143 Mountaineering
144 Orienteering
145 Rock Climbing, Beginning
146 Rock Climbing, Inter.-Adv.
147 Skiing, Alpine
148 Ski Touring

MARTIAL ARTS
152 Karate, Beginning*
153 Karate, Inter.-Adv.
154 Judo
155 Wrestling

MISCELLANEOUS ACTIVITIES
156 Archery
157 Bicycling
158 Bowling, Beginning*
159 Bowling, Inter.-Adv.
160 Golf, Beginning*
161 Golf, Intermediate
162 Golf, Advanced
163 Horsemanship*** (0 + 3)
165 Skating, Ice
166 Skating, Roller
168 Soccer
169 Yoga

CONDITIONING
174 Conditioning, Rhythmic Aerobic, Beginning
175 Conditioning, Rhythmic Aerobic, Intermediate
176 Conditioning, Rhythmic Aerobic, Advanced
177 Fitness Assessment and Exercise Prescription
178 Conditioning, Water Exercise
179 Conditioning, Intercollegiate Athletics
180 Conditioning and Body Building (Men and Women)
181 Conditioning, ROTC
182 Jogging
183 Weight Lifting

INTERCOLLEGIATE COMPETITIVE ACTIVITIES
184 Intercollegiate Baseball
185 Intercollegiate Basketball
186 Intercollegiate Boxing
187 Intercollegiate Cross Country
188 Intercollegiate Football
189 Intercollegiate Bowling
190 Intercollegiate Golf
191 Intercollegiate Gymnastics
192 Intercollegiate Riflery
193 Intercollegiate Skiing
194 Intercollegiate Softball
195 Intercollegiate Swimming
196 Intercollegiate Tennis
197 Intercollegiate Track and Field
198 Intercollegiate Volleyball

201 INTRODUCTION TO RECREATION AND PHYSICAL EDUCATION (2 + 2) 3 credits
Background, aims, objectives and current trends in RPED; skill and proficiency tests required for all RPED majors and minors.

202 THEORY OF MOVEMENT (2 + 0) 2 credits
Analysis of movement; comparison of movement patterns, purposes and organizations within sports and dance.

216 METHODS OF TEACHING CROSS COUNTRY SKIING (1 + 2) 2 credits
Designed for experienced cross country skiers who wish to become competent cross country ski instructors.

217 METHODS OF TEACHING WATER SAFETY (1 + 2) 2 credits
Water safety instructor course. American Red Cross Certificate awarded upon completion. Prerequisite: Life Saving Certificate.

218 METHODS OF TEACHING SKIING (1 + 2) 2 credits
Instruction in American, Austrian and French ski systems. Progressions, finished technical forms of ski maneuvers, mechanics and correction of errors.

219 DANCE IN ELEMENTARY EDUCATION (1 + 2) 2 credits
Methods of teaching a comprehensive elementary school dance program including movement exploration, creative dance-making, dance and rhythmic skills and simple folk dances.

Courses numbered 220 through 231 are designed for majors and minors in RPED.

220 METHODS OF TEACHING ARCHERY AND BADMINTON (0 + 2) 1 credit

221 METHODS OF TEACHING CONDITIONING (0 + 2) 1 credit

222 METHODS OF TEACHING DANCE (0 + 2) 1 credit

223 METHODS OF TEACHING GOLF (0 + 2) 1 credit

224 METHODS OF TEACHING OUTDOOR RECREATION (0 + 2) 1 credit

225 METHODS OF TEACHING SOCCER AND SPEEDBALL (0 + 2) 1 credit

226 METHODS OF TEACHING SOFTBALL (0 + 2) 1 credit

227 METHODS OF TEACHING TEAM HANDBALL (0 + 2) 1 credit

228 METHODS OF TEACHING TENNIS (0 + 2) 1 credit

229 METHODS OF TEACHING VOLLEYBALL (0 + 2) 1 credit

230 METHODS OF TEACHING WRESTLING (0 + 2) 1 credit

231 METHODS OF TEACHING TUMBLING (0 + 2) 1 credit

232 METHODS OF TEACHING RHYTHMIC EXERCISE (0 + 2) 1 credit
Principles of exercise, with particular attention to exercising to music. Designing rhythmic exercise programs.

*Maximum of 2 credits.
**Additional dance courses: RPED 219, 222, 261, 262, 360, 361, 460, 461, 660, 661.
***Same as A SC 163.

240 RECREATION AND PLAYGROUND LEADERSHIP (1 + 2) 2 credits
Application of leadership techniques to community recreation and playground programs. Instruction and practical experience in specific recreation leadership skills.

261 INTRODUCTION TO DANCE COMPOSITION (1 + 2) 2 credits
Basic elements of choreography. Guided experiences in movement development, design and form. Prerequisite: one semester of dance.

262 DANCE PRODUCTION (2 + 2) 3 credits
Theory of and practical experience in producing a dance presentation. Prerequisite: one semester of dance or equivalent.

270 ADVANCED FIRST AID AND EMERGENCY CARE (1 + 2) 2 credits
American Red Cross certificate awarded upon completion.

271 INSTRUCTOR'S FIRST AID (2 + 0) 2 credits
Regular Red Cross course. Those completing the course may be designated first-aid instructors. Prerequisite: RPED 270 or First Aid Certificate.

290 FIELD EXPERIENCES IN RECREATION OR PHYSICAL EDUCATION (0 + 3) 1 credit
Directed field work experience in teaching and/or directing physical education activities for school or recreation groups. Maximum of 3 credits.

299 INDEPENDENT STUDY IN RECREATION OR PHYSICAL EDUCATION (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of recreation or physical education not covered in other undergraduate courses. Maximum of 4 credits.

301 ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION AND ATHLETICS (3 + 0) 3 credits
Principles and methods of organizing and administering physical education and athletics in secondary schools. Prerequisite: RPED 201.

302 ORGANIZATION AND ADMINISTRATION OF INTRAMURAL AND RECREATION PROGRAMS (1 + 3) 2 credits
Theory of and active participation in the organization and administration of intramural and recreation sports programs.

321 ORGANIZATION AND JUDGING OF GYMNASTIC MEETS (0 + 2) 1 credit
Prerequisite: competitive or teaching experience in gymnastics.

322 ORGANIZATION AND JUDGING OF TRACK AND FIELD MEETS (0 + 2) 1 credit
Prerequisite: RPED 326.

323 THEORY OF BASEBALL (2 + 2) 3 credits
Lectures on theory of baseball; teaching techniques and practical demonsttations. Designed for those who wish to coach.

324 THEORY OF BASKETBALL (2 + 2) 3 credits
Lectures on theory of basketball; teaching techniques and practical demonstrations. Designed for those who wish to coach.

325 THEORY OF FOOTBALL (2 + 2) 3 credits
Lectures on theory of football; teaching techniques and practical demonstrations. Designed for those who wish to coach.

326 THEORY OF TRACK AND FIELD (2 + 2) 3 credits
Lectures on theory of track and field; teaching techniques and practical demonstrations. Designed for those who wish to coach.

327 THEORY OF SOFTBALL AND VOLLEYBALL (2 + 2) 3 credits
Lectures on theory of softball and volleyball; teaching techniques and practical demonstrations. Designed for those who wish to coach.

330 OFFICIATING MAJOR SPORTS (2 + 0) 2 credits
Interpretations of rules, methods of officiating and characteristics of officials. Coeducational class: men's major sports in the fall semester, women's major sports in the spring semester. Maximum of 4 credits; one fall semester and one spring semester.

331 PSYCHOLOGY OF COACHING (3 + 0) 3 credits
Role of psychology in coaching athletic activities. Prerequisites: RPED 201, 323 or 324 or 325 or 326.

340 CAMPING AND OUTDOOR RECREATION (1 + 2) 2 credits
Practices and principles of camping in relation to school curriculum. Campcraft skills, techniques of group work, program planning and camp counseling.

341 PLANNING CONCEPTS FOR OUTDOOR RECREATION (3 + 0) 3 credits
Preparing, organizing and directing outdoor recreational facilities.

342 COMMUNITY RECREATION (2 + 2) 3 credits
Operation of a recreation department and its relationship to other community agencies.

350 TEACHING PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (2 + 2) 3 credits
Curriculum planning, lesson plans, and teaching methods for the classroom teacher with lab teaching experience.

351 PHYSICAL EDUCATION ACTIVITIES FOR PRIMARY GRADES K-3 (2 + 2) 3 credits
Intensive study of movement activities and teaching methods in the K-3 curriculum. Practical experience teaching in lab and public schools.

352 PHYSICAL EDUCATION ACTIVITIES FOR INTERMEDIATE GRADES 4-8 (2 + 2) 3 credits
Teaching lifetime fitness activities, fitness concepts and basic skills for liferime sports participation. Practical experience in lab and public schools.

354 PERSONAL HEALTH AND LIFE STYLES (3 + 0) 3 credits
(See SHR 354 for description.)

360-361 COMPARATIVE DANCE STYLES I and II (2 + 2) 3 credits each
In-depth study of selected dance forms; includes repertory and performance. Prerequisite: intermediate/advanced dance technique.

363 CONCERT CHOREOGRAPHY (0 + 3 per credit) 1 or 2 credits
Directed student choreographic projects for public performance; by audition only. Maximum of 6 credits.

370 ATHLETIC INJURIES (1 + 2) 2 credits
Prevention and treatment of common athletic injuries, including practical application.

371 METHODS OF TEACHING HEALTH (3 + 0) 3 credits
Emphasis on current health issues relevant for physical education majors ro teach grades K through 12. Prerequisite: RPED 201.

372 METHODS OF TEACHING PHYSICAL EDUCATION (3 + 0) 3 credits
Preparation for student teaching.

373 FIELD EXPERIENCE IN RECREATIONAL CRAFTS (1 + 3) 2 credits
Crafts as applied to recreation. Major students assigned in crafts area of Reno Recreation Department under the supervision of staff member.

396 PRACTICAL EXPERIENCE IN ACTIVITY CLASSES (0 + 2) 1 credit
Students assist in advanced work in physical education activities classes. Maximum of 3 credits.

401, 601 EVALUATION IN PHYSICAL EDUCATION (3 + 0) 3 credits
Construction, administration and interpretation of test; evaluating and reporting data collected. Prerequisite: RPED 201 and 4 credits above 300 in RPED.

402, 602 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION (2 + 0) 2 credits
Historical analysis of physical education. Philosophical bases and principles as guidelines for the profession. Prerequisite: RPED 201 and 4 credits above 300 in RPED.

403 KINESIOLOGY (3 + 0) 3 credits
Mechanical and anatomical analysis of motion as a basis for the teaching of RPED activities. Designed for those majoring in health science fields. Prerequisite: BIOL 262, 263.

405, 605 MOTOR LEARNING (3 + 0) 3 credits
Motor-perceptual system processes, with special attention to skill acquisition and skill levels as categories of human learning.

406, 606 PHYSIOLOGY OF EXERCISE (3 + 0) 3 credits
Physiological bases for planning RPED programs. Observations of respiratory, circulatory, nervous and metabolic adjustments to physical exercise. Designed for those majoring in health science fields. Prerequisite: BIOL 262, 263.

407, 607 THERAPEUTIC ASPECTS OF MOVEMENT (3 + 0) 3 credits
Therapeutic exercises and muscular activities adapted to individuals with physical handicaps, tensions or low muscular activity levels.

408, 608 PHYSICAL FITNESS ASSESSMENT AND TRAINING (2 + 2) 3 credits
Theory and practice of determining fitness levels and developing appropriate exercise programs.

420 COACHING CLINIC (2 + 0) 2 credits *S/U only*
Lectures and demonstrations in techniques of coaching major sports for men. A maximum of 4 credits is acceptable toward the satisfaction of any department, college or university requirement.

421, 621 LIFETIME SPORTS PROGRAM (2 + 2) 3 credits
Analyses, development and maintenance of skills. Purchase and maintenance of equipment. Prerequisite: 4 credits from RPED 220, 221, 222, 228, 229.

422 WOMEN'S COACHING WORKSHOP (1 + 2) 2 credits
Instruction and participation in techniques of coaching women's sports. Maximum of 4 credits.

440, 640 RECREATION ADMINISTRATION (2 + 0) 2 credits
Comprehensive study of recreation administration including community organization, promotion, reports, public relations and leadership selection. Prerequisite: RPED 201, 240 (4 credits) and 2 credits above 300.

450, 650 MOVEMENT EDUCATION FOR ELEMENTARY SCHOOL CHILDREN (1 + 2) 2 credits
Problem-solving approach to the teaching of motor skills to children. Prerequisite: 12 credits in RPED or elementary school teaching certificate.

451, 651 ADAPTED PHYSICAL EDUCATION (3 + 0) 3 credits
Understanding the role of physical education in providing special education service to the handicapped. Basic information regarding growth and development of handicapped.

460, 660 HISTORY AND DEVELOPMENT OF DANCE (2 + 0) 2 credits
Dance from its beginning to modern times. Prerequisite: one semester of dance.

461, 661 DANCE WORKSHOP (1 + 2) 2 credits
Intermediate and advanced study of dance composition; philosophy, principles, conventional forms and choreographic resources. Prerequisite: intermediate dance technique. Maximum of 4 ctedits.

462 PHYSICAL EDUCATION WORKSHOP (0 + 2) 1 credit
Recent trends, changes and techniques in physical education activities.

492, 692 RECREATION INTERNSHIP 8 to 10 credits
Practical work experience in public or private recreation agencies. Advance approval required. Prerequisite: 20 credits in recreation completed and recreation major.

493 INDEPENDENT STUDY IN DANCE (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of dance not covered in other undergraduate courses. Maximum of 4 credits.

495, 695 FIELD STUDIES IN RECREATION 1 to 6 credits
Directed field work in observing recreation programs and facilities outside Nevada. Maximum of 6 credits.

496, 696 FIELD STUDIES IN PHYSICAL EDUCATION 1 to 6 credits
Directed field work in observing physical education programs and facilities outside Nevada. Maximum of 6 credits.

497, 697 SPECIAL PROBLEMS IN PHYSICAL EDUCATION (2 + 0) 2 credits
Maximum of 4 credits. Prerequisite: 12 credits in RPED.

498 INDEPENDENT STUDY IN PHYSICAL EDUCATION (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of physical education not covered in other undergraduate courses. Maximum of 4 credits.

499 INDEPENDENT STUDY IN RECREATION (1 or 2 + 0) 1 or 2 credits
Individual study and/or research in areas of recreation not covered in other undergraduate courses. Maximum of 4 credits.

701 ADVANCED KINESIOLOGY (2 + 0) 2 credits
Detailed study of the application of anatomical, mechanical and physiological principles to human motion and sports skill. Prerequisite: RPED 403.

702 CRITICAL ISSUES IN PHYSICAL EDUCATION (2 + 0) 2 credits
Examination of basic philosophies and objectives of physical education in relation to current societal needs.

703 CURRICULUM CONSTRUCTION IN PHYSICAL EDUCATION (2 + 0) 2 credits
Social and physiological principles underlying the development of a physical education curriculum consistent with goals of secondary education. Prerequisite: 24 credits in RPED.

704 PHYSICAL EDUCATION SEMINAR (2 + 0) 2 credits
Intensive study and discussion of selected areas in physical education. Maximum of 4 credits. Prerequisite: 15 credits in RPED.

705 PHYSIOLOGICAL BASES OF CONDITIONING PROGRAMS (2 + 0) 2 credits
Systematic analysis of the physiological results of conditioning programs with particular emphasis on changes in muscular strength, endurance and coordination. Application of basic principles to the organization of conditioning programs. Prerequisite: RPED 406.

771 ATHLETIC INJURIES II (1 + 2) 2 credits
Methods of caring for athletic injuries. Prerequisite: RPED 370.

792 READINGS IN PHYSICAL EDUCATION AND RECREATION (1 + 0) 1 credit
Designed to acquaint advanced students with recent professional literature in physical education and recreation. One conference period per week. Maximum of 3 credits. Prerequisite: 15 credits in RPED.

793 INDEPENDENT PROJECTS IN PHYSICAL EDUCATION (1 or 2 + 0) 1 or 2 credits
Prerequisite: 15 graduate credits in RPED courses.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 3 credits
Required of all graduate students who wish to complete an M.S. degree under Plan B.

797 THESIS 1 to 6 credits

Inactive Courses

100 CANOEING
114 SQUARE DANCE
149 FOIL FENCING
150 BEGINNING SABRE FENCING
151 INTERMEDIATE AND ADVANCED SABRE FENCING
164 SHOOTING
199 INTERCOLLEGIATE WRESTLING

RELIGIOUS STUDIES (R ST)

Interdisciplinary Courses

101 INTRODUCTION TO RELIGIOUS STUDIES (3 + 0) 3 credits
Varieties of religious expression: belief, ritual, scripture, art. Religious issues: God, death, evil, salvation. Methods of studying religion.

SOCIAL AND HEALTH RESOURCES (SHR)

220 INTRODUCTION TO SOCIAL AND HEALTH SERVICES (3 + 3) 4 credits
Social and health concerns with focus on the institutions and professions which address those problems. Interdisciplinary teamwork and the systems approach emphasized. Includes 45 hours of community volunteer service.

230 CRISIS INTERVENTION (3 + 0) 3 credits
Analysis of types of crises, crises theory, effects of crises on the community, methods of and community resources for crisis intervention. Prerequisite: PSY 101.

234 CLINICAL INTERVIEWING SKILLS (2 + 3) 3 credits
Analysis and methods for communication with clients. Strategies for dealing with specific problems in social and health care settings.

320 INDIVIDUAL IN SOCIETY (3 + 0) 3 credits
Human growth and behavior within a sociocultural context, with special attention to professional practice and social policy formation in the helping professions. Prerequisite: SHR 220.

325 FOUNDATIONS OF HEALTH EDUCATION (3 + 0) 3 credits
History, philosophy, theory. Settings and roles for health educators. Prerequisite: SHR 220.

330 METHODS OF THE SOCIAL SERVICES I (3 + 0) 3 credits
Principles of casework, group work and community organization. Intervention at individual, family, peer group and community levels. Prerequisite: SHR 220, 234.

331 METHODS OF THE SOCIAL SERVICES II (3 + 0) 3 credits
Continuation of SHR 330. Prerequisite: SHR 330. Corequisite: SHR 480.

335 TEAM APPROACH TO SOCIAL WORK AND HEALTH CARE (3 + 0) 3 credits
Interdisciplinary studies of teamwork issues. Teams observe care providers and decision making in community settings. Prerequisite: SHR 234.

340 HUMAN VALUES AND PROFESSIONAL ETHICS (3 + 0) 3 credits
Focuses on value systems and major ethical issues in social and health care such as confidentiality, truth-telling and codes of professional behavior.

354 PERSONAL HEALTH AND LIFE STYLES (3 + 0) 3 credits
Focus on health, illness prevention and health-care decision-making. Examination of stress, life style, environmental influences, chronic disorders, nutrition, fitness and family health. (Same as RPED 354.)

375 THE CHILD AND THE LAW (3 + 0) 3 credits
Philosophical, historical, legal origins of the government's role in child welfare services. Knowledge, skills, attitudes to aid in delivery of legal services to children and families.

376 AGING: SOCIAL AND HEALTH CARE CONCERNS
(2 + 2) 3 credits
Methods, policies and programs pertinent to social and health services delivery systems for the aged. Includes exploration of an individual's ability ro age successfully. Prerequisite: PSY 101 or SHR 220.

378 CONTEMPORARY ISSUES IN SOCIAL WELFARE OR HEALTH
(3 + 0) 3 credits
Analysis of current trends. Possible topics: guaranteed income, processes in social legislation, family and group therapy, health care systems, holistic health care, national health insurance. Maximum of 6 credits.

390 INTRODUCTION TO RESEARCH (3 + 0) 3 credits
Methods for practitioners, community organizers and other professionals in social service and health education settings. Evaluation and interpretation of research and statistical analysis.

430, 630 SOCIAL SERVICES IN DEATH AND DYING (3 + 0) 3 credits
Examines attitudes on death and associated grief processes. Prerequisite: SHR 230 or 320 or 476.

437, 637 HANDICAPPED PERSON IN THE COMMUNITY (3 + 0) 3 credits
Assessment of the needs of physically and mentally handicapped persons and analysis of current programs to help them attain constructive lives. Prerequisite: SHR 220.

450, 650 SOCIAL WELFARE POLICY (3 + 0) 3 credits
Analysis of the development and implementation of social welfare programs and services. Examines the social worker's role in the policy making process. Prerequisite: SHR 220.

460, 660 THE LAW AND SOCIAL SERVICES (3 + 0) 3 credits
Legal foundations and structures of practice and administration in social services. Legal aspects of all modes of intervention in social problems. Prerequisite: SHR 220.

452 ADVANCED STUDIES IN HEALTH SYSTEMS AND POLICY
(3 + 0) 3 credits
Emphasis on comparative health systems, the formation of governmental and private health policy and the allocation of health resources. Prerequisite: SHR 220.

462, 662 EPIDEMIOLOGY 3 credits
The nature of disease patterns and occurrences. Etiology, recognition, transmission, prevention and principles used in the control of disease and disorders affecting human health. Prerequisite: BIOL 262, 263; MATH 110 or equivalent.

470 HEALTH EDUCATION SEMINAR (3 + 0) 3 credits
Program development, major issues and innovations. Prerequisite: SHR 220, 325.

471, 671 HEALTH OF THE SCHOOL-AGED CHILD (3 + 0) 3 credits
Major health problems encountered in school-age children. Interdisciplinary approach to health management and health awareness programs for children and youth. Prerequisite: SHR 220.

472, 672 WOMEN: SOCIAL AND HEALTH CARE CONCERNS
(3 + 0) 3 credits
Community resources, health care, sexism and problems unique to women in American society. Prerequisite: PSY 101 or SHR 220.

473, 673 ETHNIC AND RACIAL MINORITIES SOCIAL AND HEALTH CARE CONCERNS (3 + 0) 3 credits
Analysis of social and health care problems unique to ethnic and racial minorities in the U.S.; knowledge of cultural characteristics to be considered in service delivery. Prerequisite: SHR 220.

474, 674 SOCIAL INTERVENTION IN ALCOHOL AND DRUG ABUSE
(3 + 0) 3 credits
Identification, treatment, prevention and control of drug addiction and alcoholism.

477, 677 THE CHILD IN THE COMMUNITY (3 + 0) 3 credits
Analysis of the development and current programs in child welfare including the legal status of children. Prerequisite: SOC 101 or PSY 101.

480-481 FIELD EXPERIENCE IN SOCIAL WORK
(2 + 12) 5 credits each *S/U only*
One-year course combining a two-hour seminar with at least twelve hours of field experience in an approved social or correctional agency under the supervision of an experienced agency worker. Prerequisite: SHR 330.

486, 686 SUPERVISION AND ADMINISTRATION IN SOCIAL WORK
(3 + 0) 3 credits
Analysis and application of the theory and methods of supervision and administration in health and social work settings. Emphasis on case studies. Prerequisite: SHR 330.

488 FIELD EXPERIENCE IN HEALTH CARE 1 to 3 credits
Special health problems as identified by health agencies. For preprofessional majors only. Maximum of 6 credits.

489 FIELD EXPERIENCE IN HEALTH EDUCATION 3 to 6 credits
Supervised field experience in community agencies. Designed to give students work experience in actual field situations. Prerequisite: SHR 470.

496, 696 DIRECTED INDEPENDENT RESEARCH 1 to 3 credits
Guided research in an area of mutual interest to the student and faculty. Maximum of 6 credits.

498, 698 SPECIAL PROBLEMS 1 to 3 credits
Maximum of 6 credits.

499, 699 INDIVIDUAL READING 1 to 3 credits
Supervised reading with regular conferences between student and instructor. Maximum of 6 credits.

SOCIOLOGY (SOC)

101 PRINCIPLES OF SOCIOLOGY (3 + 0) 3 credits
Sociological principles underlying the development, structure and function of culture, society, human groups, personality formation and social change.

102 SOCIAL PROBLEMS (3 + 0) 3 credits
Selected social problems, their causation and proposed solutions.

202 AMERICAN SOCIETY (3 + 0) 3 credits
Analysis of the structure of American society; its historical development and its contemporary institutional forms.

204 COMPARATIVE SOCIOLOGY (3 + 0) 3 credits
Comparative analysis of social structure in traditional and modern societies. Emphasis on a macro-sociological approach in the study of socioeconomic processes in different social systems.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3 + 0) 3 credits
(See ANTH 205 for description.)

207 INTRODUCTION TO MAIN CURRENTS IN SOCIOLOGICAL THOUGHT (3 + 0) 3 credits
The works of classical and contemporary sociological theorists. Emphasis on the development of sociological theory in the U.S. Prerequisite: SOC 101.

210 STATISTICAL METHODS (3 + 2) 4 credits
(See PSY 210 for description.)

261 SOCIAL PSYCHOLOGY I: THE PERSON AND SOCIAL INFLUENCE (3 + 0) 3 credits
(See PSY 261 for description.)

275 MARRIAGE AND THE FAMILY (3 + 0) 3 credits
Sex roles, dating patterns, mate selection, marital interaction and success and alternative forms of marriage and family life.

333 SOCIOLOGY OF RELIGION (3 + 0) 3 credits
Sociological and historical examination of institutionalized and non-institutionalized religion with emphasis on religions in America. Prerequisite: SOC 101.

342 SOCIAL STRATIFICATION (3 + 0) 3 credits
Analysis of major theories of stratification and inequality. Historical development of class systems with emphasis on the social class structure of American society. Prerequisite: SOC 101.

345 SOCIAL MOVEMENTS AND COLLECTIVE BEHAVIOR (3 + 0) 3 credits
Processes involved in collective behavior and social movements; includes such topics as rumor, panic, riots, disaster and social movement organizations. Prerequisite: SOC 101.

350 SOCIAL CHANGE (3 + 0) 3 credits
Institutional change emphasizing the comparative perspective. A survey of various theories of social change and their applications in the analysis of various historical and contemporary societies. Prerequisite: SOC 101.

352 JUVENILE DELINQUENCY (3 + 0) 3 credits
Causes, conditions and prevention of juvenile crime. Prerequisite: SOC 101. Not open to those who have taken SOC 366 for credit.

362 SOCIAL PSYCHOLOGY II: GROUP STRUCTURE AND PROCESS (3 + 0) 3 credits
Topics include interpersonal attraction, power, status, group norms, leadership, group problem-solving, roles and role strain. Prerequisite: PSY 101 or SOC 101. (Same as PSY 362.)

366 CRIMINOLOGY (3 + 0) 3 credits
Major theories and research findings on the causes of delinquency and crime. Prerequisite: SOC 101. Not open to those who have taken SOC 352 for credit.

367 PENOLOGY (3 + 0) 3 credits
Processes through which the apprehended offender passes: arrest, detention, probation, incarceration and parole. Critical evaluation of various programs for treatment and prevention of crime. Prerequisite: SOC 352 or 366. (Same as C J 367.)

369 SOCIOLOGY OF LAW (3 + 0) 3 credits
Examination of relationship of legal institutions and society, focusing on law as a social product and the social psychology of jury processes and plea bargaining.

371 SOCIAL ORGANIZATION (3 + 0) 3 credits
Examination of major social institutions in terms of structure, function and change. Prerequisite: SOC 101.

373 POLITICAL SOCIOLOGY (3 + 0) 3 credits
Sociological theories and concepts brought to bear on various aspects of political theory and behavior. Prerequisite: SOC 101.

376 THE COMMUNITY (3 + 0) 3 credits
Description and analysis of American urban, suburban and rural communities including communes. Emphasis on variation in community institutions and processes. Prerequisite: SOC 101.

379, 579 ETHNIC AND RACE RELATIONS (3 + 0) 3 credits
Social, psychological, economic and political aspects of minority problems in American society. Prerequisite: SOC 101. Not applicable toward an advanced degree in sociology.

391 BUREAUCRACY AND LARGE SCALE ORGANIZATIONS (3 + 0) 3 credits
Sociology of modern large scale organizations with emphasis on government agencies, corporations, political parties and labor unions. Prerequisite: SOC 101.

392 RESEARCH METHODS (3 + 0) 3 credits
Major techniques and problems encountered in both survey and experimental research in the behavioral sciences. Prerequisite: PSY 101 or SOC 101. (Same as PSY 392.)

393 INDUSTRIAL SOCIOLOGY (3 + 0) 3 credits
Examinations of various work settings such as factories and "white collar" industries and their impact upon individual employees, emphasizing the development of alienation. Prerequisite: SOC 101.

401-402, 601-602 ADVANCED GENERAL SOCIOLOGY (3 + 0) 3 credits
Intensive survey of major areas of sociology. Prerequisite: SOC 101 or admission to honors program.

404, 604 SOCIOLOGY OF DEVELOPING SOCIETIES (3 + 0) 3 credits
Analysis of major theories of development as applied to the experience of contemporary Third World societies. The socioeconomic development in countries of Asia, Africa and Latin America examined from a comparative-historical perspective. Prerequisite: SOC 101.

422, 622 SOCIAL PSYCHOLOGICAL THEORIES (3 + 0) 3 credits
Review of theories in social psychology. Emphasizes classical studies and the developmental trends which led to current perspectives in social psychology. Prerequisite: SOC 101 or PSY 101. (Same as PSY 422.)

427, 627 COMPUTER APPLICATIONS IN SOCIAL AND BEHAVIORAL SCIENCE (3 + 0) 3 credits
Advanced use of computer in a variety of areas of the social and behavioral sciences. Prerequisite: SOC 210 or PSY 210, SOC 101 or PSY 101. (Same as PSY 427, 627.)

453, 653 THE SOCIOLOGY OF SEX (3 + 0) 3 credits
Socialization to sex roles, effects of sex on personality, relations between the sexes in organizational and informal groups, sexual deviancy and alternative sex roles. Prerequisite: SOC 101.

463, 663 SOCIAL PSYCHOLOGY III: SOCIAL PSYCHOLOGY OF EDUCATION (3 + 0) 3 credits
(See PSY 463 for description.)

464, 664 CONFORMITY AND DEVIATION (3 + 0) 3 credits
Systematic analysis of the sources of normative and nonnormative conduct. The nature and types of social deviations, their causes, description and consequences. Prerequisite: SOC 101.

480, 680 THE FAMILY (3 + 0) 3 credits
Forms and functions of the family as a social institution. Emphasis on present trends. Prerequisite: SOC 101.

485, 685 SOCIOLOGY OF KNOWLEDGE (3 + 0) 3 credits
Reciprocal influence of social structure on personal perception and values. Prerequisite: SOC 101.

491, 691 HISTORY OF SOCIAL THOUGHT (3 + 0) 3 credits
Development of social and economic thought from prehistoric times to the period of the English and French Enlightenment. Prerequisite: SOC 101.

492, 692 CONTEMPORARY SOCIAL THEORY (3 + 0) 3 credits
Development of social theory from the Enlightenment to the present day. Emphasis on recent developments in theory. Prerequisite: SOC 101, SOC 491.

494 SOCIAL FOUNDATIONS OF ECONOMIC LIFE (3 + 0) 3 credits
Influence of noneconomic institutions on the productive relations of society. The family, the political community, religion and culture as they affect the economic structure of modern society.

497, 697 SPECIAL TOPICS 1 to 3 credits
Seminar on selected problems from the study of sociology. Maximum of 6 credits. Prerequisite: SOC 101.

499, 699 SPECIAL PROBLEMS IN SOCIOLOGY 1 to 3 credits
Maximum of 6 credits.

701 INDIVIDUAL READING 1 to 5 credits
Supervised reading with regular conferences between student and instructor. Maximum of 6 credits.

702 GRADUATE RESEARCH 1 to 5 credits
Research projects in sociology carried out under supervision. Maximum of 6 credits.

704 SEMINAR IN SOCIAL ORGANIZATION (3 + 0) 3 credits
Consideration of selected topics in social organization.

705 SEMINAR IN SOCIAL THEORY (3 + 0) 3 credits
Consideration of selected topics on sociological theory.

706 INTERMEDIATE STATISTICS I (3 + 0) 3 credits
(See PSY 706 for description.)

707 INTERMEDIATE STATISTICS II (3 + 0) 3 credits
(See PSY 707 for description.)

718 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
(See PSY 718 for description.)

725 SOCIALIZATION (3 + 0) 3 credits
Social psychological approaches to the individual, including field theory, theories of balance and congruency, and other conceptual approaches to social perception, interpersonal attraction and stability of personality. (Same as PSY 725.)

726 INTERPERSONAL TRANSACTIONS (3 + 0) 3 credits
Basic processes of social interaction including person perception, communication, attraction and power in social relationships. (Same as PSY 726.)

727 GROUP BEHAVIOR (3 + 0) 3 credits
Analysis of behavior in small and intermediate size groups, including organizational behavior and intergroup relations. (Same as PSY 727.)

728 COLLECTIVE BEHAVIOR AND MASS SOCIETY (3 + 0) 3 credits
Analysis of social behavior at the societal level, including attitude formation, mass communication, crowd behavior and social movements. (Same as PSY 728.)

737 SURVEY RESEARCH METHODS (3 + 0) 3 credits
Strategies and techniques of survey research, including planning, sampling, questionnaire construction, coding and data analysis. (Same as PSY 737.)

738 METHODS AND INNOVATIONS IN ASSESSMENT (3 + 0) 3 credits
(See PSY 738 for description.)

764 SPECIAL TOPICS IN SOCIAL PSYCHOLOGY (3 + 0) 3 credits
(See PSY 764 for description.)

795 COMPREHENSIVE EXAMINATION 0 credits *S/U only*

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Course

384 POPULATION (3 + 0) 3 credits

SPEECH COMMUNICATION (SCOM)

105-106, 205-206, 305-306, 405-406 INTERCOLLEGIATE FORENSICS (0 + 3) 1 credit each
Participation in intercollegiate debate and individual events as a member of the university debate squad, plus participation in related on-campus events. Does not fulfill requirements for a major in speech and communication.

113 FUNDAMENTALS OF SPEECH COMMUNICATION (3 + 0) 3 credits
Principles and theories of speech communication. Participation in public speaking and interpersonal communication activities.

210 INTRODUCTION TO COMMUNICATION (3 + 0) 3 credits
Survey of theories of human communications; study of the nature of speech communication process.

212 INTRODUCTION TO COMMUNICATION RESEARCH (3 + 0) 3 credits
Basic approaches to research in speech communication. Introduction to historical, analytical, critical and empirical methods of investigation.

213 PUBLIC SPEAKING (3 + 0) 3 credits
Theory and practice in the composition and delivery of public speeches. Advanced techniques of message development, organization and style.

217 ARGUMENTATION AND DEBATE (3 + 0) 3 credits
Theory and practice of oral argumentative discourse; intensive study of argumentative principles and debate fundamentals; participation in class discussions, speeches and debates.

315 SMALL GROUP COMMUNICATION (3 + 0) 3 credits
Speech communication in face-to-face and coacting groups. Analysis of group cohesiveness, leadership, role structure, information processing and decision-making.

319 LEGAL ARGUMENTATION (3 + 0) 3 credits
Practice of argumentation theory in law, utilizing legal research, writing, and speaking; designed especially for the prelaw student.

329 BUSINESS AND PROFESSIONAL SPEAKING (3 + 0) 3 credits
Practice of the principles of public speaking, conference methods and group discussions which are applicable to the business and professional community.

410, 610 NONVERBAL COMMUNICATION (3 + 0) 3 credits
Principles, implications and effects of nonverbal communication, the ways in which unspoken elements modify communication.

411, 611 INTERPERSONAL COMMUNICATION (3 + 0) 3 credits
Investigation into the role of interpersonal communication in human relations.

412, 612 INTERCULTURAL COMMUNICATION (3 + 0) 3 credits
Factors important to meaningful communication across cultures with emphasis on intercultural differences in North America.

427, 627 COMMUNICATION AND SOCIAL CHANGE (3 + 0) 3 credits
Critical review of theory and research.

428, 628 ORGANIZATIONAL COMMUNICATION (3 + 0) 3 credits
Analysis of communication functions and networks in organizational settings. Organizational structures and dynamics and their effect upon the communication process.

433, 633 HUMAN COMMUNICATIONS THEORY(3 + 0) 3 credits
Review and comparative analysis of contemporary behavioral theories of human communication.

434, 634 COMMUNICATION AND CONFLICT RESOLUTION (3 + 0) 3 credits
Theory and research in conflict and negotiation; emphasis on conflict management in interpersonal settings.

435, 635 PERSUASION (3 + 0) 3 credits
Contemporary theory and research in persuasive communication; role of speech communication in changing beliefs, attitudes, values, intentions, and behavior.

480, 680 COMMUNICATION TRAINING SYSTEMS (3 + 0) 3 credits
Development and evaluation of innovative speech communication training programs and classroom methods.

490, 690 SPECIAL PROBLEMS IN SPEECH COMMUNICATION 1 to 3 credits
Designed for students who wish to study in depth a particular area of general speech, rhetoric and public address or communication theory. Maximum of 6 credit.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in speech communication. Maximum of 8 credits.

700 RESEARCH METHODS (3 + 0) 3 credits
Research methodologies in speech communication. Prerequisite: undergraduate statistics course or CAPS 440, 640.

710 SEMINAR: SMALL GROUP COMMUNICATION (3 + 0) 3 credits
Critical review of literature in problem-solving processes within the small group.

720 SEMINAR: INTERPERSONAL COMMUNICATION (3 + 0) 3 credits
Theory and research in one-to-one communication.

730 SEMINAR: ORGANIZATIONAL COMMUNICATION (3 + 0) 3 credits
Communication behavior and the evaluation-decision process in human organizations.

740 SEMINAR: PUBLIC COMMUNICATION (3 + 0) 3 credits
History and critical analysis of rhetorical advocacy.

750 SEMINAR: PERSUASION (3 + 0) 3 credits
Literature on strategies and techniques of persuasive discourse.

760 SEMINAR: COMMUNICATION THEORY (3 + 0) 3 credits
Communication theory as it applies to the design, research and management of communication systems.

793 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

798 INTERNSHIP: APPLIED COMMUNICATION SYSTEMS 1 to 3 credits
Professional work experience in close association with selected executives — managers in education, business and governmental agencies. Maximum of 6 credits.

Inactive Courses

430, 630 MODERN THEORIES OF PUBLIC COMMUNICATION (3 + 0) 3 credits

SPEECH PATHOLOGY AND AUDIOLOGY (SPA)

259 PHONETICS (3 + 0) 3 credits
Practical course in the science of speech sounds with emphasis on transcription of the International Phonetic Alphabet.

310 SPEECH AND LANGUAGE DEVELOPMENT (3 + 0) 3 credits
Traditional and psycholinguistic approaches to language and speech development in the individual.

320 INTRODUCTION TO GENERAL SEMANTICS (3 + 0) 3 credits
Emphasizes the distinctively human functions of creating and using symbols. Reveals the relationship of symbol systems and the bodily process of symbolizing experience to the development of personality and society. Prerequisite: SPA 310.

356 SURVEY OF SPEECH PATHOLOGY (3 + 0) 3 credits
Designed particularly for the classroom teacher. Stresses correction of minor speech problems and understanding of more involved disorders.

357 COMMUNICATION SCIENCE (3 + 0) 3 credits
Anatomical, neurological, physiological, and physical bases of speech and voice production.

359 ASSESSMENT OF COMMUNICATION DISORDERS (1 + 0 per credit) 1 to 3 credits
Developmental, environmental, organic, and psychogenic bases of disorders of speech and voice. Prerequisite: SPA 259 and 357.

360 METHODS OF CLINICAL MANAGEMENT (3 + 0) 3 credits
Therapy and clinical management of problems of defective speech. Includes clinical equipment and public school speech correction programs. Prerequisite: SPA 359.

361 ARTICULATION DISORDERS (2 + 3) 3 credits
Assessment and treatment of phonemic disorders.

362 INTRODUCTION TO AUDIOLOGY (3 + 0) 3 credits
Physics of sound, anatomy and physiology of the ear, medical and surgical aspects of hearing loss, basic audiometric techniques, and hearing conservation.

363 PRACTICUM IN SPEECH PATHOLOGY (0 + 6) 2 credits
Supervised clinic experience in the treatment and management of children and adults with speech and hearing defects. Prerequisite: SPA 259, 357, 359, 360. Maximum of 12 credits.

364 PREVENTION OF COMMUNICATIVE DISORDERS (3 + 6) 3 credits
Familiarization with developmental landmarks of communication, causes of communicative disorders, and application of methods for prevention and early intervention of communicative disorders.

365 ADVANCED AUDIOLOGICAL TESTING (3 + 0) 3 credits
Calibration of test equipment. Rationale and procedures used in the evaluation of hearing loss. Laboratory exercises. Prerequisite: SPA 362.

459, 659 SEMINAR IN CLINICAL PROCEDURE (2 + 0) 2 credits
Advanced study in specialized areas of the field. Maximum of 8 credits.

460, 660 ASPECTS OF SPEECH PATHOLOGY AND AUDIOLOGY (1 + 0) 1 credit
Pathologies affecting the auditory and speech mechanisms including central nervous system involvement. Special emphasis on medical and surgical treatment and speech and language pathology from the physician's viewpoint.

461, 661 ADVANCED SPEECH PATHOLOGY (2 + 0) 2 credits
Diagnosis of speech disorders, with special emphasis on stuttering and allied problems and organic speech disorders.

463, 663 INTERNSHIP IN SPEECH PATHOLOGY AND AUDIOLOGY (0 + 18 or 24) 6 or 8 credits
Clinical experience in the diagnosis and management of children and adults with speech or hearing defects. Experience to be gained in an off-campus rehabilitation program.

464, 664 PRACTICUM IN AUDIOLOGICAL TESTING (0 + 3 or 6) 1 or 2 credits
Supervised clinical procedures in descriptive and diagnostic hearing examinations. May be repeated. Prerequisite: SPA 362, 365.

465, 665 MEDICAL AUDIOLOGY (3 + 0) 3 credits
Differential hearing tests and their interpretation from a medical and surgical viewpoint.

466, 666 REHABILITATION FOR HEARING HANDICAPPED (3 + 0) 3 credits
Problems of adjustment and language involvement of the hearing handicapped. Use of amplification, auditory training, and lipreading principles. Prerequisite: SPA 310 and 362.

467, 667 LANGUAGE DISORDERS IN CHILDREN (3 + 0) 3 credits
Conditions leading to delayed language in children. Emphasis on methods of teaching language. Prerequisite: SPA 310.

494 WORKSHOPS AND INSTITUTES 1 to 3 credits
Intensive study of special topics in speech pathology and audiology. Maximum of 6 credits.

495 INDEPENDENT STUDY 1 to 3 credits
Intensive study of special topics in speech pathology or audiology on an individual basis. Maximum of 6 credits.

720 INTRODUCTION TO GRADUATE STUDY (3 + 0) 3 credits
Research methods in the communicative arts and sciences.

721 CRANIOFACIAL DISORDERS (2 + 3) 3 credits
Causes and treatment of communicative disorders related to cleft palate and lip. The interdisciplinary team approach will be stressed.

751 DYSPHASIA (2 + 3) 3 credits
Language and speech disorders related to central nervous system deficits.

752 STUTTERING (2 + 3) 3 credits
Disorders of speech rhythm.

753 COMMUNICATION DISORDERS IN THE CEREBRAL PALSIED (3 + 0) 3 credits
Causes, assessment, and treatment of communicative disorders among the cerebral palsied.

754 SEMINAR IN PHYSICAL ANOMALIES (2 + 0) 2 credits
Anatomical and neurological deficits of the speech mechanism to include alaryngeal speech.

757 EXPERIMENTAL PHONETICS (3 + 0) 3 credits
Speech production and reception and the physical characteristics of speech.

759 SEMINAR IN CLINICAL PROCEDURES (2 + 0) 2 credits
Advanced study in specialized areas of the field. Maximum of 8 credits.

762 DISORDERS OF VOICE (2 + 3) 3 credits
Causes, diagnosis, and treatment of disorders of voice.

765 ADVANCED AUDIOLOGY (2 + 3) 3 credits
Calibration of test equipment. Rationale and procedures used in the evaluation of hearing loss. Laboratory exercises. Prerequisite: SPA 362.

767 ADVANCED PRACTICUM (0 + 6) 2 credits
Supervised clinical experience in the treatment and management of children and adults with complex communicative disorders.

768 SEMINAR IN AUDIOLOGY (3 + 0) 3 credits
Special topics; hearing aids, psychophysics of audition; current research and publications in clinical hearing measurement or rehabilitation. Maximum of 6 credits.

769 SEMINAR IN AUDIOLOGICAL MEASUREMENT (2 + 0) 2 credits
Special topics in the measurement of hearing, hearing aids, psychophysics of audition, and special tests.

793 INDEPENDENT STUDY 1 to 3 credits

794 WORKSHOPS AND INSTITUTES 1 to 3 credits
Intensive study of special topics in speech pathology or audiology. Usually offered during Summer Session. Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

SURGERY (SURG)

451, 651 CLERKSHIP (2 + 30) 12 credits
Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing surgery.

461, 661 ELECTIVES 2 to 8 credits
Elective experiences in the major surgical subspecialities including: (a) acute orthopedics, (b) anesthesiology, (c) burn surgery, (d) cardiothoracic surgery, (e) emergency room techniques, (f) acting internship in general surgery, (g) neurosurgery, (h) ophthalmology, (j) orthopedic surgery, (k) otorhinolaryngology, (m) plastic surgery, (q) trauma surgery, (r) urology. Prerequisite: third- or fourth-year medical students. Maximum of 8 credits in any one subtopic. Maximum total credits for any combination of subtopics is 16.

490, 690 INDEPENDENT STUDY 1 to 4 credits

THEATRE (THTR)

100 INTRODUCTION TO THE THEATRE (3 + 0) 3 credits
Survey of the art and craft of the theatre including representative plays.

118 ORIENTATION TO PERFORMING THEATRE (3 + 0) 3 credits
Lecture, discussion, and performance encompassing the philosophy and techniques of interpretation, acting and directing.

119 ORIENTATION TO TECHNICAL THEATRE (3 + 0) 3 credits
Lecture and discussion encompassing the philosophy and techniques of technical theatre.

121 STAGE MAKEUP (2 + 2) 3 credits
Specialized instruction in the theory and experience in the application of stage makeup as related to the visual impact of an actor on stage.

203, 403 NEVADA REPERTORY COMPANY 3 credits each *S/U only*
Performance and production of plays for the University Theatre season. Includes instruction and research relative to the selected program of plays. Since company assignments are announced after registration the student may enroll in the semester following participation. Maximum of 9 credits each.

219-220 PROJECTS IN TECHNICAL THEATRE (3 + 0) 3 credits each
Specialized instruction in the theory and practice of such areas as scenery, lighting, sound properties and costuming. Prerequisite: THTR 119.

221 INTERPRETATION (3 + 0) 3 credits
Oral interpretation of the forms of literature. Lectures and performance.

230 DESIGN AESTHETICS AND DRAFTING FOR THE THEATRE (3 + 0) 3 credits
Fundamentals of visual composition, design theory and drafting techniques for the stage.

240 INTRODUCTION TO COSTUMING (3 + 0) 3 credits
Practical applications of construction and planning techniques involved in costuming a theatre production.

250-251, 350-351 LABORATORY THEATRE: ACTING (2 + 3) 3 credits each
Lectures and discussion providing fundamentals for laboratory workshops. Prerequisite: THTR 118.

260 THEATRE SPEECH (3 + 0) 3 credits
Practice in using the actor's voice.

321 ADVANCED INTERPRETATION (3 + 0) 3 credits
Advanced techniques of oral expression. Prerequisite: THTR 221.

330 STAGE LIGHTING (3 + 0) 3 credits
Theory and practice of lighting design and control. Prerequisite: THTR 230.

339 LIGHTING PRACTICUM (0 + 3 per credit) 1 to 3 credits
Practical experience as lighting designer in a production situation; creating the design, coordinating its execution and creating light cues. Maximum of 6 credits.

340 STAGE COSTUMING (3 + 0) 3 credits
Theory and practice of drafting historic and modern costumes for the stage.

349 COSTUMING PRACTICUM (0 + 3 per credit) 1 to 3 credits
Specialized study related to construction of garments, building of accessories, shop management and/or maintenance of wardrobe in theory and practice. Maximum of 6 credits.

360 EXPERIMENTAL THEATRE (3 + 0) 3 credits
Concentrates on specific areas of contemporary theatre practice, such as mime, improvisations, mixed media, musical theatre, etc. Specific content announced in advance. Maximum of 6 credits.

370 TOURING THEATRE 1 to 3 credits *S/U only*
Intensive road experience in planning for and rehearsing, setting up, performing and striking productions in various locations and for a variety of audiences. Maximum of 6 credits.

409 SCENERY PRACTICUM (0 + 3 per credit) 1 to 3 credits
Practical experience as scene designer or technical director in an actual production situation. Maximum of 6 credits.

419, 619 SCENIC DESIGN (3 + 0) 3 credits
Art of scenic interpretation through play analysis; rendering, color, style, ground plans, construction plans; research in history of design and period styles. Prerequisite: THTR 230.

421, 621 READERS THEATRE (3 + 0) 3 credits
Preparation and performance of literary selections for a theatrical environment.

431-432, 631-632 CHILDREN'S THEATRE (2 + 3) 3 credits
Laboratory and conference course offering practical experience in a children's theatre.

440 COSTUME DESIGN AND RENDERING (3 + 0) 3 credits
Art and theory of costume interpretation through play analysis, research in history of design and period style and rendering.

450, 650 THEORIES AND STYLES OF ACTING (3 + 0) 3 credits
Practice in period acting styles. Prerequisite: THTR 118.

452-453, 652-653 LABORATORY THEATRE: PLAYWRITING (2 + 3) 3 credits each
Lectures and discussion to provide fundamentals for laboratory workshop.

454-455, 654-655 LABORATORY THEATRE: DIRECTING (2 + 3) 3 credits each
Lectures and discussion providing fundamentals for laboratory workshops. Prerequisite: 2 semesters of Laboratory Theatre: Acting.

471, 671 HISTORY OF THEATRE I (3 + 0) 3 credits
Development of theatrical art from its beginning to 1642.

472, 672 HISTORY OF THEATRE II (3 + 0) 3 credits
Development of theatrical art from 1642 to present.

473, 673 SEMINAR IN THEATRICAL PERIODS (3 + 0) 3 credits
Intensive study into a specific historical period or significant movement, subject to be listed in class schedule. Maximum of 6 credits.

474, 674 THEATRE FIELD STUDY 1 to 3 credits
Student-faculty seminar including group travel to theatre centers within the U.S. and abroad for field study experience. Maximum of 6 credits.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in theatre. Maximum of 8 credits.

Inactive Courses

700 RESEARCH METHODS (3 + 0) 3 credits

719 SEMINAR: TECHNICAL THEATRE (3 + 0) 3 credits

721 SEMINAR: ORAL INTERPRETATION (3 + 0) 3 credits

729 THEATRE CRITICISM AND AESTHETICS (3 + 0) 3 credits

792 SPECIAL PROJECTS IN THEATRE (3 + 0) 3 credits

VETERINARY MEDICINE (V M)

100 VETERINARY MEDICINE (1 + 0) 1 credit
An orientation course limited to students intending to pursue veterinary medicine as a career.

408, 608 DISEASES OF DOMESTIC ANIMALS (3 + 0) 3 credits
Cause, pathogenesis, and control of infectious and non-infectious diseases of domestic animals with emphasis on those occurring in Nevada. Prerequisite: A SC 407; BIOL 251 recommended.

413, 613 ANATOMY OF LARGE ANIMALS (2 + 6) 4 credits
Comparative study of the anatomy of the skeletal, articular, muscular, digestive, urinary, reproductive, endocrine, nervous, circulatory, integumentary, and sensory systems of domestic animals. Prerequisite: BIOL 201.

485 SPECIAL TOPICS (1 to 3 + 0) 1 to 3 credits
Review of recent research, innovations and development in the area of animal health and disease control. Maximum of 6 credits.

713 PHYSIOLOGICAL SURGERY (1 + 3) 2 credits
Surgical techniques used to obtain specialized information from ruminant animals. Restricted to graduate thesis requiring surgery on nonlaboratory animals. Prerequisite: BIOL 251 or equivalent, BIOL 366 or V M 413, V M 408, 608.

793 INDEPENDENT STUDY 1 to 6 credits
Intensive study of a special problem in molecular biology as it relates to veterinary medicine or related disciplines.

WOMEN'S STUDIES (W S)

101 INTRODUCTION TO WOMEN'S STUDIES (3 + 0) 3 credits
Interdisciplinary introduction to the methods and concerns of Women's Studies drawing from history, psychology, sociology, law, and language concerns.

297 SPECIAL TOPICS 1 to 3 credits
Topics of current interest not incorporated in regular offerings. Maximum of 4 credits.

490 INDEPENDENT STUDY 1 to 3 credits
Supervised reading and research open to women's studies minors. Prerequisite: W S 101. Maximum of 6 credits.

497 SPECIAL TOPICS 1 to 3 credits
Topics of current interest not incorporated in regular offerings. Maximum of 4 credits.

ZOOLOGY
(See Biology)

University Service Awards

Distinguished Teacher Award

1987 Dana J. Davis, Professor of Curriculum and Instruction
1986 David Ehrke, Associate Professor of Music
1985 Edward A. Zane, Professor of Accounting and Information Systems
1984 B.J. Fuller, Associate Professor of Accounting and Information Systems
1983 Donald C. Pfaff, Associate Professor of Mathematics
1982 Donald W. Winne, Assistant Professor of Managerial Sciences
1981 Kenneth C. Kemp, Professor of Chemistry
1980 Fred A. Ryser, Jr., Professor of Biology
1979 Richard A. Curry, Associate Professor of Foreign Languages and Literatures
1978 Larry J. Larsen, Professor of Economics
1977 Alan A. Gubanich, Assistant Professor of Biology
1976 Elwood L. Miller, Associate Professor of Forestry and Recreation
1975 Rosella Linskie, Professor of Curriculum and Instruction
1974 Richard D. Burkhart, Professor of Chemistry
1973 F. Donald Tibbitts, Professor of Biology

Outstanding Researcher Award

1987 Paul W. McReynolds, Professor of Psychology
1986 Bruce E. Blackadar, Professor of Mathematics
1985 Bruce M. Douglas, Professor of Civil Engineering
1984 Gary J. Blomquist, Associate Professor of Biochemistry
1983 William H. Jacobsen, Jr., Professor of English
1982 No award was given
1981 Alan S. Ryall, Professor of Geology and Geography
1980 Lawrence T. Scott, Associate Professor of Chemistry
1979 Baldev K. Vig, Professor of Biology
1978 David A. Lightner, Professor of Chemistry
1977 Thomas F. Cargill, Associate Professor of Economics
1976 Beatrice Gardner, Professor of Psychology
R.A. Gardner, Professor of Psychology
1975 Hyung K. Shin, Professor of Chemistry

UNR Foundation Professorships

1987 David A. Lightner, Professor of Chemistry and Biochemistry
W. Shane Templeton, Professor of Curriculum and Instruction
David P. Westfall, Professor of Pharmacology
1986 Thomas F. Cargill, Professor of Economics
Thomas J. Nickles, Professor of Philosophy
Baldev K. Vig, Professor of Biology
1985 Gary J. Blomquist, Professor of Biochemistry
Beatrice T. Gardner, Professor of Psychology
Lawrence T. Scott, Professor of Chemistry
1984 Hyung K. Shin, Professor of Chemistry
Thomas R. Kozel, Professor of Microbiology
Bruce M. Douglas, Professor of Civil Engineering

Classified Employee of the Year

1987 Cheryl Hinman, Management Assistant II, Biochemistry
1986 Mena Porta, Coordinator, Advisement Center, Student Services

University Faculty

The date following each description designates the time of original appointment to the faculty of the university. (Dates of resignations and reappointments are not indicated.) A second date indicates the beginning of service in present rank when this differs from the date of original appointment.

Chancellor, University of Nevada System

Mark H. Dawson, M.H.E.A.
B.A., University of Utah, Salt Lake City, 1963; M.H.E.A., Weber College, 1961. (1965-1987)

President, Reno Campus

Joseph N. Crowley, Ph.D.
B.A., University of Iowa, 1959; M.A., Fresno State College, 1963; Ph.D., University of Washington, 1967. (1966-1979)

Active

Deborah Achtenberg, Ph.D.,Assistant Professor of Philosophy.
B.A., St. John's College, 1973; M.A., New School for Social Research, 1977; Ph.D., 1982. (1982)

Gary E. Adams, Ph.D., Clinical Associate Professor of Internal Medicine.
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Sharon M. Adams, J.D., Associate Professor of Journalism.
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B.S., Talim-Ul-Islam, 1968; M.S., 1973; Ph.D., Virginia Polytechnic Institute and State University, 1984. (1984)

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William Bentley, M.D., Clinical Assistant Professor of Internal Medicine.
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Clifton R. Blincoe, Ph.D., Professor of Biochemistry, Emeritus.
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Dale W. Bohmont,* Ph.D., Dean and Director of Agriculture, Emeritus.
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*Graduate faculty

Campus Buildings and Names

Anderson Medical Sciences
Fred M. Anderson, M.D., (1906-), Reno physician and surgeon, member of the board of regents, 1956-1978. Anderson was instrumental in helping establish the School of Medicine.

Edna S. Brigham Clinical Education Building/Family Medicine Center
Edna S. Brigham, director of the University of Nevada System Endowment and formerly development officer at the School of Medicine from 1976 to 1983. The building was dedicated in 1986.

Church Fine Arts Complex
James Edward Church (1869-1959), professor of Latin, German, classical art, and history, 1892-1959. Developed the fitst snow surveying techniques, which led to the science of evaluating regional water storage. Also developed system of analyzing avalanche hazards. Brought worldwide scientific honor to the Universiry of Nevada. The building was remodeled and expanded in 1986.

Clark Administration
Alice McManus Clark, native Nevadan, wife of William A. Clark, Jr., son of a Montana senator who built railroads in southern Nevada. Mrs. Clark gave several scholarships to the university. After her death, her husband donated the Clark Library in her name (1926). This building was the cultural and research center of the university for more than three decades until the library moved to its present location in 1962.

Fleischmann Agriculture (Fleischmann College of Agriculture)
Fleischmann Greenhouse
Fleischmann Life Science
(*See also:* Fleischmann Planetarium and Fleischmann Home Economics)
Max C. Fleischmann (1877-1951), Nevada philanthropist, food industry millionaire (Standard Brands), benefactor of the university with gifts of land, scholarships and endowments. From the Max C. Fleischmann Foundation established by Fleischmann for the purpose of distributing his wealth, came the funds to construct the College of Agriculture and School of Home Economics, and, later, the life science wing of the agriculture building. The Fleischmann Foundation contributed further millions to the university in gifts, scholarships, and assistance in establishing the Computing Center, Laboratory in Environmental Patho-Physiology, Fleischmann Planetarium, Desert Research Institute, the Water Resources Building, and the Judicial College Building.

Fleischmann Planetarium (Charles and Henriette Fleischmann Planetarium) Named for the parents of Max C. Fleischmann.

Fleischmann Home Economics (Sarah Hamilton Fleischmann School of Home Economics) Named for Mrs. Max C. Fleischmann.

Frandsen Humanities (Formerly Agriculture Building)
Named for *Peter Frandsen*, (1876-1967), founder of the biology department; professor of biology, zoology, embryology, anatomy, bacteriology, 1900-1942.

Getchell Library
Noble H. Getchell (1875-1960), Nevada mining man, state senator.

Hartman Hall
Leon W. Hartman (1876-1943), professor of physics, 1908-1938; president of the University of Nevada, 1938-1943.

Howard Medical Sciences
Claude I. Howard, Las Vegas businessman and major benefactor of the School of Medicine; credited with enabling the medical program to develop into an accredited four-year medical school. Named a Distinguished Nevadan in 1979; awarded an Honorary Degree in 1982. The building was dedicated in 1982.

Jones Visitor Center
Clarence K. and Martha H. Jones provided an endowment that preserved the Old Journalism Building, constructed in 1914 as the UNR Library and dedicated in 1983 as the Visitor Center. Jones is an investment counselor and former Reno Newspapers executive. He was named a Distinguished Nevadan in 1977. Martha, the former Martha Washington Hansen, received the President's Medal in 1985.

Jot Travis Student Union
Ezra "Jot" Travis, early Western stagecoach company manager. His son, Wesley E. Travis, born in Hamilton, Nevada, bequeathed funds (1952) to the university for a student facility to be named for his father.

Knudtsen Resources Center
Molly Flagg Knudtsen, ranch owner near Austin, Nevada; member of the board of regents for 18 years (1960-1972 and 1974-1980). Born in New York, Mrs. Knudtsen came to Nevada in 1942, wrote about central Nevada ranches in her book "Here is Our Valley," and has also been published in sevetal journals under the name of Molly Magee.

Lawlor Events Center
Glenn "Jake" Lawlor (1907-1980), one of UNR's best-known athletes and coaches. He played and coached football, basketball, tennis, golf, baseball, and track. Lawlor was also the university's athletic director (1959-1970).

Laxalt Mineral Engineering Center
Paul D. Laxalt (1922-), governor of the state of Nevada, 1967-1971; United States senator, 1974-1987.

Leifson Physics
Sigmund W. Leifson (1897-), professor of physics, 1925-1963; chairman of the physics department, 1938-1963. Nationally recognized nuclear physicist; pioneer in the theory of atomic energy.

Lincoln Hall
Abraham Lincoln (1809-1865), sixteenth president of the U.S.

Lombardi Recreation
Louis E. Lombardi, M.D. (1907-), Reno physician and surgeon; member of the board of regents, 1951-1980.

Mack Social Science
Effie Mona Mack (1888-1969), Nevada historian and educator; university benefactor.

Mackay Mines
Mackay Stadium
Mackay Stadium Field House
John W. Mackay (1831-1902), one of the "Big Four" successful mining men of the bonanza days on the Comstock, Virginia City, Nevada. Buildings, land, and endowments were presented to the university in his honor by his widow, Marie Louise, and son, Clarence H. Mackay.

Mackay Science (Mackay Science Hall)
Clarence H. Mackay (1874-1938), New York financier, son of John W. Mackay (see above). Mackay Science Hall, dedicated in 1930, was one of numerous gifts made to the university by Clarence H. Mackay. "Mackay Day," celebrated each spring, is named in his honor.

Manville Medical Sciences
H. Edward Manville, Jr. (1906-1984), industrialist, philanthropist, civic leader, former chairman of the School of Medicine Advisory Board. His estate provided the school with $1 million to establish the H. Edward Manville endowed professorship in internal medicine.

Morrill Hall
Named for the Morrill Land Grant Act of 1862 after *Justin S. Morrill* (1810-1898), U.S. senator from Vermont. The act established the system of land-grant colleges, including, in 1864, the University of Nevada. Completed in 1886, Morrill Hall was the first building erected on the Reno campus of the university. Until 1889 it *was* the University of Nevada.

Nye Hall
Named for Nye County, Nevada, after *James W. Nye* (1814-1876), Nevada territorial governor, 1861-1864; U.S. senator from Nevada, 1864-1873.

Orvis School of Nursing
Arthur E. Orvis (1888-1965), Nevada adoptive resident, who, with his wife, Mrs. Mae Zenke Orvis, contributed sizable cash sums to the university, making possible the construction (1965-1966) of the School of Nursing.

Palmer Engineering
Stanley G. Palmer (1887-1975), professor of electrical engineering, 1915-1941; dean, College of Engineering, 1941-1957.

Ross Hall
Silas E. Ross (1887-1975), professor of chemistry, 1909-1914; Reno mortician; member of the board of regents, 1932-1956.

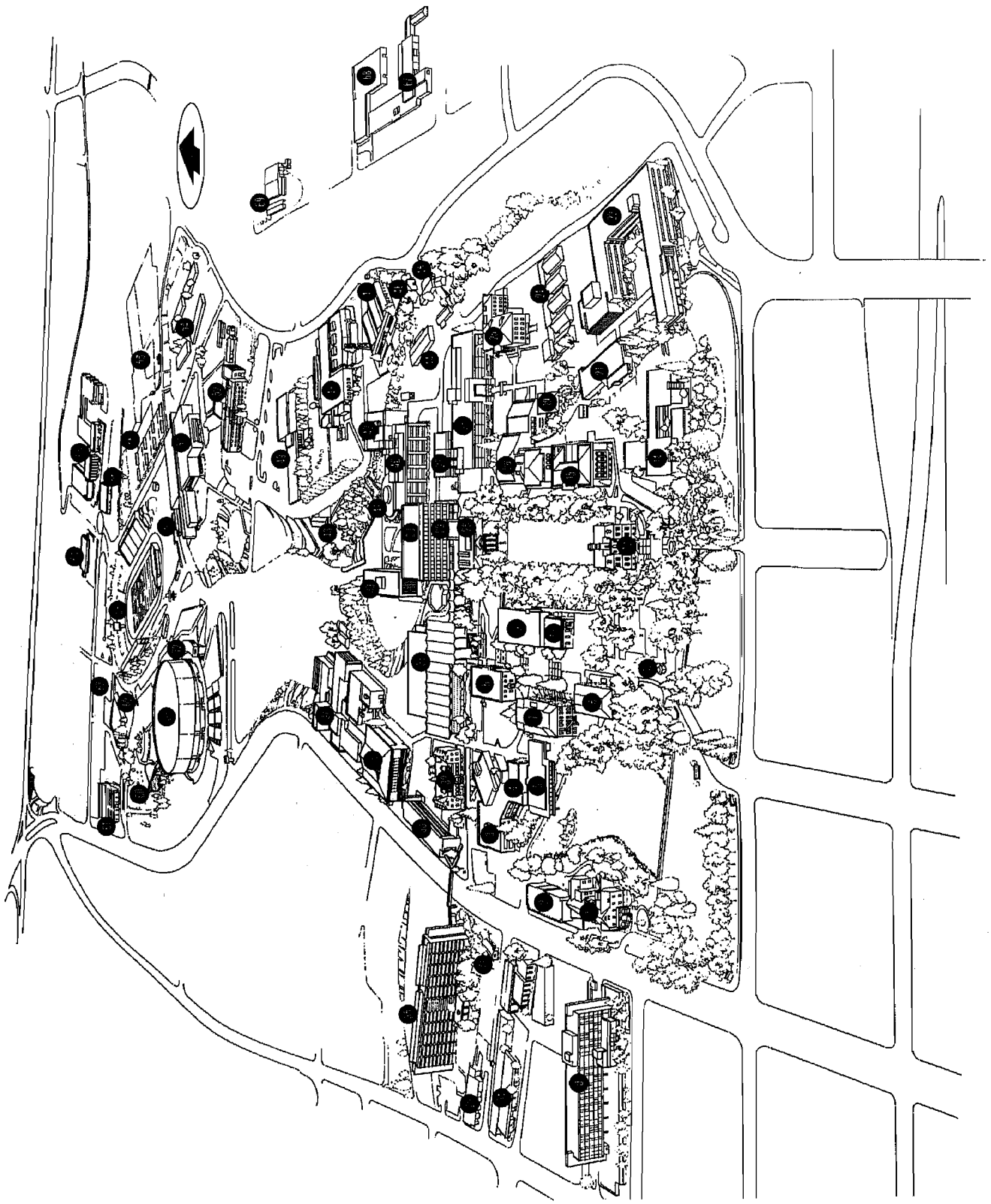
Savitt Medical Sciences
Sol (1898-1981) *and Ella Savitt*, former owners of Sierra News Co. in Reno; longtime university supporters with contributions to the School of Medicine, the medical library, UNR athletics, the journalism department, and various scholarship funds. They were named Distinguished Nevadans in 1977. The building was dedicated in 1977.

Scrugham Engineering-Mines
James G. Scrugham (1880-1945), professor of mechanical engineering, 1903-1914; first dean, College of Engineering, 1914-1916; state engineer; governor of Nevada, 1923-1925; U.S. representative in Congress, 1933-1942; U.S. senator, 1942-1945; newspaper editor; historian.

Thompson Student Services Center (formerly Education Building)
Reuben C. Thompson (1878-1951), professor of ancient languages, literature, and philosophy, 1908-1939; founded department of philosophy; dean of men, 1932-1939.

University of Nevada-Reno

Main Campus



Alphabetical Legend

AIM	67	Agricultural & Industrial Mechanics
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	55	Football Practice Field
B	3	Bookstore
BB	30	Business Building
	45	Central Stores
BG	47	Buildings & Grounds Office & Shops
	44	Buildings & Grounds Repair Garage & Shops
CHP	27	Central Heating Plant
CB	40	Chemistry Building
CFA	37	Church Fine Arts
CA	8	Clark Administration
CC	62	Computing Center
CI	0	College Inn
DC	5	Dining Commons
EB	48	Education Building
ERF	63	Environmental Research Facility
EC	69	Equestrian Center
FA	22	Fleischmann Agriculture
FG	24	Fleischmann Greenhouses
FHE	14	Fleischmann Home Economics
FP	60	Fleischmann Planetarium
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	64	Health Lab, State of Nevada
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JTU	4	Jot Travis Student Union
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MM	28	Mackay Mines
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MS	15	Mackay Science
S	58	Mackay Stadium
	57	Mackay Stadium Field House
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MH	12	Morrill Hall
	61	Nevada Historical Society
NH	35	Nye Hall
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Numerical Legend

0. College Inn
1. Manzanita Hall
2. Juniper Hall
2. Health Service
3. Bookstore
4. Jot Travis Student Union
5. Dining Commons
6. Thompson Student Services Center
7. Frandsen Humanities
8. Clark Administration
9. Ross Hall
10. Jones Visitor Center
12. Morrill Hall
14. Fleischmann Home Economics
15. Mackay Science
19. Veterinary Science
20. Paul Laxalt Mineral Engineering Center
21. Orvis School of Nursing
22. Fleischmann Agriculture
24. Fleischmann Greenhouse
25. Palmer Engineering
26. Scrugham Engineering-Mines
27. Central Heating Plant
28. Mackay Mines
29. Physical Plant
30. Business Building
31. Getchell Library
32. Lincoln Hall
33. White Pine Hall
34. Artemesia Building
35. Nye Hall
36. Gymnasium
37. Church Fine Arts
39. Mack Social Science
40. Chemistry Building
41. Lecture Building
42. Leifson Physics
43. Hartman Hall
44. Buildings & Grounds Repair Garage & Shops
45. Central Stores
46. Public Safety
47. Buildings & Grounds Office & Shops
48. Education Building
49. Judicial College
51. Lawlor Events Center
52. U.S. Bureau of Mines
53. Lombardi Recreation
54. University Village
55. Football Practice Field
56. Tennis Courts
57. Mackay Stadium Field House
58. Mackay Stadium
60. Fleischmann Planetarium
61. Nevada Historical Society
62. Computing Center
63. Environmental Research Facility
64. Health Lab., State of Nevada
65. School of Medicine
    - Anderson Health
    - Howard Medical Sciences
    - Manville Health
    - Savitt Medical Sciences
66. Family Medicine Center (Brigham Building)
67. Agricultural & Industrial Mechanics
68. Knudtsen Resource Center
69. Equestrian Center
70. Post Office
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72. Lawlor Annex
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Index

For general information concerning degrees, requirements, and programs within specific colleges and schools, please refer to the Table of Contents. Students are advised to read carefully the rules and regulations which may affect them, as listed in various sections of this catalog. All courses offered at the University of Nevada-Reno are contained in the Course Offerings section.

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