

Library Department

University of Nevada Reno

General Catalog
1979-80





Agriculture
Arts and Science

Business

Education

Engineering

Home Economics

Medical Science

Mining

Nursing

Graduate

**Catalog
1979-80**

Volume I

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GENERAL INFORMATION

Where to write:

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

Where to call: (Area code 702)

Directory Information	784-1110
ASUN President's Office	784-6589
Admissions and Records	784-6866
Athletics/Sports	784-4878
Colleges (Deans' offices)	
Agriculture	784-6611
Arts and Science	784-6155
Business Administration	784-4912
Education	784-6905
Engineering	784-6925
Home Economics	784-6001
Medical Sciences	784-6001
Mines	784-6987
Nursing	784-6841
Counseling and Testing	784-6810
Dean of Students	784-6196
Employment	784-4666
Extended Programs and Continuing Education	784-4062
Fees and Expenses	784-6662
Financial Aid	784-4666
Graduate School	784-6869
Health Service	784-6598
Housing	784-6107
News Bureau	784-4942
Scholarships/Awards	784-6827
School Relations	784-4865
Sierra Nevada Job Corps Center	972-5627
Special Programs	784-6044
Summer Session	784-4062
University Events	784-4893

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 change programs, courses, requirements, and fees during a student's period of study, to limit enrollments in any course, and to require a student to withdraw from the institution for cause at any time.

The University of Nevada, Reno is an Equal Opportunity Employer and does not discriminate on the basis of sex, race, color, religion, handicap, or national origin in the educational programs or activities which it operates. The Affirmative Action Officer is responsible for coordinating all compliance efforts and for investigating complaints.

The University is authorized under Federal law to enroll nonimmigrant alien students.

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MANAGER, ASSOCIATED STUDENTS, Gary D. Brown
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UNIVERSITY CALENDAR

1979 Fall Semester

Final date for filing:	
Application for admission	
Application for readmission following suspension	
Returning student application for registration materials	Monday, July 16
Distribution of unmailed registration packets begins	Monday, August 13
Semester begins. Residence halls open	Sunday, August 19
Orientation and testing new students	Sunday-Monday, August 19-20
Advisement for new and returning students	Tuesday-Wednesday, August 21-22
Registration (upper-division)	Thursday, August 23
Registration (lower-division)	Friday, August 24
Instruction begins	Monday, August 27
Labor Day recess	Monday, September 3
Final date for late registration and addition of courses	Wednesday, September 5
Applications for graduation filed with Registrar	Monday, September 10
Midsemester class lists filed with Registrar	Thursday, October 18
Homecoming	Saturday, October 20
Final date for dropping courses without grades	Monday, October 22
Nevada Day recess	Wednesday, October 31
Final date for filing late application for graduation	Thursday, November 1
Thanksgiving vacation	Thursday-Sunday, November 22-25
Final date for filing graduate examining committee reports	Thursday, November 29
Final date for dropping a course or withdrawing from the University	Thursday, December 6
Final date for filing approved thesis or dissertation for binding	Thursday, December 6
Final week begins	Thursday, December 13
Instruction ends	Wednesday, December 19
Final grades filed with Registrar by 9 A.M. Semester ends	Friday, December 21

1980 Spring Semester

Final date for filing:	
Application for admission	
Application for readmission following suspension	
Returning student application for registration materials	Wednesday, January 2
Distribution of unmailed registration packets begins	Monday, January 7
Semester begins. Residence halls open	Sunday, January 13
Orientation and testing new students	Monday, January 14
Advisement	Tuesday-Wednesday, January 15-16
Registration (upper-division)	Thursday, January 17
Registration (lower-division)	Friday, January 18
Instruction begins	Monday, January 21
Final date for late registration and addition of courses	Tuesday, January 29
Applications for graduation filed with Registrar	Friday, February 1
Washington's Birthday recess	Monday, February 18
Final date for filing late application for graduation	Monday, March 3
Midsemester class lists filed with Registrar	Thursday, March 13
Final date for dropping courses without grades	Monday, March 17
Easter vacation	Saturday-Monday, March 29-April 7
Final date for filing graduate examining committee reports	Friday, April 25
Mackay Week	Monday-Saturday, April 28-May 3
Honors Convocation	Thursday, May 1
Final date for dropping a course or withdrawing from the University	Friday, May 2
Final date for filing approved thesis or dissertation for binding	Friday, May 2
Final week begins	Saturday, May 10
Instruction ends	Friday, May 16
Commencement	Saturday, May 17
Final grades filed with Registrar by 9 A.M. Semester ends	Tuesday, May 20

NOTE: Vacation dates are inclusive.

1980 Summer Session

Final date for filing graduate admission credentials for first term	Friday, April 25
Registration for minisession in Office of Admissions and Records 8 A.M. - 5 P.M.	Monday-Friday, May 12-16
Instruction begins	Monday, May 19
Registration for minisession closes. Last day to add classes or change from audit to credit 5:00 P.M.	Tuesday, May 20
Last day to drop minisession classes and receive a refund	Wednesday, May 21
Last day to drop minisession classes or withdraw from the University without a grade being recorded	Friday, May 23
Memorial Day recess	Monday, May 26
Minisession instruction ends. Registration for first term in gymnasium	Friday, June 6
Instruction begins	
Application for August graduation to be filed within first ten days; late fee applies through July 1.	Monday, June 9
Final grades for minisession filed with Registrar by 5:00 P.M.	Monday, June 9
Late registration for first term closes. Last day to add classes or change from audit or credit 5:00 P.M.	Wednesday, June 11
Last day to drop first term classes and receive a refund	Friday, June 13
Last day to drop first term classes, change from credit to audit, or withdraw from the University without a grade being recorded	Wednesday, June 25
Final date for filing application for August graduation	Tuesday, July 1
Independence Day recess	Wednesday, July 4
First term instruction ends. Registration for second term in gymnasium	Friday, July 11
Instruction begins	Monday, July 14
Final grades for first term filed with Registrar by 5:00 P.M.	Monday, July 14
Late registration for second term closes. Last day to add classes or change from audit to credit 5:00 P.M.	Wednesday, July 16
Last day to drop second term classes and receive a refund	Friday, July 18
Last day to drop second term classes, change from credit to audit, or withdraw from the University without a grade being recorded	Wednesday, July 30
Classes in session	Saturday, August 9
Second term instruction ends	Thursday, August 14
Final grades for second term filed with Registrar by 5:00 P.M.; Summer Session ends	Friday, August 15



UNIVERSITY TERMINOLOGY

1979

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3					1	2	3
7	8	9	10	11	12	13	4	5	6	7	8	9	10	4	5	6	7	8	9	10
14	15	16	17	18	19	20	11	12	13	14	15	16	17	11	12	13	14	15	16	17
21	22	23	24	25	26	27	18	19	20	21	22	23	24	18	19	20	21	22	23	24
28	29	30	31				25	26	27	28				25	26	27	28	29	30	31

APRIL							MAY							JUNE								
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
	1	2	3	4	5	6	7				1	2	3	4	5						1	2
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9		
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16		
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23		
29	30						27	28	29	30	31			24	25	26	27	28	29	30		

JULY							AUGUST							SEPTEMBER							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
	1	2	3	4	5	6	7				1	2	3	4							1
8	9	10	11	12	13	14	5	6	7	8	9	10	11	2	3	4	5	6	7	8	
15	16	17	18	19	20	21	12	13	14	15	16	17	18	9	10	11	12	13	14	15	
22	23	24	25	26	27	28	19	20	21	22	23	24	25	16	17	18	19	20	21	22	
29	30	31					26	27	28	29	30	31		23	24	25	26	27	28	29	

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	1	2	3	4	5	6					1	2	3							1
7	8	9	10	11	12	13	4	5	6	7	8	9	10	2	3	4	5	6	7	8
14	15	16	17	18	19	20	11	12	13	14	15	16	17	9	10	11	12	13	14	15
21	22	23	24	25	26	27	18	19	20	21	22	23	24	16	17	18	19	20	21	22
28	29	30	31				25	26	27	28	29	30		23	24	25	26	27	28	29

1980

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
	6	7	8	9	10	11	12					1	2							1
13	14	15	16	17	18	19	3	4	5	6	7	8	9	2	3	4	5	6	7	8
20	21	22	23	24	25	26	10	11	12	13	14	15	16	9	10	11	12	13	14	15
27	28	29	30	31			17	18	19	20	21	22	23	16	17	18	19	20	21	22

APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5					1	2	3							1
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
27	28	29	30				25	26	27	28	29	30	31	29	30					

JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5					1	2							1	
6	7	8	9	10	11	12	3	4	5	6	7	8	9	7	8	9	10	11	12	13
13	14	15	16	17	18	19	10	11	12	13	14	15	16	14	15	16	17	18	19	20
20	21	22	23	24	25	26	17	18	19	20	21	22	23	21	22	23	24	25	26	27
27	28	29	30	31			24	25	26	27	28	29	30	28	29	30				

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4						1							1	
5	6	7	8	9	10	11	2	3	4	5	6	7	8	7	8	9	10	11	12	13
12	13	14	15	16	17	18	9	10	11	12	13	14	15	14	15	16	17	18	19	20
19	20	21	22	23	24	25	16	17	18	19	20	21	22	21	22	23	24	25	26	27
26	27	28	29	30	31		23	24	25	26	27	28	29	28	29	30	31			

The meaning of terms frequently used at the University of Nevada, Reno.

ASUN—Associated Students of the University of Nevada.

Admission—University acceptance as a regular student to a degree program based upon formal application and transcripts.

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. A course audited can never be used for credit.

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 entire body of courses required for a degree.

Department—A division of a college which offers instruction in a particular field of knowledge, such as the Department of Music.

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. Tuition is an additional charge for regular instruction and is required only of nonresident students.

Freshman on Probation—A regular, undergraduate, Nevada resident who does not satisfy the freshman admission requirements.

GPA—Grade point average

GSA—Graduate Students Association

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, graduate student who is not seeking a degree.

Graduate Standing—Regular, graduate, degree-seeking student status.

Graduate Study—Work beyond the bachelor's degree, usually toward a master's or doctor's degree.

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.

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 status of trial for a student whose work or conduct is unsatisfactory. A student on probation may be suspended if his academic performance does not improve.

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.

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.

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.

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 is a division of the University of Nevada System, which includes also the University of Nevada, Las Vegas; the Community College Division; and the Desert Research Institute.

The University of Nevada, Reno (UNR) 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 Community College Division consists of Clark County Community College in North Las Vegas; Northern Nevada Community College in Elko; and Western Nevada Community College, with campuses in both Reno/Sparks and 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 is a land-grant institution which 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 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 140,000, 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 Today

In its long history as a functioning institution of higher education, the University has grown into full-fledged status among the nation's universities, noted in particular for the academic quality of its faculty and the progressive nature of its research programs.

The University offers baccalaureate study in

these colleges and schools: Agriculture, Arts and Science, Business Administration, Education, Engineering, Home Economics, Medical Sciences, Mines, and Nursing. Graduate degrees are offered by each college and school. Additional instructional units include Extended Programs and 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.

Accreditation

The University is fully accredited by the Northwest Association of Secondary and Higher Schools, official accrediting group for most western states. This formal stamp of academic excellence was first earned by the University in 1938 and has been regularly renewed.

In addition to the Northwest Association accreditation, there are numerous University programs which are also accredited by their national professional accrediting associations. These include the American Association of Collegiate Schools of Business, the American Chemical Society, the American Council on Education for Journalism, the American Psychological Association, 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 Engineering Council for Professional Development 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 associate, baccalaureate, 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 and resource economics; agriculture; animal science; biochemistry*; industrial mechanics; pest control*; plant, soil, and water science; renewable

natural resources; and veterinary science.

Associate degree programs include agricultural mechanics, farm and ranch management, and parks and turf management.

Arts and Science: Anthropology, art, atmospheric physics,* biochemistry,* biology, botany, chemistry, criminal justice, English, French, geography, German, history, journalism, mathematics, music, philosophy, physical education, physics, political science, prelegal, psychology, public administration and policy,* recreation, social psychology, social services and corrections, sociology, Spanish, speech and theatre, speech communication,* teaching of English,* theatre,* and zoology.

Business Administration: Accounting, business administration,* economics, managerial sciences, office administration. (Law school preparation may be obtained in all four-year majors.)

Education: Art, biological sciences, business education, chemistry, counseling and guidance personnel services,* earth sciences, educational administration and higher education,* educational foundations and media,* elementary education, English, French, German, health education, history, industrial education, journalism, kindergarten-primary, mathematics, music, physical education, physical sciences, physics, political science, social studies, Spanish, special education, and speech and theatre.

In addition, educational specialist certificate programs are offered in counseling and guidance personnel services, educational administration and higher education, educational foundations and media, elementary education, reading, secondary education, and special education.

Engineering: Civil engineering, electrical engineering, engineering science, and mechanical engineering.

Associate degree programs include electronics engineering technology and the architectural design option of engineering design technology.

Home Economics: Child development and family life, fashion merchandising, food and nutrition, home economics,* home economics in business, home economics education and community service, and shelter and environment.

Associate degree programs include fashion trades and prekindergarten education.

*Graduate majors only.

Medical Sciences: Health education, medical sciences, medical technology, premedical, prepharmacy, prephysical therapy, speech pathology, and speech pathology and audiology.*

Mines: Chemical engineering, earth science, geochemistry,* geology, geological engineering, geophysics, hydrology and hydrogeology,* metallurgical engineering, and mining engineering.

Nursing: Nursing.

Graduate: The master's degree is offered in most areas of study. Doctoral programs are offered in biochemistry, biology, chemistry, counseling and guidance personnel services, curriculum and instruction, educational administration and higher education, educational foundations and media, engineering, English, geochemistry, geology and related earth sciences, geophysics, history, hydrology and hydrogeology, physics, political science, psychology, social psychology, and sociology.

Interdisciplinary and Special Programs

There are several interdisciplinary and special programs offered, including Computer Science Environmental Studies, Ethnic Studies, Graduate Programs in Hydrology and Hydrogeology, Health Careers for American Indians, Historic Preservation, History and Social Theory, Honors Study, National Student Exchange Program within the United States, Philosophy of Inquiry, Religious Studies, Study Abroad through the Institute of European Studies, Teacher Certification, and Western Interstate Commission for Higher Education (WICHE).

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 commission in the United States Army while completing baccalaureate degree requirements.

*Graduate majors only

Program information is contained in the Military Science Department section in this catalog. Additional information is available from the Professor, Military Science, University of Nevada, Reno NV 89557, telephone (702) 784-6768.

The United States Air Force, Marines, and Navy also provide programs leading to a commission that may be completed concurrently with the degree objective. Specific information is available upon request from the UNR Continuing Education Specialist, College Inn, EPCE, Reno, NV 89557, telephone (702) 784-4633.

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 on the varsity and junior varsity levels 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 in nine intercollegiate sports: football, basketball, baseball, track and field, cross-country, tennis, golf, boxing, and skiing. Nevada is a member of the highly competitive Big Sky Conference in all sports except baseball where the University competes in the Northern California Baseball Conference.

The women's program competes under the principles and philosophies of the Association of Intercollegiate Athletics for Women (AIAW). Sports offered include gymnastics, volleyball, basketball, softball, swimming and diving, tennis, and golf.

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, Gymnasium building, (702) 784-4878.



FACILITIES FOR STUDY AND RESEARCH

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 in the nearby Sierra Nevada, a gift from Captain George Whittell. 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.

PUBLIC SERVICE AND RESEARCH DIVISIONS

University of Nevada System Services

Computing Center

The Computing Center serves the University of Nevada System and all of its divisions.

The Center operates a computer network offering interactive and batch processing. Physical facilities of the network consist of a CDC 6400 located in Reno linked to a CYBER-73 located in Las Vegas, remote job entry terminals located in Getchell Library on the Reno campus and the North Cheyenne campus of the Clark County Community College.

Also available for student use are numerous interactive terminals in various campus locations. The Center is responsible for providing equipment and consultant services which support the growth of educational, research, administrative, and public service computer uses.

University of Nevada Press

The University of Nevada Press was estab-

lished by the Board of Regents in 1961 as a public service division of the University of Nevada System. Its main purposes are to make a contribution to the history and literature of the State of Nevada and to the West, to stimulate scholarly research and writing by faculty members of the University of Nevada System and by other scholars and laymen, and to enhance the academic reputation of the University of Nevada on the national scene.

Press policy and decision as to publication of manuscripts are coordinated between the administration of the Press and the Editorial Advisory Board, drawn from the Reno and Las Vegas campuses, Desert Research Institute, and the Community College Division.

University of Nevada, Reno, Special Services

Extended Programs and Continuing Education

Through Extended Programs and Continuing Education postsecondary educational opportunities are extended to the people of the State of Nevada who wish to continue their educations.

Any individual who can present evidence of high school graduation may register as a non-degree student in Extended Programs and Continuing Education for a maximum of 6 semester credits (or equivalent) of undergraduate classroom instruction in one semester or 6 semester credits per five-week term in Summer Session without being officially admitted to the University.

In addition, a nongraduate over 18 years of age who has been out of high school for one full year or more may register as a nondegree student, providing the individual's high school class has graduated.

Extended Programs and Continuing Education is made up of the following departments: Community Development, Conferences and Institutes, Independent Study, Off-Campus Programs, and Summer Session. In addition, Personnel Development and State Fire Service Training are educational programs administered by Extended Programs and Continuing Education.

Community Development

Community Development, financially possible through funds available under Title I of the Higher Education Act of 1965, is an educational program of service designed to assist in the solution of community problems by using the unique competencies of the University and its faculty members. One of its chief aims is to strengthen the capacity and commitment of the University of Nevada System to respond to the problems and needs of the communities in cooperation with other organizations.

Conferences and Institutes

Conferences and Institutes works closely with the University community in providing conferences, institutes, and workshops of a nondegree credit nature that expand the educational programs offered to the citizens of Nevada.

These activities are held in a variety of locations, including the University's College Inn Adult Continuing Education Center, other campus facilities, local or area hotels, and other conference sites.

This department is also responsible for the coordination of requests from outside groups who wish to use University facilities or to hold programs on the Reno campus.

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 with the exception of the noncredit courses. 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. Non-degree students may enroll in correspondence courses in addition to the 6 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 and/or in extension or off-campus courses may be applied toward a baccalaureate degree. The maximum for an associate degree is 30 semester credits.

A catalog listing the course descriptions, in addition to information regarding the procedures and fees, may be obtained upon request from Independent Study, Extended Programs and Continuing Education.

Off-Campus Programs

Educational opportunities are offered at locations throughout northern Nevada to individuals wishing to continue their educations 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.

Maximum credit limitations for degree programs are stated in the section on independent study.

Personnel Development Program

This program is administered in cooperation with the Vocational-Education and Adult Branch of the State Department of Education. Most programs are short, noncredit offerings designed for training public employees. Employers normally participate in fees. Representative offerings of programs include supervision, administration, and clerical skills.

State Fire Service Training Program

Extended Programs and Continuing Education sponsors the statewide fire service training program in cooperation with the State Department of Education. The program is aimed at providing all phases of needed training in the various fire departments throughout the State. The program provides refresher courses and training concerning current innovations in the operation of fire service in order to give the fire departments in the smaller communities access to educational aids and materials that are not readily available to them now.

The State Fire Service Training Program also coordinates conferences and seminars on fire department management, leadership and supervision, arson investigation, fire prevention, staff and command schools, and related subjects required by professional fire departments throughout the State.

In association with the Western Oil and Gas Association, a Flammable Liquids and Gases Fire Control School is available to fire service and petroleum industry people. The training, presented several times a year, provides 16 hours of instruction—8 hours of classroom instruction and 8 hours of field work on practical fire problems.

Details and dates of classes may be obtained by contacting the State Fire Service Training Program.

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 minisession period for both on-campus and field study, following the end of the spring semester, is offered.

With the new calendar, 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 academicians. Further intellectual stimulation is provided by scientists, jurists, educators, and other professionals who come to participate in specialized workshops and conferences.

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 do graduate study.

For further information write to the Assistant Director for Summer Session.

Fleischmann Atmospherium/ Planetarium

The Fleischmann Atmospherium/Planetarium, familiarly called 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 new Viewlex Series II planetarium instrument, a sophisticated array of special effects equipment, and the world's first atmospherium. The latter is an all-sky motion-picture system that brings numerous daytime environments into the theater, just as the planetarium recreates events and objects in the nighttime sky.

Programs are presented both for school groups and for the general public throughout the year. In addition, a museum containing exhibits and displays on astronomy, meteorology, and related sciences is open daily.

Sierra Nevada Job Corps Center

Job Corps is a comprehensive and nonresidential program designed to serve the individual needs of each enrollee. The University, through its University Services, operates the Center. The program provides a comprehensive residential program to prepare youth, 16 through 21 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) 972-5627 or write to Sierra Nevada Job Corps Center, P.O. Box 60181, Reno NV 89506.

College Service and Research Divisions

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 staff have joint responsibility with resident instruction 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 the resources from the nation's forest and rangelands. Station personnel conduct scientific investigations of wildland management and arid land agriculture to insure a quality environment and a productive agriculture for the future through wise use of our natural resources. These include programs arising from soil conditions, animal disease, internal parasites of animals, production and marketing of agricultural products, insect pests, plant diseases, forest management, land use classification, water quality, range and wildlife habitat management, and the development of improved varieties and strains of plants and animals.

Additional research programs are designed to protect consumer health and improve the nutrition and well-being of Nevada residents; promote community improvement through development of recreation, environment, economic opportunity, and public services; and assist rural families to improve their level of living.

Cooperative Extension Service

The University extends many of its educational services throughout the State through the Cooperative Extension Service. This service includes giving informal instruction and practical demonstrations to Nevada residents in agriculture, home economics, youth, community resource development, and other related subjects.

The number of people requesting and participating in the programs is expanding and includes both rural and urban families.

A central Extension staff, headquartered on the campus, and a field staff with headquarters in 14 counties constitute the organizational structure of the service. The staff, working with local citizens and groups, plan and carry out informal educational programs to meet the local situations and needs.

The offices of the agents 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 United States Department of Agriculture, the State, and the counties, and are consistent with the provisions of Federal and State laws relating to Extension work.

College of Arts and Science

Bureau of Governmental Research

The Bureau is in the College of Arts and Science, as an adjunct to the Political Science Department. It functions as a public policy research and service center for the University as a whole, under an advisory board drawn from related segments of the University.

The Bureau serves four primary functions: (1) as a center for stimulation of applied research on public policy by faculty and graduate students, with a catalytic role ranging from advice on project design to supervision of research projects; (2) as a publication outlet for occasional research monographs and shorter studies devoted to Nevada state and local policy issues, plus the regular series, *Nevada Public Affairs Review*; (3) as a study center, through maintenance of a small, specialized library of western regional, state, and local publications, plus selected national publications, which is available to students, faculty, and the general public; and (4) as a liaison between the University and state and local governments as well as public interest groups.

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.

College of Engineering

Research and Development Center

The Engineering Research and Development Center conducts research in all areas of engineering which have potential benefit to the State and to the nation. The ERDC administers sponsored grants and contracts in the College of Engineering.

Mackay 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 act places the supervision of the Bureau with the Board of Regents of the University of Nevada.

The principal purposes of the Bureau are to assist the mineral industry in the development and utilization of Nevada's mineral resources, and to provide geological and related data to individuals, industry, and public agencies planning the safe and orderly development of Nevada's land resources. Field studies are made of mineral deposits and geologic formations throughout the state to assist 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 developmental planning. Reports pertaining to these activities are published or made available to the public by other means. The Bureau also conducts cooperative programs with the U.S. Bureau of Mines and the U.S. Geological Survey.

Nevada Mining Analytical Laboratory

The Nevada Mining Analytical Laboratory is also a public service division of the Mackay School of Mines. The Laboratory was organized at the University of Nevada in 1895, under the provisions of an act of the Legislature approved that year. Its object is to assist the mineral industry of Nevada by making free identifications and assays of minerals, ores, and rocks taken from within the boundaries of the state by its citizens, and by reporting to the senders the results of such identifications or assays, together with the uses and values of the substance submitted.

Seismological Laboratory

Established as a separate research division 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 seismograph 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.

Affiliate Organizations of the University

Desert Research Institute

The Desert Research Institute (DRI), a division of the University of Nevada System, was established in 1959 by a special act of the Nevada State Legislature to promote specialized research objectives of the System. The Institute was activated in October of 1960 with a grant from the Max C. Fleischmann Foundation of Nevada, the largest single private supporter of the Institute's program over the past 15 years. The Institute is funded largely by gifts, grants, and contracts from private, industrial, and public research supporting agencies.

Organizationally, the president of the Institute is responsible to the chancellor of the University System.

The administrative structure of the Institute is comprised of five research groups including the Atmospheric Sciences Center, the Bioresources Center, the Energy Systems Center, the Social Sciences Center, and the Water Resources Center. Offices and laboratories are located at Reno, Stead, Las Vegas, and Boulder City.

The Institute's primary research emphasis is in problems particularly relevant to Nevada and the United States. However, it is also involved in several international projects.

The Water Resources Center is one of 51 such centers at land-grant institutions in the U.S. and Puerto Rico, funded in part under the Federal Water Resources Research Act of 1964. This center's research includes water quality, hydrogeology, social and economic aspects of water resources, hydrochemistry, and systems analysis.

The Atmospheric Sciences Center focuses its research efforts in harnessing environmental sources of energy and in utilizing and protecting the physical environment. Since its beginning in 1960 it has become one of the world's more competent groups conducting studies in the environment of the atmosphere, precipitation, air pollution, cloud physics, and weather modification.

The Social Sciences Center performs research in the historical and social sciences especially as they relate to Nevada and the West. This includes the application of interdisciplinary methods to resolve environmental and research management problems, the development of capabilities to perform technoeconomic studies for industry, and to make cost-effective analyses of new processes or new systems developed by DRI. This center continues to conduct archeological and anthropological research in Nevada, and ethnic studies regarding Basques and American Indians.

The Bioresources Center's studies concern the critical environment of Nevada and the Southwest and the identification of ecological problems concerning developments in the region. It is working to develop an ecological framework to support regional environmental impact studies and determining the cost-benefit ratios of resource development to environmental damage.

The Energy Systems Center specializes in

research and development relating to new energy technologies such as solar, wind, and energy storage. The Center is currently housed in a unique solar heated and cooled laboratory in Boulder City, Nevada, just 60 minutes from McCarran International Airport in Las Vegas. The Center has capabilities in the area of computer simulation, prototype fabrication, system design and optimization, and testing of energy system components and subassemblies. The Center's activities involve transferring new energy technologies from the idea stage to the point where they are ready to help serve the nation's energy needs.

The senior scientists of the Institute include a number of men who are internationally known in their fields. At each University campus, some DRI staff members teach in departments related to their fields of research through joint appointments, and supervise graduate students in special fields. Several faculty members of the two main campuses also hold joint appointments in the DRI and cooperate on a number of research projects.

National College of Juvenile Justice

The University is the home of the National College of Juvenile Justice, the nation's largest training center for judges and other professionals in the juvenile justice system. Each year the College conducts a variety of programs on campus for judges from all parts of the United States, its territories, Canada, and several other foreign countries. In addition to the resident programs, the College also conducts regional and State institutes across the nation. Since 1969, more than 28,000 juvenile justice personnel have participated in 230 training programs.

The College is the educational division of the National Council of Juvenile and Family Court Judges, which maintains its headquarters in the Judicial College Building at the University of Nevada, Reno. The Council, founded in 1937, has 2,600 members and is the nation's oldest and largest judicial organization. From its Reno office, 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, and the *Juvenile Law Digest*, a monthly review of major court decisions affecting juveniles.

The College is funded by a grant from the

Max C. Fleischmann Foundation of Nevada. Funds are also received from the Department of Justice, the Law Enforcement Assistance Administration, the American Bar Endowment, and a broad group of individuals and foundations 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 a one, two, three, or four weeks' duration. There are in excess of 35 resident sessions bringing more than 1,500 judges to the campus each year. Over 8,000 certificates of completion have been issued judges attending resident sessions. Extension academic programs are conducted in the states and the District of Columbia in association with state supreme

courts, judicial associations, and other judicial agencies. The College also assists in establishing state judicial colleges. In addition, special and innovative programs are conducted to involve other professions that relate to and affect the judicial process.

The College's law library contains more than 48,000 volumes and is available to the students of the University and to the community.

Federal Agencies

The U.S. Bureau of Mines maintains the Reno Metallurgy Research Center on the campus of the University. This facility is headquarters for metallurgical research, minerals resource investigations, and mining research in Region II, which comprises the geographical area of Nevada and California, and serves as the office for technical direction of activities at the Metallurgy Research Laboratory, Boulder City, Nevada.

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 race, color, creed, handicap, or sex.

Health: Each new student must submit a recently completed (within six months) medical history and examination signed by a medical doctor or osteopathic physician, unless an exemption is authorized for documented religious reasons.

Placement Tests: 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.

Special examinations required are the Foreign Language Placement Test prior to registration in other than a beginning course, and the Mathematics Placement Test prior to registration in Mathematics 110 or higher.

These two special examinations are scheduled during the orientation period prior to the beginning of each semester.

A transfer student who has successfully completed freshman-level courses in English, foreign language, or mathematics is placed on the basis of demonstrated achievement.

Admission Filing Dates: Application forms should be submitted with proper credentials not later than July 15 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 is 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 and are not returnable. The following credentials are required:

1. A completed Application for Admission, properly dated and signed, which includes the medical history and examination verifying a tuberculin test (patch or X-ray) within the last

year.

2. A nonrefundable application fee. (See Fees and Expenses section.)

3. An official transcript 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. A photostatic or certified copy of the report of separation from military service if credit is desired.

6. Foreign 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 fulltime study;

- (b) Adequate proof of financial responsibility or sponsorship by a reputable United States citizen or organization for all obligations while attending the University; and

- (c) Supplemental medical history and examination as determined by the University physician.

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 7 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 ben-

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.

official 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: A qualified high school student who has completed the junior year may be admitted pending graduation on the basis of ACT composite standard scores and the self-reporting grades. To be considered, a high school senior must take the ACT and designate UNR as first, second, or third choice to receive the Student Profile Report (SPR).

Admission is offered to those who have an ACT composite standard score of 19 or higher and an ACT self-reported high school grade-point average of 2.3 (**A**=4.0) or above if a Nevada resident, a 2.5 or above if a nonresident. Applicants whose grade-point averages are **B** or above qualify with an ACT composite standard score of 16 or higher.

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

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.

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.

3. Be within 3 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 canceled 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 6 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 Associate and Baccalaureate Degree Programs

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

High School Graduate: 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.

Recommended Preparatory Subjects:

The completion of specific high school subjects is not a requirement for admission. However, each student who plans to attend the University is encouraged to complete the subjects recommended in the chart.

Recommended High School Preparatory Subjects and Minimum GPA Requirements for Freshman Admission

Subjects	Agriculture	Arts and Science	Business Administration	Education	Engineering	Home Economics	Medical Sciences	Mines	Nursing
ENGLISH	4	4	4	4	4	4	4	4	3 or 4
MATHEMATICS Algebra Pl. Geometry Trigonometry	2	1	2	1	3 Algebra 1½ Pl. Geom. 1 Trig ½	1	4 Algebra Geom. (P & S) Trig. and Computer Sc.	3 Algebra 1½ Pl. Geom. 1 Trig. ½	2 or 3 Algebra 2 Computer Sc.
SCIENCE Biology Chemistry Physics	3	1	1	1	1 2 units for E.E. to include Physics	1	3	1	2 Chemistry and Biology or Physics
SOCIAL SCIENCE American Government or History	2	2	2	2	2	2	2	2	2
FOREIGN LANGUAGE	0	4*	0	0	0	0	2	0*	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								

*Four units of one foreign language satisfies the Arts and Science degree requirement.
*Two units for the Earth Science, and Geology curricula

Admission for Foreign Students

The minimum academic requirements for foreign applicants are:

1. Official evidence of an educational level equivalent to graduation from an accredited American high school.

2. Evidence of above-average ability 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 are governed by the transfer regulations.

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 satisfactorily passing the American College Test (ACT).

Freshmen admitted on probation are re-

moved 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.

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 freshman 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 regional 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.

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 8 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.

Independent Study (correspondence), Extended Programs and Continuing Education:

A maximum of 60 semester credits earned in acceptable independent study courses completed through a regionally accredited correspondence division [including United States Air Force Institute (USAFI) and Defense Activity for Nontraditional Education Support (DANTES)] and/or in extension or off-campus courses may be applied toward a baccalaureate degree. The maximum for an associate degree is 30 semester credits.

CREDIT FOR NONTRADITIONAL LEARNING

EXAMINATIONS

Four 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. Special examinations administered by University departments.

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 30 semester credits for an associate degree and 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 the Director of Counseling and Testing, University of Nevada, Reno, NV 89557, telephone (702) 784-6810 or by writing directly to the respective testing organizations:

1. CBAPE, Box 977, Princeton, NJ 08541

Advanced Placement 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.

2. CLEP, Box 592, Princeton, NJ 08541

College Level Examinations 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 United States, 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.

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 the Director of Admissions and Registrar for reference and publication. The evaluation status of any examination may be modified when there is adequate justification to change the amount of credit to be granted.

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, the Admissions and Records Office 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, Spanish, or German with a score of 4 or 5 satisfy the foreign language requirement of the College of Arts and Science as well as that of other units within UNR.

Examination	UNR Course Equivalent	Credit Granted
(e = an essay is required along with the objective test. p = serves as a prerequisite.)		
Art		
History	None	3
Studio	Art 100	3 p
Biology	Biology 101	4 p
Chemistry	Chemistry 101 or 103	4 p
Classics		
Vergil	None	3
Latin Lyric	None	3
English (including essay)	English 101	3 ep*
French		
Language	None	4
Literature	None	4
German Literature	None	6
History		
American	History 101	3 p
European	History 106	3 p
Mathematics		
Calculus A,B	Math 215	4 p
Calculus B,C	Math 216, 310	8 p
Music		
Listening & Literature	None	3
Theory	None	3
Physics		
B	Physics 151, 152	6 p
C (Mechanics)	Physics 201	3 p
C (Electricity & Magnetism)	Physics 202	3 p
Spanish		
Language	None	3
Literature	None	3

*With an objective test score of 5 and a satisfactory essay examination, 6 credits are granted, which satisfies the University English requirement.

College-Level Examination Program (CLEP)

Credit may be granted and a grade of **S** assigned upon receipt in the Admissions and Records Office 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. Credit is granted as 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.

Examination	UNR Course Equivalent	Credit Granted
(e = an essay is required along with the objective test. p = serves as a prerequisite.)		
<i>General:</i>		
English Composition (including essay)	English 101	3 ep*
Humanities	None	6
Mathematics	None	4
Natural Sciences	None	6
Social Sciences	None	6
<i>Subject:</i>		
(e = an essay is required along with the objective test. p = Serves as a prerequisite.)		
Biology		
Biology	Biology 101	3 ep
Microbiology	Biology 306	4 ep
Business		
Introduction to Business Management	None	3 p
Introductory Accounting	Accounting 201, 202	6 p
Introductory Business Law	None	3 ep
Introductory Marketing	None	3 ep
Money and Banking	None	3 p
Economics		
Introductory Macro-economics	Economics 102	3 p
Introductory Micro-economics	Economics 101	3 p
Introductory Micro- and Macro-economics	None	6 p
Chemistry, General	Chemistry 101 or 103	4 ep
Computer		
Computers and Data Processing	IS 250	3 p
Elementary Computer Programming-Fortran IV	IS 252	3 p
Dentistry		
Dental Materials	None	0
Oral Radiography	None	0
Tooth Morphology and Function	None	0
Education, History of America	None	3

*With an objective test score of 640 or higher and a satisfactory essay examination, 6 credits are granted, which satisfies the University English requirement. When not available from College Board, the essay may be written at the University Office of Counseling and Testing.

English		
American Literature	English 241	3 ep
Analysis & Interpretation of Lit.	English 291	3 ep
College Composition (including essay)	English 101	3 ep*
English Literature	English 235 or 236	3 ep
Freshman English (including essay)	English 101	3 ep*
Foreign Languages		
College French-Levels 1 and 2	None	3 p
College German-Levels 1 and 2	None	3 p
College Spanish-Levels 1 and 2	None	3 p
History		
Afro-American History	None	3 ep
American History	History 101 (but does not satisfy U.S. Const. requirement)	3 ep
Western Civilization	History 106	3 ep
Home Economics		
Human Growth and Development	Home Ec. 131	3 ep
Mathematics		
Calculus with Elementary Functions	Math 216	4 p
College Algebra	Math 110	3 p
College Algebra-Trigonometry	Math 102, 110	5 p
Trigonometry	Math 102	2 p
Medical Sciences		
Anatomy, Physiology, Microbiology	Medical Sciences 251, 252	6 p
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	Political Science 103 (Satisfies U.S. Const. requirement, but not Nevada Const. requirement)	3 ep
Psychology		
Educational Psychology	None	3
General Psychology	Psychology 101	3 ep
Sociology, Introductory		
	Sociology 101	3 ep
Statistics		
	Math 251	3 ep
Tests and Measurements		
	None	0

*With an objective test score of 64 or higher and a satisfactory essay examination, 6 credits are granted which satisfies the University English requirement.

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, **B** or higher, if a graduate level course). The examinations may be taken at any time.

Examination	UNR Course Equivalent	Credit Granted
Business		
Accounting: Level I	Acc. 201-202	6 p
Accounting: Level II	None	0
Accounting: Level III, Area I	None	0
Accounting: Level III, Area II	None	0
Accounting: Level III, Area III	None	0
Business Environment and Strategy	None	0
Finance: Level I	None	3
Finance: Level II	None	0
Finance: Level III	None	0
Management of Human Resources: Level I	None	3
Management of Human Resources: Level II	None	0
Management of Human Resources: Level III	None	0
Marketing: Level I	None	3
Marketing: Level II	None	0
Marketing: Level III	None	0
Operations Management: Level I	None	3
Operations Management: Level II	None	0
Operations Management: Level III	None	0
Business Environment and Strategy	None	0
Criminal Justice		
Criminal Investigation	None	3
Introduction to Criminal Justice	CJ 110	3 p
English		
Freshman English (including essay)	Engl. 101	3 ep*
Shakespeare	Engl. 271	3 ep
Education		
Corrective and Remedial Instruction in Reading	None	0
Educational Psychology	None	3
History of American Education	Ed FM 101	3 ep
Reading Instruction in the Elementary School	None	0
History		
African and Afro-American History	Hist. 447 or 455	3
Nursing		
Adult Nursing	None	8
Commonalities in Nursing Care, Area I	None	0
Commonalities in Nursing Care, Area II	None	0
Differences in Nursing Care, Area I	None	0
Differences in Nursing Care, Area II	None	0
Differences in Nursing Care, Area III	None	0
Fundamentals of Nursing	None	0
Maternal and Child Nursing, AA Degree	None	0
Maternal and Child Nursing, BS Degree	None	7

Nursing, Cont'd.

Nursing Health Care	None	2
Occupational Strategy, Nursing	None	0
Psychiatric/Mental Health Nursing	None	6
Science		
Anatomy and Physiology	Meds 251-252	6 p
Earth Science	None	3 e

*With an objective test score grade of **A** and a satisfactory essay examination, 6 credits are granted which satisfies the University English requirement.

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, or
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.

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 chairman of the department offering the course. A \$10.00 per course examination fee is payable to the Controller. The completed application is submitted to the faculty member named by the department chairman 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 aca-

ademic record where it is treated as any other grade. The grade must be filed by midsemester for the student to receive credit for that particular semester. Each examination is retained in 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.

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 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 should request a Graduate Special certificate from the Office of Admissions and Records prior to the first registration in this classification.

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 which includes the medical history and examination. Applicants planning to register for 6 credits or less (or attend summer sessions) may sign the certification on the back rather than complete the medical form.
2. A nonreturnable application fee. (See

Fees and Expenses section.)

3. Graduate Standing applicants should 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. Individuals claiming eligibility for resident fees are required to submit an Application for Resident Fees along with the other admission credentials.

Academic Requirements: The academic requirements for admission to graduate study are stated in detail in the Graduate School section of this catalog. Applicants who have graduated from institutions which are not regionally accredited are required to submit satisfactory test scores on the Graduate Record Examination to be considered for admission.

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.

TUITION INFORMATION

An application for resident fees must be submitted to the Office of Admissions and Records by each student claiming legal residence in Nevada. A recent Nevada high school graduate whose parent's permanent address is listed in Nevada is exempt from this procedure.

The regulations governing tuition charges are:

Purposes

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

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.

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 6 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.

6. 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 for him.

Tuition Charges

Tuition shall be charged to those persons classified as out-of-state students registering for 7 credits or more in a given semester at any division of the University of Nevada Sys-

tem; provided, 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.

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. A student who, at the date of matriculation, is and has been a bona fide resident of the state of Nevada for at least 6 months prior thereto, shall be classified as an in-state student.

4. A student who is a member of the Armed Forces of the United States, 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.

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

6. 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.

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

8. 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.

9. 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 a bona fide resident. The student may qualify for reclassification as an in-state student

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.

10. 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 residency status will be voided until such time as he shall again apply for admission.

11. 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.

12. 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 residency requirements as described in Section 3 above nor shall such enrollment be included in the *date of matriculation* for evaluation of residency.

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.

Determination of Status

Each division 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 division 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.

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.

REGISTRATION AND RECORDS

Period of Registration

All students register on a class-alphabetical time sequence as indicated in the class schedule at 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. Each student should consult the University calendar and schedule of classes for specific details prior to registration.

Returning Students: Students returning to the University after an absence of one or more semesters are required to submit an application for registration materials by July 15 for the fall semester or January 2 for the spring semester so that proper registration forms may be prepared. Such students must provide updated medical information as required by the University Health Service.

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 7 credits or more (or

equivalent) after registration day 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

Planning and Scheduling Classes: Prior to registration, each student should study the requirements of the college or special course as outlined in this catalog. Many courses specify fairly rigid programs 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—49 are special courses for associate degree students only; 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 associate degree student is required to complete the necessary course(s) to satisfy the United States and Nevada Constitution requirements and 6 semester credits of English.

Each baccalaureate degree student is required to complete the following University course requirements:

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. S. 409, 609. Previously offered courses include Hist. 1, 341, 701; and

P. S. 79, 101, 201, 207, 302, 303, 410, 602, 603, 709, 710.

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

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

Political Science 20, previously offered, satisfies this requirement for specified associate degree programs.

English: Each student must demonstrate proficiency in written composition by successfully completing courses in Engl. 101-102, unless the requirement is satisfied by authorized exemption.

Initial placement is based upon standardized test scores:

UNR Course	ACT		SAT
	English	Verbal	TSWE
Engl. 101W*	1-18	200-499	40 or less
Engl. 101	19-24	450-599	41-56
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 scores of 25 or above are encouraged to enroll in the honors sections of Engl. 102.

Authorized exemptions:

1. An ACT English standard score of 25 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. When a grade of **A** is received in Engl. 101 (101W), the Director of Freshman English may, after proper review and evaluation, approve an exemption from Engl. 102 by written notification to the student's adviser, dean, and the Director of Admissions and Registrar. Since credit is not awarded for 102 as a result of the exemption, a student must enroll in 102 if credit is desired.

The English requirement may also be satisfied by: (1) a CBAPE examination in English with a score of 5, (2) a CLEP General Exam in English Composition with a score of 640 (92nd percentile) or higher, (3) a CLEP Subject exam in College Composition or Freshman English with a score of 64 (92nd

*W: Writing laboratory H: Honors level

percentile) or higher, (4) an ACT PEP exam in Freshman English with a grade of **A**, or by (5) acceptable transfer credit equivalent to Engl. 101-102. 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 for International Students: All newly admitted international students are required to contact the Director, English as a Second Language (ESL) Program, for English proficiency testing and placement recommendations prior to initial enrollment. Initial placement is within the sequence Engl. 111, 112, 101, or 102 as determined through testing. Withdrawals from English during any semester are not permitted without prior written approval of the Director of Admissions and Registrar.

During each regular semester international graduate students must register in an appropriate English course until the Director, ESL, certifies to the Dean of the Graduate School and the Director of Admissions and Registrar that college-level English competency in all skills has been achieved. Those being considered for fellowships involving classroom teaching must be certified as competent by the Director, ESL, prior to undertaking teaching duties.

International undergraduate students must register in an appropriate English course each semester until the University requirement (Engl. 102) is satisfied.

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 subject in which a student has failed takes precedence over all other subjects in the arrangement of the program of courses. Such a failed subject should be repeated in class as soon as the

course 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 chairman 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 materials are distributed by the Office of Admissions and Records.

Registration Day: Each student is admitted to a centralized registration area regulated by a class-alphabetical time schedule to complete enrollment. Registration fees are paid, materials are collected, and each student leaves the centralized area with a Permit-to-Attend-Class Card for each course registered.

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 a change of registration form from the Office of Admissions and Records, secure the proper signatures, pay the required fee, and file the completed form in the admissions office 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 any time prior to the last two weeks of a semester with the adviser's approval. Drops which occur after the first *eight* weeks require the teacher to indicate whether the student is passing or failing. The dropping of courses during the last two weeks of a 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.

Procedure: Each student must obtain a change of registration form from the Office of

Admissions and Records, secure the proper signatures, and file the completed form in the admissions office for the *drop* to be official.

Credit to Audit: A student changing from credit to audit is subject to this regulation. An individual must be passing to change from credit to audit after the first eight weeks.

Withdrawal from the University: A student wishing to withdraw from the University should obtain the proper form in the Office of Admissions and Records and contact the Office of Student Services for an exit interview. A withdrawal which occurs after the first *eight* weeks of the semester requires each instructor to indicate whether the student is passing or failing. When the student obtains the required signatures and files the completed form in the admissions office, 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 the Office of Admissions and Records before it becomes official. If the change occurs during registration, the completed change card should be inserted in the registration packet for official processing.

Each student must satisfy the course requirements of the college or major to which transfer is made, including any admission deficiencies.

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

Cancellation of Courses: The University reserves the right to cancel any course in which 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** or **U** basis, subject to the approval of each individual college.

1. An associate degree student may earn a maximum of 15 semester credits in courses graded on an **S** or **U** basis.

2. A transfer student may earn a maximum of one-fourth of his remaining credits at UNR on an **S** or **U** basis providing the total does

not exceed University policy.

3. A transfer student with more **S** or **U** credits than allowed by University policy is ineligible for additional **S** or **U** registration, except for required courses offered on an **S** or **U** basis only.

4. Each course that is taken to satisfy the University English and United States and Nevada Constitution requirements must be completed with a regular letter grade.

5. 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.

6. Each college course which is approved for **S** or **U** grading only is to be properly designated in the University catalog for reference.

7. 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: The approved principles and procedures are:

1. Each student is responsible for indicating the **S** or **U** grading option at the time of registration for each course approved by the adviser.

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

3. The instructor assigns an **S/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* admitted to a program 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 and the dean of the college in which the student is enrolled, a nondegree student may register in a maximum of 6 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 which may be earned in this category, a maximum of 32 semester credits is acceptable toward a baccalaureate degree.

All *nondegree* students are governed by the University regulations, including suspension and disqualification, and are encouraged to seek official admission at the earliest possible date. Each student must be in good standing at the last educational institution attended to be eligible to register. A pre-entrance medical examination is required for those who wish to register in physical education classes.

Nondegree students may register in programs of study offered through Extended Programs and Continuing Education.

Auditor: An individual, either regular or nondegree, 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 chairman, 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

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 9 credits or more are defined as full-time. Those enrolled in 8 credits or less are part-time.

Nondegree: Nonadmitted students are limited to a maximum of 6 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 8.

Requirements for Graduation

Catalog: 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, but not a combination of these. Each student must satisfy the current academic requirements.

Degrees, diplomas, or certificates may not be granted unless all requirements are fulfilled. If such is awarded in error, or upon fraudulent claims, the degree, diploma, or certificate 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 also may be established by the dean of an individual college.

Course Requirements: In addition to the course specified by each school or college, there are University course requirements in English, Nevada and U.S. Constitution which must be satisfied by each candidate for a degree.

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 college degree.

Resident Credit Requirements: A candidate for an associate or baccalaureate 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 of Nevada, Reno 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 credit requirement.) Credit earned by correspondence study, examination, or enrollment in another institution within the University of Nevada System does not constitute an interruption of resident credit.

Credit earned through the Institute of European Studies (IES) as an approved part of a degree program 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 \$5.00 late fee is in effect until November 1, March 1, or July 1 in the respective final 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 submit an updated application during the regular filing period.

Undergraduate Degrees and Credit Requirements

The minimum number of credits required for an undergraduate degree is 64 for the associate degree and 124 for the baccalaureate degree. Individual colleges may require additional credits and the specific requirements are shown in the respective college sections.

The minimum number of credits required for an undergraduate degree in each of the col-

leges is as specified.

Dual Undergraduate Degrees

A student may earn two baccalaureate or associate degrees, either successively or simultaneously, provided all specified requirements for both degrees are fully satisfied.

A minimum of 30 credits, earned in residence, beyond the requirements for the first baccalaureate degree must be completed for the second degree.

A candidate for a second associate degree must satisfy the specific course requirements as prescribed by the school or college concerned.

A separate application for graduation must be submitted to each dean of the college from which a degree is expected; and payment of a diploma fee for each degree is required.

UNDERGRADUATE DEGREE REQUIREMENTS

	Credits Required
School of Agriculture—	
Associate of Science in Agriculture (A.S. in Ag.)	64
Bachelor of Science (B.S.)	128
Bachelor of Science in Veterinary Science (B.S. in Vet. Sc.)	128
College of Arts and Science—	
Bachelor of Arts (B.A.)	128
Bachelor of Arts in Criminal Justice (B.A. in C.J.)	128
Bachelor of Arts in Journalism (B.A. in Journ.)	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
College of Business Administration—	
Bachelor of Arts (B.A.)	128
Bachelor of Science in Business Administration (B.S. in Bus. Ad.)	128
College of Education—	
Bachelor of Arts in Education (B.A. in Ed.)	128
Bachelor of Science in Education (B.S. in Ed.)	128
College of Engineering—	
Associate of Science in Electronics Engineering Technology (A.S. in E.E.T.)	68
Associate of Science in Engineering Design Technology (A.S. in E.D.T.)	65
Bachelor of Science in Civil Engineering (B.S. in C.E.)	134
Bachelor of Science in Electrical Engineering (B.S. in E.E.)	128
Bachelor of Science in Mechanical Engineering (B.S. in M.E.)	134
Bachelor of Science in Engineering Science (B.S. in E.S.)	130
School of Home Economics—	
Associate of Arts in Fashion Trades (A.A. in F.T.)	64
Associate of Arts in Prekindergarten Education (A.A. in Pre. Ed.)	64
Bachelor of Science in Home Economics (B.S. in H.Ec.)	128
School of Medical Sciences—	
Bachelor of Science (B.S.)	128
Bachelor of Science in Medical Sciences (B.S. in Med. Scs.)	128

School of Mines—	
Bachelor of Science in Chemical Engineering (B.S. in Chem. E.)	134
Bachelor of Science in Earth Science (B.S. in E.Sc.)	128
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
School of Nursing—	
Bachelor of Science in Nursing (B.S. in Nurs.)	128

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 should be made to the assigned faculty adviser prior to the student's junior year so the second program can be properly planned in consultation with the appropriate department. 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 with the Office of 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 9 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 the Office of Admissions and Records. The minor is recorded when all graduation requirements are satisfied.

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.

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 4 grade points.

B is awarded for better than average work. Each credit earned with a grade of **B** carries 3 grade points.

C represents average or passing work. Each credit earned with a grade of **C** carries 2 grade points.

D is the lowest passing grade for which credit is allowed—1 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 noncredit courses, completed graduate courses involving thesis or dissertation, and those courses offered with this grading option. An **S** indicates achievement equivalent to an **A**, **B**, or **C**; **U** represents **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 reason 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 chairman. 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 while 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 chairman, 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 chairman 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

Midsemester Reports: Each instructor is required to post unsatisfactory progress reports prior to midsemester for each student whose grade is **D** or **F** and to indicate in each case the reason for the unsatisfactory grade.

Final Examinations: The 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 chairman of the department concerned who, in turn, files them in the proper manner

and time in the Office of 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.

Grade-Point Average: The grade-point average (G.P.A.) 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 G.P.A.

Grade Changes and Appeals

Changing a Final Grade: After the final grades are filed in the Office of Admissions and Records, a grade may normally be changed only to correct a clerical error. For these changes, the instructor must file in the admissions office a completed change of grade form approved by the chairman 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 chairman 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 the Office of 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 evi-

dence, 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 Distinction

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 G.P.A. of 3.5 or higher is determined at the close of each semester by the Office of Admissions and Records.

Distinction at Graduation: At Commencement, each graduating senior who earns a minimum of 64 semester credits in residence at the University in all courses graded **A** through **F** with a G.P.A. of 3.75 or higher receives the baccalaureate degree with High Distinction (or with Distinction if the G.P.A. is between 3.5 and 3.75). Each transfer student must satisfy the UNR requirements and have a combined transfer-University G.P.A. of 3.75 or higher for High Distinction or 3.5 or higher for Distinction.

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

Academic Standards Regulations

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.

An associate degree student may apply grades earned in courses numbered 1-49 toward baccalaureate grade-point deficiencies in satisfying the minimum G.P.A. for graduation in a two-year program.

However, 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

Condition: An undergraduate student is placed on scholastic probation at any time the following occur:

1. The cumulative G.P.A. is below 2.0.
2. The grade-point average for each of two consecutive semesters is below 2.0 even though the cumulative average is 2.0 or above.
3. The G.P.A. 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 G.P.A. on the cumulative record is no longer on probation. A student who had an overall 2.0 G.P.A. 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

Condition: 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 6 acceptable semes-

ter credits if on first suspension, or 12 acceptable semester credits if on second suspension, with a 2.5 G.P.A. or above. These credits may be earned in correspondence study, University summer session, or at another regionally accredited educational institution. The University suspension and disqualification regulations do not apply to a suspended student until official readmission occurs.

A student who is readmitted after suspension is on probation. Second suspension occurs whenever the G.P.A. 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 15 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 transcript 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 G.P.A. 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 the Office of 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 G.P.A. 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.

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 should be placed in advance of the date needed to provide adequate time for processing—especially during the busy periods of registration and final examinations.



REGULATIONS ON 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 supported programs. The University may disclose, without a student's written consent, educational records or other personally identifiable information to full-time University employees having authorized access; to the Director of Admissions and Registrar and/or appropriate officials of another school 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 preclude the publication of information which appears in the annual campus directory by not completing the optional *directory card* provided during registration each fall semester.

A student may restrict the release of directory data contained on the registration *address and information card* by notifying the Office of the Associate Dean of Students, located in Thompson Student Services Center, Room 103, 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 these 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 Clark Administration Building, is responsible for the maintenance of these records.

Deans and Faculty Advisers

Admission evaluation including test scores, registration data, final grade reports, annual transcripts, 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. Responsibility for student files is delegated by the Dean of Students to the Associate Dean and directors concerned.

Associate Dean of Students: Admission evaluations, test scores, registration data, final grade reports, honors, awards, student discipline files, and other supplementary data.

Counseling and Testing: Test scores and supplementary data. Admission evaluations and immigration records for foreign students.

Financial Aid, Career Planning and Placement, and Veterans Affairs: Financial aid applications, placement files, applications for veterans' benefits, and other supplementary data.

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 CLEP and CBAPE, 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, Extended Programs and 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 \$2.00 per copy. Policy prohibits reproduction of transcripts and similar documents issued by other educational institutions.

Student Services

Associate Dean of Students: Final grade reports are retained for five years after issuance. 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.

Counseling and Testing: Test scores are retained indefinitely.

Admission evaluations and immigration records for foreign students are retained for five years after the last date of attendance.

Financial Aid, Career Planning and Placement, and Veterans Affairs: Financial aid applications and placement files are retained indefinitely.

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

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 render 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 \$5, which is not refundable nor applicable to any other fee.

Registration Fees

The registration fee for all students is \$23 per credit or credit equivalent except for those enrolled in the two-year medical program, the Ed.D. program in education, and students under the special fee provision for persons 62 years of age or over. Summer fees are published in the Summer School publications. Extended Programs and Continuing Education fees vary by course and program. Specific charges are available upon request from the EPCE office.

Tuition for Nonresidents

Tuition of \$750 per semester is charged undergraduate and graduate students (excluding four-year medical students) registered for 7 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 for providing documentary proof of Nevada residence on the application provided through the Office of Admissions and Records. This fee is in addition to the \$23 per credit registration fee.

Four-Year Medical Program

The registration fee for medical students is \$1,200 per semester. Nonresident students are charged tuition of \$6,000 per semester in addition to the registration fee.

Doctor of Education Program

Those courses identified as part of the Ed.D. program in education are charged at a rate of \$75 per credit.

Special Reduced Registration Fee

Persons 62 years of age or older are permitted to register for credit or as auditors in any course without fee except as noted below. 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 on the day designated 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 7 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 7 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 registered for 7 or more credits are entitled to the service offered by the Student Health Service.

Admission to Intercollegiate Athletic Events

All undergraduate students registered for 7 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

1. The refund policy for net credit load reductions and withdrawals from the University based upon the \$23 per credit registration fee is as follows:

- 100 percent refund if initiated prior to the first day of classes.
- 75 percent refund during the first two weeks of instruction.
- 50 percent refund during the third, fourth, fifth, and sixth weeks.

Course-related special fees are prorated based upon actual usage. Nonresident tuition is refunded according to the above schedule for load reductions to 6 credits or less or withdrawals. The dates of the refund periods are published in the class schedule.

2. Health and accident insurance is nonrefundable.

3. Refunds are not made until the end of the first six weeks.

Special Refund

Upon written approval of the Dean of Students, a full refund of the registration and nonresident tuition is given upon official withdrawal at any time during the first eight weeks of the semester in the following instances:

- Induction of the student into the U. S. Armed Forces.
- Death of spouse, child, parent, or legal guardian of student.
- Death of student.

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

Grant-In-Aid, Fee Waiver, and Accounts Receivable Card

Each student is expected to pay all as-

essed fees on registration day 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

Contracts for deferred payment of room and board costs and/or registration fees which are in excess of \$200 are available during the registration period. Approximately one-half 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 payment becomes a student accounts receivable on the due date and is treated as an *official fee hold* for future registrations and transcript privileges. A penalty fee of \$5 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 \$5 collection fee is assessed for any check returned unpaid by the bank. Such checks must be made good within ten days after notification or suspension procedures are instituted.

Accident and Health Insurance Plan

An accident and health insurance plan is available to all students registered for 7 or more credits. The rates vary with the coverage desired.

Special Instruction Fees

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

- Courses requiring equipment, facilities, or materials not available on the University campus; for example, bowling, golf, or certain field courses.
- Private instruction in music and similar arts.
- Noncredit courses, conferences, work-

shops, postgraduate professional seminars, and similar educational offerings.

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

ROTC Deposit

Cadets enrolled in military science courses for which uniforms are required must deposit \$20 to guarantee against loss or damage of texts and uniforms. Upon certification by the Professor of Military Science that texts and uniforms have been returned in a satisfactory condition, the deposit is refunded.

Graduation Fee

Each student who graduates with an associate, bachelor's, master's, professional, or doctor's degree, or receives an education specialist certificate, is required to pay a \$10 graduation fee.

Transcript of Record Fee

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

Other Fees

Late application for graduation, \$5. Special examination fee, \$10 per course. Placement Office registration fee, \$5, Placement Office

fee for reactivation and updating credentials, \$5. American College Testing Program (ACT) examination, \$15 if taken at time other than national test dates.

Board and Room Charges

The board and room charges for the 1978 fall semester were \$754 on a 15 meals per week plan. The rate for the 1979-80 school year will be announced at a later date.

Cancellations and Refunds: Housing contracts may be cancelled by the student without penalty if the student so requests in writing to the Housing Office prior to August 1 for the fall semester and December 15 for the spring semester. Cancellations after these dates and before registration into the assigned hall results in forfeiture of \$50.

If a student withdraws from the University after assignment to a hall, refunds are made at the rate of 75 percent during the first and second weeks, 50 percent during the third through the sixth weeks, and 25 percent during the seventh and eighth weeks. Students who elect to use the deferred payment plan are liable for the amount, if any, due in excess of what they have already paid.

Board charges are refunded on cancellations at 80 percent of the unused payments through the twelfth week. Refunds are not made after the twelfth week of the semester.

UNIVERSITY SERVICES

Central Services

Central Services, located in the University Services Center on Artemisia Way, provides mail and duplicating services for the University. Offset printing, typesetting, collating, folding, drilling, perforating, binding, layout, and related darkroom services are available. An automated offset copy system also provides "while you wait" copying service.

Dining Commons

The University dining commons and snack bar, open to faculty, students, and staff, are located in the Jot Travis Student Union.

The Vice President for Business is responsible for the food service program. Charges for food may be adjusted, with the approval of the Board of Regents, to conform to current prices.

Student food service regulations are given in the Student Services and Activities section.

Libraries

The main library, containing 594,885 volumes, 1,064,233 microforms, 5,413 current periodicals, and large collections of Government publications and manuscripts, is centered in the Noble H. Getchell Library, which stands in the middle of the campus. There are also six branch libraries: the Mines Library, located on the ground floor of the Getchell Library; the Life and Health Sciences Library in the Fleischmann College of Agriculture; the Engineering Library in the Scrugham Engineering-Mines Building; the Physical Sciences Library in the Chemistry Building; the Medical Library at the School of Medical Sciences; and the Desert Research Institute Library at the Stead campus.

In 1977 a spacious addition to the main library was opened. Here, two levels of open stacks now contain the major part of the book collection, with the rest of the addition devoted to reader space and specialized services. Key areas remaining in the main building are circulation, reserve, reference, and Government publications.

Undergraduates may withdraw most books for two weeks and periodicals for three days. A list of hours is published and is also posted at the main entrance. Copying machines are available.

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 communications arm, the *Nevada University Magazine*, is distributed to members four times each year.

Officers and Executive Committee members are elected annually during Homecoming weekend, with membership in the Association open to all graduates and those who attended the University for one semester or more.

The Association offices are located in the Morrill Administration Building on the Reno campus. Further information may be obtained by writing to the Alumni Office.

Audiovisual Communications Center

Audiovisual Communications (A-V) is an instructional support center providing basic services in five areas—graphic arts, photography, instructional equipment, radio and television, and the educational film library.

Productions services include graphic arts, photography, audio reproduction, and radio and television broadcasting. The film library offers a wide selection of films supplementary to classroom instruction. Audiovisual equipment is available for checkout from the instructional equipment loan area.

A-V operates campus educational, noncommercial broadcasting facilities through radio station KUNR-FM (88.7 Megahertz). On the air from 12:55 p.m. to 1:00 a.m. Mondays through Saturdays, and 1:00 p.m. to 11:00 p.m. Sundays, KUNR programming provides news, various forms of music, foreign informational and festival music broadcasts, intercollegiate network features, and special live UNR and community programs. A monthly program guide is sent free upon request.

The center is located on the ground floor of the Education Building.

Among the library's extensive collections are the Nevada and the Great Basin Collection, the Modern Authors Collection, and the Basque Collection. In addition, the Library of the National Judicial College is located on the Reno campus. The University library is the Nevada regional depository for Federal and United Nations documents.

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 Traffic Code. Vehicles (automobiles, motorcycles, or other motor-driven conveyances) must be registered and carry an official parking permit sticker. Students are required to complete Vehicle Registration Cards during registration. Permits are renewable annually.

Meter parking, visitor parking, and parking for the handicapped are also available in designated areas (see map in back of catalog).

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

Permits and parking information are available in the office of the University Police.

Postal Services

A branch of the U. S. Postal Service (University Station) is located on the ground floor of Jot Travis Student Union. All usual U. S. post office services, except General Delivery, are available.

Mail boxes may be rented. Students living on campus must have a post office box to receive mail. Mail addressed to residence halls cannot be delivered and is returned to the sender.

Central Services handles the distribution of incoming and outgoing U. S. mail for the University, and provides the free distribution of campus and intra-state agency mail.

University Police

Emergency Number: 784-6971

The University Police Department (UNPD) 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.

Officers and personnel of the Police Department 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 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.

Members of the UNPD are sworn peace officers, performing the same services as those of any municipal police agency. They enforce federal, state, and local laws within their jurisdiction, as well as University regulations. The Department administers traffic and parking regulations established by the University's Traffic and Parking Board, and maintains a student-employee force responsible for issuing parking tickets.

Officers of the UNPD 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 Emergency Medical Technicians. Many of the officers hold either associate or bachelor degrees in the sciences relating to criminal justice, sociology, psychology, community relations, and other public service-related fields.

Any member of the University community who needs emergency help or medical assistance may contact the Police Department day or night. The Department is located at 1303 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.

The Department's business office is open from 7:30 a.m. to 4:30 p.m. Monday through Friday, telephone: (702) 784-4013.

University Relations

University Relations, located in Morrill Hall, is the public relations center for the University. Consisting of five divisions, University Relations aids the University through fund-raising campaigns, publications services, alumni and

community programs, and through programs and events aimed at informing potential students of the academic, athletic, and social benefits associated with the University.

The University Relations staff serves stu-

dents, faculty, and campus organizations needing help in planning events, raising money, generating publicity, creating and designing publications, and other public relations type activities.



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 the Thompson Student Services 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 Dean of Students. The staff includes the Associate Dean of Students; assistant deans of students for Student Union, University activities, orientation, and student programs; Director of Counseling and Testing; Director of Financial Aid, Career Planning and Placement and Veterans; Director of Housing; Coordinator of Residence Hall Programs; Director of the Student Health Service; the International Student Adviser; Director of Special Programs for the Disadvantaged; and the Director of the Alcohol Education Program.

Counseling and Testing Center

Professional Counseling

The Counseling Center offers individual and group counseling services. The staff members are professionally trained counselors with experience in helping students who have personal problems or who wish to discuss educational or career objectives. All sessions are confidential and any counseling records are open only to the student and the counselor. The Counseling Center is not connected with, or does not 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 groups which explore the unique needs of students in a university setting. These groups may include: personal growth

groups, test anxiety reduction, women's support groups, sex roles and sexuality, procrastination, specific problem resolution, assertiveness training, and values clarification.

Appointments may be made by calling at the Counseling Center in 209 Thompson Student Services or calling (702) 784-6810.

Testing

The Center's testing program includes both individual and group assessment. The individual tests include career interest, personality, and aptitude. The group tests include most tests required for admission or placement (ACT, GRE, MCAT, LSAT, GMAT), equivalency examinations (CLEP, PEP) and various certification tests.

Results of the ACT and SAT which students send to UNR are on file at the Center. These results include information such as vocational interest scores as well as academic aptitude scores. Counselors are available to assist students with the interpretation of test information.

International Students

The international student adviser assists international students with official matters pertaining to passports, visas, release of funds, work permits, insurance, loans, regulations issued by home governments and the U.S. Immigration Service, contacts and dealings with other educational institutions, or organizations such as the Institute of International Education (IIE), foundations, and other groups. The adviser serves as the liaison between students and faculty, administration, community, and home governments.

The international student office assists international students and scholars with housing, financial problems, part-time employment (where authorized), and general orientation and integration into University and community life.

Prior to their arrival, arrangements for international students are made primarily through the Office of Admissions and Records. All first inquiries, applications, and transcripts of previous high school and university work should be addressed to that office; and all admissions and certified statements necessary to procure passports and visas are issued by that office.

International students are required to register for a full credit load (12 for undergraduates, 9 for graduates) each semester to maintain their legal status as students with the Immigration and Naturalization Service.

The international student adviser acts as ex-officio adviser to several international clubs—and is available in Thompson Student Services Center.

Information and Group Advisement Service

Students and student groups have frequent occasion to avail themselves of the guidance services provided by the Associate Dean of Student's office. This office serves as a general advisement agency and all-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. Staff members often advise student groups and organizations including ASUN boards, Student Judicial Council, service clubs, Associated Women Students, fraternities, sororities, and independent groups and organizations. Disciplinary counseling in connection with infractions of University rules and regulations is a function of the Associate Dean of Students.

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, a member of the Dean of Students' staff may, at his 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 done at a time other than during the regularly scheduled class period.

Change of Address

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

Records and to the Associate Dean of Students' Office.

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 1,100 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. Student residents are expected to maintain at least 12 credits per semester. On-campus living is available to part-time students on a space available basis; however, priority is given to full-time students. Students in the Reno/Sparks/Carson City area are especially encouraged to consider the benefits of on-campus living experience.

Students are encouraged to make arrangements for housing at their earliest convenience as demand for on-campus housing has grown significantly.

Residence Halls

The University of Nevada 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 and a study room are 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 lounge has a fireplace for winter evenings and laundromat 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 laundromat facilities are available.

Women's and Men's Residence Halls:

Manzanita Hall has a long campus tradition as the women's residence hall. A study lounge and comfortable living room help create a home-like environment shared by 106 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 contract forms should be returned as soon as possible to the Housing Office.

Married Student Housing

The University maintains a limited number of one-bedroom, unfurnished apartments, at reasonable cost which are available to students on a priority basis. There are 40 one-bedroom apartments which share central laundry facilities. Applications for married student housing may be requested from the Housing Office.

At the Stead campus, the University maintains 54 two-bedroom and 12 one-bedroom unfurnished apartments which are available for married students. Inquiries regarding housing at the Stead Facility should be addressed to Vice President for University Services.

Off-Campus Housing

The Office of Student Services maintains a listing service for students, faculty, and staff. 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 and staff 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 Housing Office are requested 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.

Food Services

The University's dining commons and snack bar are located in Jot Travis Student Union. "Board and Room" fees are listed in the section on Fees and Expenses.

Dining commons regulations for students are as follows:

1. All students have the option of contracting for one of several 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; however, 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 instruction and the last meal served is dinner on the day following the close of instruction. No meals are served during official University recesses.
4. Students living off campus who wish to eat in the dining commons may pay cash or purchase a punch-card 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 informal social and recreational center of the University.

The Union provides lounges; snack bar; music listening room; typing room; guest rooms; space for banquets and luncheons; check cashing; ticket sales; lost and found; an auditorium (Travis Lounge) for lectures; discussion groups; gallery arrangements for exhibitions of paintings, sculptures, and prints; and a meeting place for the entire University community.

The University bookstore is also located in JTU.

Student programs emphasizing educational, social, recreational, and cultural activities are planned and administered by the ASUN Activities Board, with the counsel and guidance of the professional staff.

Student Health Service

All undergraduate and graduate students registered for 7 or more credits are eligible for student health services. The Student Health Service, staffed with physicians and nurses, operates as an outpatient clinic. Referrals are made to other physicians or agencies when appropriate.

Student Health-Accident Insurance: All students eligible for student health services (registered for 7 credits or more) may elect an accident and illness insurance plan which supplements the Student Health Service for accidents and in-hospital surgical and medical benefits during the academic year. This insurance may be purchased at the time of registration each semester. It is strongly recommended that students avail themselves of this insurance plan to cover many situations in which the student may not be eligible for care at the Student Health Service. Insurance for dependents is also available.

Detailed information regarding the Student Health Service and the Supplemental Health and Accident Insurance Plan are published in brochures available at the Health Center and Office of Student Services.

Special Programs

The Office of Special Programs provides assistance to undergraduate students who require academic support services and special advisement services to help them succeed in the academic environment. The Office is composed of four programs: the Educational Opportunity Program, Bureau of Indian Affairs, Special Services, and Upward Bound. The following services are provided: individual advisement, tutoring, class schedule advisement, readers for blind students, interpreters for the deaf, an individualized writing program, an individualized reading program for students who want to improve their reading skills and comprehension, and transportation for the physically handicapped. The programs are designed to overcome the three major obstacles to higher education that exist in depressed areas: (1) financial barriers, (2) communication barriers, and (3) cultural barriers.

Students who are physically handicapped, who come from a low-income family, or who speak English as a second language, as well as those whose cultural heritage is not represented sufficiently or accurately in the

traditional curriculum, may be eligible to participate in these programs. Additional information may be obtained in Thompson Student Services Center or by calling (702) 784-6801.

Financial Aid*

The University provides an established 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 recognize scholastic achievement, to encourage continued academic success, to reward service to the University, and to assist needy, capable students in financing their college educations.

Financial aids are 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 Financial Aid located in the Thompson Student Services Center.

Qualifications

Financial aid is predicated upon the applicant maintaining at least a **C** average (undergraduate) and being regularly enrolled as at least a half-time student (6 or more semester credits for undergraduates, 5 or more graduate credits for graduate students). Students enrolled for half time or more are eligible for all federal financial aid contingent upon their need and the availability of federal funds.

It is expected that recipients of financial aid maintain or improve the level of academic achievement required for selection.

*Refer to the Financial Aids Calendar at the end of this section for deadlines.

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 available funds 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 Financial Aid attempts to make available the assistance necessary to provide for the balance of the student's legitimate educational expenses.

Therefore, applicants for the National Direct Student Loan (NDSL), Nursing Student Loan/Scholarship, Health Professions Student Loan/Scholarship, Supplemental Educational Opportunity Grant, and the College Work-Study Program are required to complete and submit the ACT Family Financial Statement (ACT-FFS) as well as the University's Nevada Student Data Form and Financial Aid Transfer Records. Entering freshmen may secure the ACT-FFS and the Nevada Student Data Form from their local high school counselor. All other students may obtain the FFS from the University Financial Aid Office.

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 bona fide emergencies.

2. University loans normally payable within a year or before graduation (whichever is first), available to qualified students for educationally connected expenses while they are enrolled as full-time students.

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

- (a) National Direct Student Loans.
- (b) Nevada Higher Education Loans (including USA or federally guaranteed bank loans from other states).
- (c) Nursing Student or Health Professions Loans.

In the event of the death of a student, the Dean of Students may, if circumstances warrant, authorize the cancellation of any or all financial obligations due the University. The

policy does not supersede existing federal regulations governing NDSL, nursing, or other federal aids already having cancellation provisions.

Further information on loans may be obtained by contacting the Director of Financial Aid.

Student Loan Funds: Specific University loan funds are assigned by the Director of Financial Aid to those students who qualify and/or who have satisfactorily completed one or more semesters at the University of Nevada.

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 a year.

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

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

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

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 Chairman, 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: \$2,500 per academic year. Three percent simple interest rate. Repayment: up to ten 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.

National Direct Student Loan Program (1959)
For regularly enrolled full-time students who meet specific academic and need requirements. Maximum loan: undergraduates, up to \$1,250 per year; graduate students, up to \$2,500 per year. Three percent simple interest. Repayment: up to ten years after graduation or termination of full-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 \$50 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 3 percent simple interest. Repayment: up to ten 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 Higher Education Loans (1969)

For qualified sophomore, junior, senior, or graduate students attending the University of Nevada, Reno. Maximum loan of \$2,500 per year for undergraduate or graduate students. Total amount borrowed under this program may not exceed \$7,500. Interest does not exceed 7 percent simple per year. If eligible, the federal government pays all interest while applicant is in school and a variable percentage of subsidy when the applicant graduates or terminates his education. Repayment may extend up to ten 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 charac-

ter" 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 Basic Educational Opportunity Grant, Health Professions Scholarship Program, Law Enforcement Grant, Nevada Student Incentive Grant, Nursing Scholarship Program 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 Financial Aid.

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 and are making satisfactory academic progress.

Students who are entering the University for the first time are advised not to seek employment until they are properly adjusted to campus life and the academic program. Further information may be obtained from the Student Employment Service in the Office of Financial Aid, Thompson Student Services Center.

The Work-Study Program, under the Higher Education Act of 1965, 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 is related to their educational or vocational objectives. Applications should be submitted to the Director of Financial Aid.

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.

Scholarships and Prizes

All communications concerning scholarships should be addressed to the Director of Scholarships. 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 on the Reno campus are submitted to the Director of Scholarships in January 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.

All 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 students for the purpose of encouraging continued academic excellence and to promote higher achievement. Recipients must be regularly enrolled students at the University during the academic year when they receive their awards.

Applicants for regular undergraduate scholarships must have a minimum 3.0 grade-point average (on a four-point scale) for all college credit with at least one semester completed at the University. 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 not eligible for spring scholarship stipends unless they complete 12 or more credits in the fall semester with a 2.75 grade-point average or higher. 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. All applications are due in the Scholarship Office on or before March 15.

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

Type I Awards

These awards are made to students from any division of the University, usually without respect to class level or academic interest.

Jewett W. Adams Scholarships, \$250

University of Nevada Alumni Association Scholarships, amount variable
 University of Nevada Anonymous Scholarships, \$100
 Camillo Barengo Memorial Scholarships, \$200 or more
 The Mabel and Helene Batjer Memorial scholarship, amounts variable
 Josephine Beam Educational Fund Freshman Scholarships, \$250 - \$500
 Matt Bernard, \$100
 John E. Borchert, \$500
 Howard E. Browne Scholarships, \$250
 Chevrolet Coach-of-the-Year Scholarship, amount variable
 Royna Craig Memorial, amounts variable
 James R. Crane Memorial Scholarship (junior or senior student), \$200
 Charles Francis Cutts Scholarships, \$500
 Daughters of Union Veterans of the Civil War (junior or senior student), \$250
 John Davies Memorial Scholarship, \$50
 Bob Davis Memorial Scholarships, amount variable
 Lino Del Grande, amount variable
 Maude F. Dimmick Memorial Scholarship, amounts variable
 Max C. Fleischmann Freshman Scholarships, \$250 - \$500
 Max C. Fleischmann General Scholarships, \$250 - \$500
 Fluor Utah, Inc. Scholarships in Engineering and Mining, amounts variable
 Grand Army of the Republic Scholarships, \$100
 The Greater Reno Italian Golf Association, amount variable
 Herman and Herman Scholarship, \$50 or more
 Helen and O.C. Hing Scholarships, amounts variable
 Harry F. Holmshaw Freshman Scholarship, \$250 - \$500
 Virginia M. Johnson Scholarship, amount variable
 Alan Ladd Johnston Scholarships, amount variable
 Willard J. Larson, amount variable
 Guy Leonard Memorial Scholarship, amount variable
 Macmillan Scholarship, amounts variable
 Rose Siegler Mathews Scholarships, \$100
 Howard F. McKissick, Jr. and Sr., \$500
 Murdock McLeod, amount variable
 Perle Mesta Scholarship, \$100 or more
 Lloyd and Martha Mount Memorial, \$500
 National Council of Juvenile Court Judges, Inc., \$100
 National Student Association (George M. Williams, President), amounts variable
 Phelps-Dodge Corporation, amount variable
 Paul R. Pinching Memorial, amount variable
 Florence Polish Memorial Scholarship (junior or senior student in Education), amount variable
 E. J. Questa Scholarships for 4-H participants, amounts variable
 Reno Business and Professional Women's Club in memory of Dr. Christie Brown and Felice Cohn Scholarship, \$200
 The Selbig Track Scholarship, \$250
 Silver State Striders, \$1,000
 Soroptimist Club of Reno Scholarships, \$500
 Frederick Stadtmuller Memorial Scholarships, \$100
 Frederick and Anna Stadtmuller Memorial Scholarships, amount variable
 Stauffer Chemical, \$200
 Dr. George Steinmiller Memorial, amounts variable
 Stickman (Lloyd L. Walker) Track Team, \$50
 Jerry Tyson Freshman Scholarships, \$250 - \$500
 Kenneth W. Yeates Scholarship for Athletics, amount variable
 Charles and Faye Zanay, amounts variable

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 chairman or head of the particular University division concerned.

Max C. Fleischmann College of Agriculture

Chester A. Brennen Memorial Scholarship in Agriculture (male graduate of Elko County High School), \$300
 Mary E. Dalton Scholarship in Agriculture, \$200
 Danforth Awards for Agricultural Freshman (One student is provided expenses for leadership camp.)
 Howard Farris Agricultural Scholarships (one junior and one senior), \$500
 Max C. Fleischmann Agricultural Scholarships, amounts variable
 Robert A. Hanson Memorial Scholarship in Agriculture, amount variable
 Isabelle M. Murphy Memorial Scholarship (female junior or senior, Nevada resident), \$200
 Ralston Purina Scholarship in Agriculture (junior or senior in upper 25 percent), \$500
 Harvey A. Reynolds and Thelma Threlkel Reynolds Scholarships in Animal Disease and/or Veterinary Science (undergraduate or graduate), amount variable
 Robertson-Fleming Range Management Scholarship (juniors and seniors), \$100
 Dr. Charles Seufferle Memorial, amount variable
 Trans-Mississippi Golf Association Turf Scholarship, four-year award, \$500
 Union Pacific Railroad Scholarship in Agriculture (freshman from county served by Union Pacific — FFA or 4-H member), \$400

College of Arts and Science

Armanko Office Supply Company Scholarships in Chemistry and Physics, \$100
 Kate L. Bartholomew Scholarship, Journalism, \$500
 Loucile and Alan Bible, \$500
 George R. Bliss Scholarships in Biological Science and Foreign Languages, \$200
 William Brodhead Memorial Scholarships in Criminal Justice, amount variable
 Marye Williams Butler Scholarship in Mathematics, \$50 or more
 Azro E. Cheney Scholarship in English, \$100
 Crown Zellerbach Foundation Scholarship in Journalism, \$500
 Dr. Francis Dean Memorial Scholarships, Nevada-born premedical major, \$150
 Gannett Newspaper Foundation, amounts variable
 The Alleta Gray Memorial Music scholarship, amounts variable
 Fred Hertlein III Scholarship in Chemistry, amount variable
 Houghton Foundation Scholarship in Art and Music, amount variable
 Lakeshore Realty Company (art student), \$100
 Dr. Ira La Rivers Memorial, amount variable
 Teresa Laxalt Memorial, amounts variable
 Carrie Brooks Layman Scholarships in History and Political Science, \$400

Dr. Gilbert G. Lenz Scholarship in Music, amount variable
 Adele Mayne Liddell Scholarship in Music, amount variable
 Mark Lister Memorial (Sigma Nu), amounts variable
 Elizabeth Locke Memorial Scholarship in Music, amount variable
 Karen Loehr Graduate Student Fund, amount variable
 Martin and Martin Scholarship in History and Political Science (female completing sophomore or junior year), \$50
 Wilbur May Foundation Scholarships in Art, \$100 - \$250
 Joseph and Leola McDonald Scholarship in Journalism, amounts variable
 C. W. F. Meiz Foreign Language Fellowship, amount variable
 Agnes B. Momand Scholarships in Music, \$50 or more
 Joe E. Moose Scholarships in Physics and Biology, \$100
 Nevada Future Homemakers, \$100
 Nevada State Golf Association and James Schuyler Memorial Scholarship, amount variable
 Nevada State Press Association Scholarship in Journalism, \$250
 Peat, Marwick, Mitchell Foundation, \$100
 Physical Education Major Scholarship, \$100
 Pinion Gallery Scholarship, \$50
 Political Science Scholarship, \$500
 Ben A. Raggio Memorial, amount variable
 Reno Advertising Club Scholarship in Journalism, up to five, \$250 each
 Reno Chamber of Commerce, \$500
 Reno Emblem Club, 372 scholarships, amount variable
 Reno Newspapers, Inc., Scholarships in Journalism, \$100
 Donald W. Reynolds Scholarship in Journalism, \$1,000
 Kate Riegelhuth Memorial Scholarship in Premedical and Pre nursing, \$100 - \$200 each
 John-Douglas Robb Memorial Scholarship (first-year male law student, graduate of UNR, major in Political Science), \$500
 Dr. Ruth Russell Memorial, amounts variable
 Congressman Jim Santini, amounts variable
 Scripps Scholarship in Journalism, up to five, \$250 each
 John and Louise Semenza Memorial Scholarship in Social Services, \$400
 The Craig Sheppard Memorial Art Scholarship, amounts variable
 Robert A. Simpson Memorial Scholarship in Music, amount variable
 Mary Elizabeth Talbot Memorial Scholarship in Mathematics, \$300
 Theatre Scholarship Fund, amount variable
 Reuben C. Thompson Scholarship in Philosophy, \$200
 Ralph M. Tucker Memorial, amounts variable
 Joseph W. Weihe Memorial Scholarship in Mathematics, amount variable
 Dr. Charles V. (Tom) Wells Memorial, amounts variable
 Lt. Fred Williams Memorial (upper-division male student), \$200
 George R. Williams N.S.A. Scholarship, amount variable
 Fuji Woon Scholarship in French, \$100
 Xerox Corporation, Western Region, \$150
 Kenneth W. Yeates Scholarship in Psychology, \$500
 Loni Dee Yopp Memorial Scholarship in Music, amount variable

College of Business Administration

Bill Archer Scholarship sponsored by Data Processing Management Assn.
 Mr. and Mrs. O. G. Bates Scholarship, \$150 - \$250

CPA Wives of Northern Nevada Scholarship in Accounting, \$100
 Leslie O. Farr, \$1,000
 Myron Frank Scholarships in Business Administration, \$250
 Alexander Grant & Company Scholarship in Accounting, \$500
 Paul Hammel Scholarship in Insurance, \$500
 William Kunce Memorial, amount variable
 National Association of Accountants, Reno Area Chapter Scholarship, \$100
 Nevada Society of Certified Public Accountants Scholarships in Accounting (outstanding junior and senior accounting students), \$500

College of Education

Dr. John A. Bailey, Professional Expectancy Awards in Counseling, amount variable
 Sadie L. Elliott Scholarship in Elementary Education, amount variable
 Rita Hope Winer Scholarship (senior female in secondary education) \$50

College of Engineering

Frank O. Broili Scholarship in Electrical Engineering (for seniors), \$50 or more
 Charles E. Clough Scholarship, \$100 or more
 David Gangner Memorial, amounts variable
 General Electric Foundation, \$125
 Royal D. Hartung Industrial Education Scholarship, amounts variable
 Richard Hellman Scholarship, \$300 or more
 Carl Otto Herz Scholarship in Electrical Engineering, \$100
 Women in Construction, \$250

Sarah Hamilton Fleischmann

School of Home Economics

Jeanette Bankofier Memorial, \$100
 Max C. Fleischmann Home Economics Scholarships, amounts variable
 Nevada Home Economics Association Scholarship, amount variable
 Nevada School Food Service Association, \$100
 Nevada State Cowbelles Scholarship in Home Economics, \$225
 Nora M. and James F. Ryan Memorial Scholarships in Home Economics, \$200

Mackay School of Mines

AMAX Foundation, Inc. Scholarship, several in varying amounts
 The Anaconda Company Scholarship, several in varying amounts
 ASARCO Foundation Scholarship, \$1,000
 Atlas Minerals Scholarship, several in varying amounts
 Basic Refractories, \$300
 Emmet and Vida Boyle Memorial Scholarship, amount variable
 Cities Service Foundation Scholarship, several in varying amounts
 The Cleveland-Cliffs Foundation, \$500
 Consolidation Coal Company, \$2,000
 Cortez Gold Mines, \$500
 Viola Vestal Coulter Foundation Scholarship (junior or senior), \$750
 Viola Vestal Coulter Graduate Scholarship, \$2,000
 Dow Chemical Scholarship, \$250
 Duval Corporation Scholarship, \$1,100

Oscar A. Eckman, Jr., Memorial Scholarship, amount variable
 The Flintkote Company Scholarship, several in varying amounts
 Fluor Mining and Metals, Inc., amounts variable
 Getty Oil Company Scholarship, \$500
 J. R. and Virginia H. Gignoux, \$100
 Larry M. Hammond Memorial Scholarship, \$500
 Royal D. Hartung Industrial Education Scholarship, \$500
 Kennecott Copper Corporation Scholarship (upper-classman in mining engineering), \$1,000
 Parker Liddell Scholarship in Mines, several in varying amounts
 Dr. George Burke Maxey Memorial, amount variable
 Minerals Industry Educational Foundation Scholarships (freshmen, several), \$600
 Newmont Mining Corporation (freshmen, two per year), \$1,000
 N L Industries Scholarship, several in varying amounts
 Warren V. Richardson Memorial Scholarship, \$400
 Union Carbide Corporation Scholarship, several in varying amounts
 Utah International, Inc. Scholarship, several in varying amounts

School of Medical Sciences

Dr. Fred M. Anderson Scholarship, \$300
 Assistant to Medical Students, \$500
 Dr. James I. Botsford Memorial, amount variable
 Clark County Medical Society Auxiliary, \$5,000
 Errett Lobban Cord Memorial Scholarship, amount variable
 Dr. Francis Dean, amount variable
 Delta Zeta Sorority in Speech and Hearing, \$100
 Max C. Fleischmann Medical School scholarships, amount variable
 Dr. Louis L. Friedman, \$300
 Dr. Mary Hill Fulstone, \$500
 Dr. John S. Gaynor Memorial, amount variable
 Johnson Grant, amount variable
 Dr. Wesley W. Hall, Sr., Planning Service Scholarship, \$1,000
 H. Hamer Holloway Memorial, \$5,000
 Jean A. Kelly Memorial, in Speech and Hearing, amount variable
 H. E. Manville, Jr., amount variable
 Manville Fund, amount variable
 Frank McCleary Medical (DAR), \$6,100
 Phil McGinley Memorial, amount variable
 Medical School Achievement Scholarship, amount variable
 Nye General Hospital Auxiliary, amount variable
 Richard Sugden Endowment Scholarship, amount variable

Orvis School of Nursing

Allstate Foundation Scholarship, \$400
 American Legion Auxiliary, Past President's Parley Scholarship, amount variable
 Eugene Benjamin Company Scholarship, \$150
 Michelle Mitchell Memorial, amount variable
 Nevada Association of Medical Assistants Scholarship, \$200
 Nevada State Nurses' Association, District No. 1 Scholarship (recipient must be an R.N. and a member of District No. 1 Association), \$250-\$500
 Premedical—Prenursing Scholarship (sophomore student), \$100

Professional Nurse Traineeship Grant (R.N. graduate of State-approved nursing school), \$200 per month, tuition, fees, and dependency allowance
 Quota Club Scholarship, \$50
 Sparks Student Nurse Scholarship (sophomore student), amount variable

Department of Military Science

American Legion Grant, \$200
 Department of the Army One-, Two-, Three-, and Four-year scholarships, \$100 per month, payment for books, tuition, and all fees
 Kerak Temple, \$100
 Lemberes Family Award, \$100
 National Council of Juvenile Court Judges, \$100
 Nevada State Medical Association, \$100
 Paul C. Rudy Memorial, \$125
 Veterans of Foreign Wars, \$150
 George Wisham, Jr. Fellowship, \$500

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.B.W.A. Drifting Dunes, \$250
 Air Force Assn., Reno Chapter, \$500
 Alpha Tau Omega (ATO), \$800
 American Business Women's Assn., amounts variable
 American Business Women's Assn., Truckee Chapter, \$250
 American Assn. of Teachers of Spanish and Portuguese, \$200
 American Federation of Mineralogical Society, \$1,000
 American Legion—Nevada, \$200
 American Legion Auxiliary, Carson City, \$200
 America's Junior Miss Scholarship Foundation, \$500
 Anaconda Company Scholarship, (graduating senior from Yerington High School), \$500
 John Ascuaga Scholarships, \$1,000
 Battle Mountain High School, \$1,000
 Bekins Foundation, \$200
 Bowling Council of Nevada, \$100
 Business and Professional Women's Club of Carson City, \$250
 Business & Professional Women's Club Career Advancement Scholarship, \$500
 Business and Professional Women's Club of Sparks, \$50 or more
 Belouste Gulbenkian Fundacao, \$800
 Scott Campbell Memorial Scholarships, \$250
 Carson High School, amounts variable
 Churchill County High School (Carl and Buena Dodge, Excellence), amount variable
 Edward W. Clark High School, \$250
 Continental Supply Service Corporation, \$500
 Continental Telephone Company, \$500
 Cornell University (Children's Tuition Scholarship) \$500
 Croatian Fraternal Union, \$100
 Brown-Zellerbach, \$1,000
 Thomas E. Dixon Scholarship, \$75
 Doctors' Wives of Washoe County, Scholarships in Nursing and Medical Science, amounts variable
 Douglas County High School, \$800
 Ralph R. "Bill" Elder Memorial, \$400
 Elks Lodge, Carson City, \$250

Elks Lodge, Oregon State, \$150
 Elks Reno Lodge #597, amounts variable
 Elks National Foundation, amounts variable
 Ely Elks Lodge #1469, \$200
 ENT Officers' Wives Club, \$500
 Fallbrook Women's Club, \$300
 Fallon Lions Club, \$300
 Federal Women's Program, Nellis A.F.B., amount variable
 First Federal Savings & Loan Association, \$1,500
 Max C. Fleischmann Indian Education Scholarships, \$1,000
 Max C. Fleischmann Medical School Scholarships, amounts variable
 Max C. Fleischmann State Department of Education Scholarships, amounts variable
 Fraternal Order of Eagles, Reno Aerie #207, \$400
 Fulbright Postgraduate Studies Abroad, amount variable
 Gabbs P.T.A., \$300
 GEMCO — Charitable and Scholarship Foundation, \$1,000
 Grand Chapter of Nevada, Order of Eastern Star, \$450
 Grand Lodge, I.O.O.F., amounts variable
 Greater Reno Italian Charity Golf Association, amounts variable
 Randy Hall Memorial, \$500
 William Randolph Hearst, amount variable
 International Brotherhood of Electrical Workers, Local Union #357, \$500
 Italian Catholic Federation, Inc., \$500
 Johnson Wax, amount variable
 Jones-West Ford, amounts variable
 Kalama Lions Club, \$200
 Kerak Temple, \$500
 Kiwanis Club of Reno Scholarship, amount variable
 Knights Templar Scholarships, \$200 or more
 Ladies of the Guard, \$250
 Lakes High School, \$100
 Las Vegas High School, amounts variable
 Lions Club of Sparks Scholarship, amounts variable
 Lions International, \$375
 John B. Lynch Foundation, \$500
 Marshall Plan Scholarship, travel and education costs
 May Educational Foundation, \$400
 Mayne Educational Fund, \$325
 Minden Rotary Club, \$1,000
 Mineral County High School, amounts variable
 Miss Battle Mountain, \$450
 Miss California Pageant, \$100
 Miss Douglas County, \$200
 Miss Fallon Pageant, \$100
 Miss Nevada Pageant, \$200
 Miss Santa Cruz County, \$500
 Miss Washoe County Pageant, \$100
 Miss Winnemucca Pageant, \$450
 Moapa Valley Fair, \$500
 Modoc High School, Alturas, CA, \$100
 David Myers Memorial, \$250
 W. H. Myers, Jr., \$860
 National Association of Secondary Schools, \$500
 National Bureau of Economic Research, amounts variable
 Nellis Air Force Base, \$428
 Warren Nelson Scholarship, \$500
 Nevada Insurance Education Foundation, amount variable
 Nevada Junior Miss, \$300
 Nevada National Bank, amounts variable
 Nevada National Guard, \$300
 Nevada School Employees Association, \$250
 Nevada State Fireman's Association, \$700

Nevada State Horsemen's Association, \$150
 Nevada State Medical Association Scholarship, \$500
 Nevada State Nurses Association Scholarship, \$50 or more
 Nevada Telephone-Telegraph Scholarship, \$250
 Nye General Hospital Auxiliary, \$500
 Organization for Spanish Speaking People, \$500
 Pennwalt Foundation, \$500
 Winifred Y. Phelps Trust Fund, \$500
 Rainbow Girls, Reno, amounts variable
 Rama Watumull Fund, \$300
 Rebekah Assembly Scholarship, \$50 or more
 Edward C. Reed High School, amount variable
 Reno Business and Professional Women's Club, \$300
 Reno Chamber of Commerce, \$500
 Reno Jaycees, Inc., \$1,500
 Reno Rotary Club Freshman Scholarship, \$350
 Cecil Rhodes Scholarships to Oxford University, travel and education costs
 Royal Arch Masons, NY, \$300
 San Clemente Men's Golf Club, \$1,000
 Sol, Ella, and Ronald Savitt, amounts variable
 Robert R. Saxon, \$750
 Sociedad Honorifica Mexicana, \$300
 Society of Organized Latins, amount variable
 Scroptimist Club of North Lake Tahoe, \$250
 Sparks Senior High School Scholarships, amount variable
 Stanadyne, Inc., \$1,500
 State of Nevada Employees Association, \$600
 Steiner American Foundation, Inc., \$500
 Supreme Emblem Club, amount variable
 Susanville Lodge, B.P.O. Elks, \$100
 Tahoe-Douglas Rotary Club, \$500
 Tenth Mountain Division Foundation, \$500
 Bud Tippin Outstanding Student, \$1,000
 Tonopah Memorial Scholarship, \$250
 Town and Country Homemakers, \$600
 Perry and Stella Tracy Scholarship, \$250
 United Methodist Women, \$250
 United Transportation Union Insurance Association, \$500
 Valley High School Booster Club, Albuquerque, \$500
 Virginia Lodge #1 I.O.O.F., \$200
 Warner Communications, Inc., \$600
 West Hills Scholarship, \$250
 Western High School, Las Vegas, amount variable
 Western Nevada Peace Officers Association, \$500
 White Pine County School Employees, \$400
 Whittell Booster Club, amount variable
 Wood River High School, Hailey, ID, \$50
 Woodrow Wilson Fellowships, \$2,000
 Winnemucca Lions Club, \$675
 Steve Wise, \$500
 Women's Club of North Tahoe Scholarship, amount variable
 Women's Faculty Club, UNR Scholarship, amount variable
 Wooster Senior High School Scholarships, amount variable
 World Wings International Foundation, \$100
 Yerington High School, amount variable
 Zazpiak Bat Basque Club, \$250
 Zumwalt Scholarship, \$500

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
 Estwing Manufacturing Company Award
 French Medal
 Herz Gold Medal Award (presented to the graduating senior with the highest four-year scholastic record)
 R. Herz & Brother Jewelry Awards (a gold watch is presented to the male and female sophomore students with the highest scholastic records)
 Nevada Congress of Parents and Teachers Award, \$100
 Nevada Society of Certified Public Accountants Awards, \$200
 Old Timer's Club Award
 Robert Petrini Award in Journalism, silver loving cup
 Laura Rains Award in Mathematics (senior graduating with highest GPA), \$100
 Dean Scheid Trophy
 University Scholarship Foundation Art Award
 C. F. and Frank Wittenberg Award in Agriculture, \$100

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 3 percent of the University 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 be obtained from the Director 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 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 2.

Out-of-State Tuition Grants-In-Aid

Each semester the University awards a number of out-of-state tuition grants-in-aid equal to approximately 3 percent of the University's student enrollment. Recipients of these grants-in-aid are not required to pay the nonresident tuition charge. Applications should be directed to the Director 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 2.

Graduate Awards

Graduate Teaching Fellowships

To be eligible for graduate teaching fellowships 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. A typical stipend is \$1,600 for a half-time appointment for an academic semester (more depending upon qualifications) plus fee and tuition grants-in-aid. Application should be made to the dean of the college concerned or the department chairman.

Financial Aids Calendar

Type	Deadline date
Freshman scholarship applications must be returned by students to high school principal by February 1. Deadline to college (Type I)	March 1
Undergraduate scholarship applications (Type I)	March 1
All other scholarships	Check deadline with college or department concerned.
Regents Grants-in-Aid (tuition and fee waiver applications)	
Fall semester	June 1
Spring semester	January 2
Federally Funded Financial Aid (Loans, Grants, Work)	
Fall semester	April 1*
Spring semester	October 1*
Summer session	March 1*
Nevada State /USA loans	During period of need.
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: Students should complete and mail the ACT Family Financial Statement, Nevada Student Data Form, and Financial Aid Transfer Record at least six weeks prior to applicable deadline. Late applications are accepted, however, they are evaluated on a when-time-allows and funds-available basis.

Veterans' Service—Benefits

Veterans' services are administered by the Veterans Office staff located 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 class cards 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 any 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 Fellows must obtain a statement from the Academic Personnel Office verifying their precise status as a Fellow before seeking certification if they are registering for less than nine graduate credits and desire full-time subsistence.

Tutorial benefits are administered through the Veterans Office for up to \$69 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 Service

The University Career Planning and Placement Service offers centralized placement and career counseling services to help prospective graduates and graduate students of the University secure professional employment in business, industry, government, or education. Completion of the registration forms in the Career Planning and Placement Office (Thompson Student Services Center) and payment of the \$5 registration fee establishes the confidential or nonconfidential file needed by prospective employers, and qualifies the senior or graduate to participate in the on-campus recruitment program, receive notification of career vacancies, and utilize the career library. The confidential or nonconfidential file is active for one placement year (September through August 31). Reactivation of this file for any subsequent placement year requires payment of an additional \$5 fee. Recruitment schedules on campus begin after the first of October and extend through the middle of May. It is essential that seniors and graduate students complete their placement registration forms early, to allow time for obtaining letters of reference from faculty members prior to the actual recruitment season.

Opportunities for juniors and seniors to secure full-time professional summer employment and training, with companies that annually recruit on campus, are frequently available.

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 areas of responsibility and jurisdiction within the realm of ASUN are as follows:

ASUN President

The ASUN President is the chief executive officer, serving as the chairperson 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 chairperson 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 Business Manager (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, as well as other

University activities and interests, to come to the attention of the University community.

Vice President of Activities

The Vice President of Activities acts as the chairperson 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; reviews the operation of the Student Union; reviews and approves groups for ASUN recognition; 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 (chairperson), 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 nine colleges. All actions taken by the three boards and the Program and Budget Committee must be reviewed and approved by the Senate.

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*.

Associated Women Students

The primary administration of the Associated Women Students of the University (AWS) is vested in the AWS President and the AWS Council. In cooperation with the Office of Student Services, the AWS Council sponsors programs of special interest to women students.

Student Organizations

Students have an opportunity to participate or apply for membership in a wide range of 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.

Fraternities and Sororities

There are seven social fraternities and five social sororities at the University.

<i>Social fraternities</i>	<i>Date founded locally</i>
Sigma Nu	1914

Phi Sigma Kappa	1917
Sigma Alpha Epsilon	1917
Alpha Tau Omega	1921
Lambda Chi Alpha	1929
Phi Delta Theta	1972
Omega Xi	1978

<i>Social sororities</i>	<i>Date founded locally</i>
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 Assistant Dean of Students.

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.

Copies of the *Rules and Disciplinary Procedures for Members of the University Community*, the Student Conduct Code, and regulations regarding the use of University facilities are available in the office of the Associate Dean of Students, 103 Thompson Student Services Center, and in the Activities Office in Jot Travis Student Union. Each student is responsible for knowing and acting in accordance with these rules. A student who exhibits offensive behavior on University-owned or supervised



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 United States 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.

Computer Science Minor

The Computer Science minor, open to all students, consists of a core of at least 6 courses comprising at least 18 credits including 12 or more upper division credits of a computer science nature taught in the Departments of Electrical Engineering, Mathematics, Philosophy, and Accounting and Information Systems. This core covers areas of computer science recognized as fundamental by professional organizations in computing, engineering, and business. Students completing the core would have a strong technical foundation upon which to build further special expertise in computer science in the directions of either electrical engineering (hardware design and interfacing), mathematics (theoretical computer science, software), or accounting and information systems (software applications in business). Other disciplines might also be profitably related to computer science.

Core Courses

<i>Elementary computer science courses selected from among:</i>	CREDITS
E.E. 131-132, Computer Techniques I-II (2-2)	
Math. 183, Introduction to Computer Science (3)	3 or 4
I.S. 250, Introduction to Data Processing (3)	
Math. 385, Computer Programming and Organization	3
Math. 386, Programming Languages	3
E.E. 333 (Math 387), Computer Logic and Architecture	3
Math. 486 (EE 436), Computer Systems and Systems Programming	3

Electives selected from among:

- E.E. 231, Computerized Matrix Algebra I (2)
- E.E. 232, Computerized Matrix Algebra II (2)
- Math. 283, Computer Mathematics (2)
- Phil. 326 (Math 307), Symbolic Logic (3)
- Math. 435, Combinatorics (3)
- Math. 485, Data Structures (3)
- I.S. 251, Cobol (3)

2 or 3

The Computer Science minor is administered by a six-member faculty committee. Students pursuing this minor must have an adviser from this committee in addition to their regular adviser. For further information contact Edward Wishart, Department of Mathematics, who is chairman of the program committee.

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 18 credits, of which at least 9 must be in upper-division (300-400) courses. One course from each of the following 6 categories must be taken:

- Introduction: Env. 101.*
- Ecological Principles: Biol. 212.*
- Physical Principles: Biol. 410, 610; Chem. 100, 101, 171; Ch. E. 204; Engr. 204; Geol. 480, 680; Phys. 101, 106, 311, 511; or an equivalent course in the biological, physical, or earth sciences, or in engineering.*
- Economic Principles: Ec. 101; Ec. 459, 659; A.R.Ec. 100; or an equivalent course in the economic sciences.*
- Social Science and Humanistic Perspectives: Anth. 470, 670; Geog. 436, 636; Hist. 316; Psy. 333; or an equivalent course in the social sciences or humanities.*

Environment Planning and Policy: P.Sc. 457, 657; R.N.R. 490, 690; Geog. 431, 631; or an equivalent course dealing with environmental planning and policy.

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 more than 6 credits from the student's major department are acceptable.

Additional information may be obtained by contacting the Environmental Studies Board, through the Geography 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 humanities and social sciences. Courses in ethnic studies are offered in the subject areas of anthropology, English, foreign languages and literatures, geography, history, political science, psychology, social services and corrections, 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 is also an approved related subject area for students majoring in anthropology, art, criminal justice, English, history, political science, psychology, Spanish, social services and corrections, and sociology. The intent of the related subject area is to provide the student with an in-depth exposure to the elements that have made and continue to make the ethnic experience in America. Students choosing ethnic studies as a related subject area are required to complete four to seven courses (depending upon their major department's requirements for related subject areas) in one ethnic specialization: Black American, La Raza, or Native American.

Black American

Required Courses: Anth. 365; Hist. 456.
Elective Courses: Anth. 205; Engl. 345; Hist. 447, 448, 449, 455; H.Ec. 438; P.Sc. 412, 453; S.Sv.C. 372; Soc. 205, 379.

La Raza (Chicano, Latino)

Required Courses: Hist. 320; Span. 222.

Elective Courses: Anth. 205, 425; Engl. 345; Hist. 343, 344, 345, 346; H.Ec. 438; P.Sc. 415, 453; S.Sv.C. 372; Soc. 205, 379.

Native American

Required Courses: Anth. 362; P.S. 453.
Elective Courses: Anth. 205, 360, 363; 420, 423; Engl. 345; Hist. 418; H.Ec. 438; S.Sv.C. 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 Dr. Michael S. Coray, Room 104, Mack Social Science Building.

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 (England), Paris and Nantes (France), Freiburg (Germany), and Madrid (Spain). 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. At Madrid, in addition to the regular program in Spanish, a new program designed particularly for business students admits those without previous study in Spanish to a first semester that includes two business courses taught in English, plus intensive study in Spanish.

Programs of study must be approved by the student's adviser, the chairman of the department concerned, and a screening committee. Financial aid is available. Further

information and application forms may be obtained from Mrs. Beth Carney, Coordinator for the Institute of European Studies, Room 209, Frandsen Humanities Building, telephone (702) 784-6778.

The University's affiliation with the Institute of European Studies does not prevent a student from exploring other programs of study abroad.

Information about other programs, including those sponsored by the University may be obtained from catalogs available for reference in the Department of Foreign Languages and Literatures, Room 205, Frandsen Humanities Building.

Health Careers for American Indians

The Health Careers for American Indians program is a federally funded program which provides career advisement, counseling, and tutoring to American Indian students interested in careers in the health fields. For further information, contact the Coordinator of Health Careers for American Indians, Mackay Science, Room 222.

Historic Preservation Program

An Historic Preservation Program is offered through the College of Arts and Science effective the fall of 1979. Historic preservation is a rapidly expanding field devoted to the understanding, recording, preservation, restoration or adaptive re-use 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. Additional information may be obtained by contacting Dr. Don Fowler, Director, Mack Social Science Building 202c, telephone (702) 784-6851.

History and Social Theory

History and Social Theory is a related area of study for students majoring in anthropology, economics, history, philosophy, political science, psychology, or sociology. The purposes of the History and Social Theory related area are to introduce students to the interrelationships of history and the social sciences and to the common theoretical foundations of the social sciences. To fulfill the requirements of this related area, each student must complete a course of study comprising four to seven courses (the number depends upon individual department requirements for related subject areas) chosen from the following three categories:

Theoretical and Special Topic Courses (Each student must take at least four of these courses exclusive of those taken within the major field.): Anth. 440; Ec. 410, 481; Hist. 300; Phil. 494; P.Sc. 323-324; Psy. 408; and Soc. 491, 497.

Related Courses (Each student must take one or two of these courses exclusive of those taken within the major field.): Anth. 312; Ec. 463-464; Hist. 377-378, 403-404, 427; Phil. 203, 314, 325, 401, 407; P.Sc. 421, 423, 426; Psy. 473; and Soc. 333, 485.

History Survey Courses (Each student must take one of these courses except that a history major must take an additional course from one of the two preceding categories.): History 416, 463, 464.

Additional information is available upon request from the Dean of Arts and Science, Room 217, Physics Building.

Honors Study

The Honors Study program offers talented students additional opportunity for developing their skills, training their powers of observation and expression, and developing a broad understanding of their major field as it relates with other areas of scholarship.

Successful participation in the program gives superior students the personal satisfaction of having met and mastered the most innovative and challenging program the University offers. In accomplishing this, students enjoy a close relationship with their teachers and fellow honors students. A record of the courses taken for honors is maintained and the student may graduate with honors from the University. This mark of distinction indicates the ability to carry out independent study and exhibit superior scholarship.

Students entering the University are considered for acceptance to honors studies on the basis of their previous work and/or ACT scores. Students presently enrolled are con-

sidered on the basis of their work at the University. Normally, each student must maintain a 3.0 grade-point average or above in all formal University course work to participate.

Various programs lead to Graduation with Honors. These include departmental as well as general University honors.

Honors points (equal to the number of course credits) are awarded at the discretion of the instructor but in no case for course grades of less than **B** for participation in Honors Study Board courses, honors sections of standard courses, additional quality work in standard courses, special reading programs of research, graduate courses (700-level) taken by eligible seniors, and interdepartmental colloquia.

The requirements for Graduation with Honors are satisfaction of all requirements in the college program selected, attainment of a 3.0 (**B**) average in all college work as well as in the field of concentration, and attainment of 18 honors points of which at least 9 are earned during the junior and senior years in courses numbered 300 or above.

Additional information is available from the office of the Vice President for Academic Affairs, Clark Administration Building.

Graduate Programs in Hydrology and Hydrogeology

Academic guidance of these programs 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.

Additional information is available upon request from the Coordinator of the Interdisciplinary Faculty Board for Graduate Programs in Hydrology and Hydrogeology, Department of Civil Engineering, Room 130B, Scrugham Engineering-Mines Building.

International Studies

Individuals who wish to broaden their knowledge and understanding of the global issues confronting the world today may earn a minor in *International Studies* by completing 18 credits in courses approved by the International Studies Development and Review Board. The minor utilizes existing courses offered by the various departments in an interdisciplinary approach which permits him to view from a multiple perspective the current problems common to all countries and peoples of the world.

Requirements: Completion of a total of 18 credits, usually six courses, selected from the International Studies list, distributed as follows:

At least eight upper-division credits, including no less than one course outside the major department;

At least 10 credits at any level (upper-division or lower-division);

Three courses must be from three different departments outside the student's major department;

A maximum of three courses from the student's major department may apply toward the minor.

The list of approved courses is available from the student's dean, department chairman, or any member of the International Studies Development and Review Board. General information may be obtained upon request from John Halvorson, Associate Director of Admissions, Room 8, Clark Administration Building.

Medieval and Renaissance Studies

Medieval and Renaissance Studies is a related subject 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.

To fulfill the requirements of this related subject, the student must complete a course of study comprising four to seven courses (the number depends upon individual department requirements for related subject areas) chosen from the following courses: Art 408, 409, 419; Engl. 413, 417, 418, 430, 451, 453, 458, 461, 465, 469; F.L.L. 458; Fr. 311, 441, 462, 463, 464, 465, 466; Ger. 311, 441, 459; Hist. 373, 374, 431, 473; Mus. 201; Phil. 212; Sp.Th. 471.

Hist. 105 is particularly recommended as background; other recommended background courses are Art 216, 217; Engl. 235, 292, 337; F.L.L. 150, 151 (Latin), 292; Hist. 372.

In consultation with the related subject adviser, the student selects a program of courses drawn from at least two departments. The program must be approved by the Medieval and Renaissance Studies Committee. Additional information is available from Dr. Francis X. Hartigan, Room 109, Mack Social Science.

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 United States. Governed by the philosophy that participation is essential to education, the NSE encourages students to experience new life styles 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 United States (currently 44 schools participate). A minimum of 2.5 cumulative 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 Dr. Robert G. Kinney, Room 103, Thompson Student Services Center.

Philosophy of Inquiry

The Committee on the Philosophy of Inquiry (COPI) sponsors a program of interdisciplinary studies designed to integrate differing methods of inquiry and points of view concerning the human problems of our age. The general aim is to use recent developments in the philosophy of human action and in the study of personal aspects of scientific inquiry to illuminate a number of particular themes, such as *Value Aspects of Social Accounting Systems (Social Economics)*, *Science and Religion*, *Philosophy and Method of the Physical Sciences*,

and *Philosophical Psychology*. With the cooperation of several departments, these courses and others have been established under the auspices of the Committee.

The courses offered include lower- and upper-division interdisciplinary lectures, upper-division and graduate seminars, single-discipline courses with the participation of faculty from other areas, and 700-level graduate courses. Honors credit is available where appropriate for those who wish it.

The courses are open to students interested in the examination of fundamental questions of a philosophical nature in the application of humanistic insights to the sciences and social sciences, and in the examination of the broader implications of their own particular major fields.

Students may register in courses in the program as recommended by the instructors concerned and/or the director of the program, if, for the area in question, they have sufficient background, interest, and willingness to work.

Additional information is available upon request from Dr. William T. Scott, Room 212, Physics Building.

Religious Studies

Religious Studies is a related subject for students majoring in anthropology, art, biology, chemistry, criminal justice, English, history, home economics, journalism, mathematics, music, philosophy, physics, political science, psychology, sociology, and speech and theatre. The purpose of Religious Studies as a related subject 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.

To fulfill the requirements of this related subject each student must complete a course of study comprising four to seven courses (the number depends upon individual departmental requirements for related subject areas) chosen from Anth. 322, 339; Biol. 315; Engl. 333, 337, 339; Hist. 317, 318, 371, 373; Med.S. 380, 381; Phil. 112, 201, 323, 401, 404; Soc. 333.

Additional information is available upon request from the Dean of the College of Arts and Science, Room 217, Physics Building.

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 State Department of Education of Nevada. 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 Division of Curriculum and Instruction and the Dean of the College of Education, in cooperation with department chairmen and deans of the Colleges of Arts and Science, Agriculture, and Business Administration, and the School of Mines.

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 information concerning minimum requirements for certification from the State Certification Director, State Department of Education, 400 West King Street, Carson City, NV 89701. 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. Edmund J. Cain, Room 101, Education Building.

Western Interstate Commission For Higher Education (WICHE)

The WICHE Student Exchange Program was developed to aid Nevada students to obtain access to certain fields of professional education.

Support for these varied fields is through legislative appropriation. Therefore only a certain number of students are certified to receive WICHE funds.

Requirements for certification are varied for each field of study. The basic eligibility requirement for all students interested in the WICHE Student Exchange Program is to be a resident of Nevada six months prior to application.

Applications and related information must be in the WICHE office by October 15 of the year before the individual expects to enter school.

For information regarding the fields of study, requirements for certification and applications, contact the WICHE office representative, 405 Marsh Avenue, Reno NV 89509.

Women's Studies

Women's Studies is a related area subject for students majoring in Art, English, Speech and Theatre, Social Services and Corrections, Mathematics, Criminal Justice, Anthropology, Sociology, and Psychology. 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.

To fulfill the requirements, each student must complete the introductory course, Women's Studies 101, and a program comprising 15 additional credits chosen from the following courses: Anth. 212; Engl. 267; H. Ec. 131*, 274, 315, 341, 422, 430, 431*, 458*; Soc. 275, 453, 480; Span. 441*; C. J. 498*; Hist. 497*; P. Sc. 354; S. Sv. C. 320, 372*; Sp. Th. 412*.

Courses should be chosen from three different departments and must be approved by the student's adviser and the Women's Studies adviser.

Additional information and advisement is available from Dr. Anne Howard, Room 58B, Frandsen Humanities.

*When these courses or term projects within them deal with women's concerns.

Max C. Fleischmann College of Agriculture



DALE W. BOHMONT, *Dean*
R. GRANT SEALS, *Associate Dean*

The general objectives of the Max C. Fleischmann College of Agriculture are to help provide a sound educational experience for those who come to the University for their higher education; to study, investigate, and build a store of knowledge concerning the problems of agriculture, agricultural and related industries, renewable 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 four segments: School of Agriculture, School of Veterinary Medicine, Agricultural Experiment Station, and 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 staff is located on the campus and a field staff is 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.

SCHOOL OF AGRICULTURE

The School of Agriculture adheres to land-grant missions and policies. "The mission of the land-grant schools 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 School 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 School of Agriculture provides resident instruction in various areas of agricultural science at the associate, baccalaureate, and graduate levels. Shorter duration certificate programs are available in specialized subject matter areas as part of the associate degree program. 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 and a new equitation center 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 which when followed by the successful completion of a fourth-year professional curriculum at another accredited school of veterinary medicine results in a Bachelor of Science in Veterinary Science degree from the University.

Certificates

The School of Agriculture grants certificates for the successful completion of 20 or more credits of course work toward an associate degree or for 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.

Associate Degree Program

An Associate of Science degree is awarded

to students completing the prescribed two-year course of study designed to provide training in agricultural subjects at the technical level. Students may elect programs from three major areas: agricultural mechanics, farm and ranch management, and parks and turf management.

Baccalaureate Program

The School of Agriculture offers the Bachelor of Science degree with majors in agriculture; agricultural and resource economics; animal science; industrial mechanics; plant, soil, and water science; and renewable natural resources. Needs of students are met through use of options in the major field. Each option includes certain required courses plus electives to be selected by the student in consultation with his adviser. Options in the agriculture major include general agriculture, journalism, and pest control. The agricultural business curriculum is included as an optional area in the agricultural and resource economics major along with the economics option. The industrial mechanics unit offers options in agricultural mechanics, industrial mechanics, and agricultural education. The plant, soil, and water science major provides options in crops and soils, water science, plant science, and soil science. Optional programs in the renewable natural resources major are forestry, wildlife management, range management, recreation area management, wildland conservation, and watershed management.

Master's and Doctoral Programs

Master of Science degree programs are offered by five subject matter divisions in the School of Agriculture. Programs requiring thesis are available with majors in agricultural and resource economics; animal science; biochemistry; pest control; plant, soil, and water science; and renewable natural resources. Nonthesis programs are offered in agricultural and resource economics; animal science; plant, soil, and water science; and renewable natural resources. Students with an interest in agricultural education or agricultural mechanics may register for one of the nonthesis majors and supplement with courses from the College of Education. In addition to the above, area of concentration programs can be developed for the individual student.

A Doctor of Philosophy degree is offered in biochemistry. The doctoral degree in hydrology and hydrogeology offered in the Mackay School of Mines encompasses areas in plant, soil, and water science and renewable natural resources in the College of Agriculture.

Instructional Divisions

Agricultural and Industrial Mechanics Division

Faculty: Butler, Coyle, Herndon, McKenna, Squires (Ch.)

Agricultural and Resource Economics Division

Faculty: Barmettler, Book, Champney, Ching (Ch.), Garrett, Knechel, McNeely, Myer, Shane, Weizstein
Adjunct Faculty: Ries

Animal Science Division

Faculty: Bailey, Behrens, Bohman, Cirelli, Foote, Lesperance, Norman, Ringkob, Seals, Speth (Ch.), Vaught, Weeth

Biochemistry Division

Faculty: Arnett, Blincoe, Blomquist, Heisler, Lauderdale, Lewis, Pardini (Ch.), Payne, Smith, Welch, Woodin
Adjunct Faculty: Jordan

Plant, Soil, and Water Science Division

Faculty: Bohmont, Cords, Gifford, Gilbert (Ch.), Guitjens, Jensen, Johnson, Maxfield, Miller, Peterson, Post, Young
Adjunct Faculty: Hunt, Thyrt

Renewable Natural Resources Division

Faculty: Artz, Buist, Burkhardt, Kilpatrick, Klebenow (Ch.), Masse, Miller, Skau, Tueller
Adjunct Faculty: Christensen, Eckert, Evans, Everett, Meeuwig, Young

Associate Degree Offerings

Associate of Science degree programs in agriculture are designed to meet the needs of students who desire to continue studying beyond high school to prepare for employment at the technician level. The two-year program is designed to give students the necessary background for technical positions in businesses supplying and servicing agricultural producers, as well as in the production, processing, and distribution of agricultural products. Certificate programs of shorter duration are available to students desiring to take courses for one or two semesters con-

centrated in a particular subject matter area.

Admission requirements to the associate degree programs are identical to admission requirements of the baccalaureate degree programs.

Certificates are given to students in the associate degree program who successfully complete course work in a given major field but who do not wish to complete the requirements for the associate degree. The certificate is awarded by the School of Agriculture stating that the student has completed a certain number of credits in the particular subject matter area, and includes a listing of courses completed on the back of the certificate. The certificate is awarded at the end of the semester with a new certificate issued after successful completion of additional courses.

The associate degree program in agriculture requires the completion of at least 64 credits specified by the college. An average of **C** or above is required for the total credits attempted.

The number of credits taken on an **S/U** basis may not exceed 15. Each academic division sets actual credits allowed for their majors within this maximum.

Candidates for graduation must submit the completed application form to the Associate Dean of the School of Agriculture by the registration period two semesters before the proposed date of graduation. (See Requirements for Graduation section.)

The 24 credits of Group I requirements must be completed by all students in addition to the 38 hours of specific requirements for the particular major:

Group I Requirements	Credits
Communications (Engl. 101, 102)	6
Constitutional government (Hist. 111 or P.Sc. 103)	3
Basic agricultural subjects (Ag. 20, 150, and 216)	8
Acc. 201	3
Electives in any business related course	6
	<hr/> 26

A maximum of 6 credits of the 280—Independent Study—courses may apply toward the associate degree requirements.

Agricultural Mechanics Major

The agricultural mechanics major provides training for several areas of employment. Work in this program qualifies students for employment in either sales or maintenance of agricultural machinery and equipment. This program includes work on heavy equipment,

use of which is not confined exclusively to agriculture.

Group II Requirements	Credits
Agricultural and industrial mechanics courses	21
Electives*	19
	<hr/> 40

Farm and Ranch Management Major

The farm and ranch management major provides a great deal of leeway in the selection of appropriate electives to best fit the student planning to return to the farm or ranch, or enter into professional farm or ranch management.

Group II Requirements	Credits
A.R.Ec. 100, 211	6
A.I.M. 100	3
A.Sc. 100, 204	6
B.Ch. 120	4
P.S.W. 100, 120, 164	9
Electives	12
	<hr/> 40

Parks and Turf Management Major

The parks and turf management major is designed primarily for those students who plan to be employed in the designing, planting, maintenance, or operation of horticultural installations such as parks, golf courses, greenhouses, or related areas.

Group II Requirements	Credits
A.I.M. 115	3
B.Ch. 120	4
P.S.W. 120, 161, 162, 163, 164, 166, 260	23
Electives in plant, soil, and water science	3
Electives	7
	<hr/> 40

Baccalaureate Offerings

Bachelor of Science degree programs in the School of Agriculture are offered with six majors and a series of options in each of the majors. Special course requirements are established for each major and option.

To obtain the bachelor degree in agriculture, the student must meet both University and School requirements consisting of 128 semester credits. 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 division sets actual

*Note: Students emphasizing maintenance should take 12 additional hours of mechanics courses among electives, those emphasizing business should take business and economic courses.

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 division. Each student's plan of work 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)
	<hr/> 9-12

School of Agriculture Requirements

The following requirements apply to all students in the School of Agriculture *regardless of major*:

Group I Requirements	Credits
Sp.Th. 113	3
Social sciences and humanities (may include courses to meet Constitution requirements)	15
Math. 110 or equivalent (as established by the ACT score, SAT score) ...	3
Biol. 101, 201 or 202; Chem. 101 or 171	11
A.R.Ec. 202 or Ec. 101	3
Basic agricultural resources ³ (any two of the following courses not in the student's major: A.Sc. 100; P.S.W. 100; R.N.R. 100; A.R.Ec. 100; A.I.M. 100)	9
	<hr/> 44

A maximum of 12 credits of the 280, 480—Independent Study—courses may apply toward the baccalaureate degree requirements.

Agriculture Major (Ag.)

The undergraduate agriculture major con-

¹ High school grades and ACT scores determine whether the entering student takes English 101 or goes directly to 102. Students not required to take 101 may use these 3 credits for free electives.

² History 111 or Political Science 103 may be used to satisfy both requirements. United States Constitution requirement may be satisfied by: Political Science 409, 410; History 101, 401. The Nevada Constitution requirement may be satisfied by: Political Science 208, History 102, 217. These courses may be taken as part of the social science electives shown in Group I requirements.

³ Transfer students having no agriculture courses must meet this requirement. Transfer students with agriculture courses may substitute in consultation with their advisers, division chairmen, and associate dean.

tains options in general agriculture, journalism, and pest control.

General Agriculture Option: This option is designed for students preparing for positions requiring a general knowledge of agriculture. Many students who plan to operate a farm or ranch select this option.

Group II Requirements	Credits
Agricultural and resource economics courses	6
Agricultural and industrial mechanics courses	6
Animal science courses	6
Plant, soil, and water science courses	6
Renewable natural resources courses	6
Chemistry and biochemistry courses	4
B.Ch. 120	4
Ent. 391 or Biol. 360, 362	3-4
Electives to satisfy total credits	

Journalism Option: This curriculum prepares students for positions in communications such as agricultural news reporters, radio and television broadcasters, market news reporters, and newspaper or magazine writers or editors.

Group II Requirements	Credits
Jour. 101, 221, 222, 280, 351, 356, 372, 375	21
Jour. 481 (internship in two or more areas), electives (4 credits)	7
Agriculture electives (must include at least one course in each division of the School)	21
Electives to satisfy total credits	

Pest Control Option: This program is designed to give the student a broad educational basis for identifying and solving problems of pests affecting humans, animals, and crops. Students taking this course of study obtain sufficient knowledge to obtain employment in sales, technical sales, and research and development with private industry or self-employment in the area of pest control. A student finishing this option may pursue graduate work in pest control, entomology, and other related fields. This option is directed by the faculty of the Entomology Section, Biochemistry Division.

Group II Requirements	Credits
Ag. 270	3
Ent. 391, 400, 412, or 422	7
P.S.W. 355, 356, 471	10
Biol. 306, 333, 355, 360, 381; 383 or 384	18
Chem. 142	4
Electives to satisfy total credits (include 5 or more upper-division credits)	

Agricultural and Resource Economics Major (A.R.Ec.)

Students enrolled in this major may elect an

option in either economics or community and resource development and planning.

Economics Option: This program combines the fundamentals of business and economics with a basic background in agriculture. This curriculum encompasses five areas of economics and business administration together with agricultural economics. Considerable flexibility is built into the program to allow specialization in areas of particular interest. Students completing this curriculum are prepared to work in a variety of off-farm agricultural businesses as well as managing farm and ranch businesses. They are also prepared to continue on in graduate work.

Group II Requirements	Credits
A.R.Ec. 315, 332, 421	9
Ec. 102, 303, 321 and 322	12
Ag. 270; Math. 265 (may be taken under Group I)	6
Acc. 201 and 202; Mgr.S. 325 or 373	9
Managerial sciences	3
Sp.Th. 329	3
Electives—agricultural economics, economics, or any area of business	12

Economics of Community Resource Development Option: This program provides a basic foundation in economics and other fields which allows the student to work in community resource development at both the rural and urban levels, natural resource management, and with federal, state, and local agencies involved in community or natural resource development and management. Students completing this curriculum are prepared for graduate work in agricultural and resource economics.

Group II Requirements	Credits
A.R.Ec. 260, 316 or 416, 368 or 364 or 466, 460	12
Ag. 270	3
Acc. 201	3
C.E. 401	3
Ec. 102, 303, 321 and 322	12
Mgr.S. 323	3
Soc. 376	3
Jour. 301	2
P.Sc. 208 (May be taken under Group I)	3
Structured electives ¹	18
Electives ² to satisfy total credits	

Animal Science Major (A.Sc.)

Students majoring in animal science prepare for careers in livestock production, business, education, research, and services

¹ Structured electives come from a list of 31 courses in agricultural and resource economics, accounting, civil engineering, economics, geography, home economics, managerial sciences, political science, renewable natural resources, and sociology.

² Suggest these electives be taken if possible from the courses listed as structured electives.

related to livestock. Beef cattle ranching, meat processing and production, livestock extension, university teaching and research, livestock consultants, market livestock analysts, and animal recreationists are examples of some of the professional opportunities available. Flexibility is obtained for each student by appropriate selection of a wide variety of electives to meet educational objectives. Students planning on graduate studies should select appropriate electives early in the baccalaureate program with the assistance of the adviser. The following classes are required for students selecting this option in addition to those required by the University and the College of Agriculture:

Group II Requirements	Credits
A.Sc. 100, 204, 211, 400, 405, 406, 407, 409	27
Biol. 306; Biol. 366 or V.M. 413; V.M. 408	11-12
R.N.R. 341 or P.S.W. 304 or 355	3
Chem. 142 or 172 or 243; B.Ch. 301	6-12
Electives to satisfy total credits	

Agricultural and Industrial Mechanics Major (A.I.M.)

Undergraduates majoring in the Agricultural and Industrial Mechanics Division have several options as a major area of study. Two general areas of concentration are provided, with choices in each area. One major area deals specifically with mechanics and has optional courses leading to concentration in agricultural or industrial mechanics. The other major area provides preparation to teach vocational agriculture and/or other mechanical courses at the high school level.

Industrial Mechanics Option: Prepares student with mechanical and technical background in the broad areas of processing and construction. In addition to a strong technical and mechanical background, students also receive training in the areas of business, industrial psychology, and economics which are needed for advancement in the supervisory and managerial areas of industry. Close supervision and consultation with an adviser are needed to obtain the maximum benefits offered by this major option.

Group II Requirements*	Credits
Agricultural and industrial mechanics courses	36
Mgr.S. 310, 323, and electives	9
Acc. 201, 202	6
Electives to satisfy total credits	

*Psy. 101 and 391 should be included as part of Group I in this option.

Agricultural Mechanics Option: Prepares students for occupations utilizing farm equipment and structures in sales, maintenance, installation, and conservation. Emphasis is placed upon the scientific, technical, and economic application for mechanization. The training provides competency for a variety of opportunities in applied mechanics.

Group II Requirements	Credits
Agricultural and industrial mechanics courses	36
A.R.Ec. 315, 411	6
Electives—animal science	6
Electives—biological and/or physical sciences	6
Electives—plant, soil, and/or water science	6
Electives to satisfy total credits	

Agricultural and Industrial Mechanics Education Option: The course of study is designed to prepare students for high school teaching. With two years of on-the-job training or practical experience and completion of the required program, students are eligible for vocational secondary education teaching certificates.

Group II Requirements*	Credits
A.I.M. 144, 444, 446, 447, 457	17
Agricultural and resource economics electives	3
Agricultural and industrial mechanics electives	12
A.Sc. 405 or Biol. 300	3 or 4
P.S.W. 120 or 222, 164 or 304, electives (3)	10
A.Sc. 211, electives (7)	10
Agriculture electives	8
Electives to satisfy total credits	

Plant, Soil, and Water Science Major (P.S.W.)

A student pursuing one of the options under this major may gain a thorough understanding of the fundamentals of plant science, soil science, or water science; or of the applied aspects of one or more of the specialties encompassed by this rather broad field.

Crops and Soils Management Option: Orientation is toward management of the soil resource and/or the production of plants for man's benefit. Electives permit specialization in crop science, horticulture, plant pathology, soil science, or combinations of two or more. They may also be chosen to provide familiarization in the area of agricultural business. Students can prepare for farming, greenhouse, nursery businesses, or for positions as county agents or with federal and state agencies or agricultural industries emphasizing

*Agricultural education students should include the following courses in meeting Group I requirements: (a) electives in arts, humanities, or social sciences should include Ed.F.M. 103; Hist. 111 or P.Sc. 103; Psy. 101, 231; C.A.P.S. 400.

crop products, fertilizers, agricultural chemicals, and/or resource management.

Group II Requirements	Credits
P.S.W. 100, 164, 222, 304, 306, 327, 355, 356, 400, 471, 344 or 441	31
Ag. 270	3
A.R.Ec. 211 or 411 or Acc. 201	3
R.N.R. 341 or A.Sc. 204 or 211	3
Ent. 391	3
Chem. 142 or 172	4
Electives to satisfy total credits	

Water Science Option: Emphasis is placed on mathematics, engineering, and the physical sciences basic to a thorough understanding of the occurrence, distribution, movement, use, and control of water. Students in this option should be able to expect employment in industry and in private and public management and service agencies. This option prepares the student for graduate study in soils, hydrology, drainage, irrigation, and watershed management.

Group II Requirements	Credits
P.S.W. 100, 222, 304, 344, 422, 446	19
Six credits selected from P.S.W. 331, 441, 444, 445	6
Six credits from C.E. 241, 242, 367, 368; M.E. 150, 241	6
A.R.Ec. 466	3
Ag. 270	3
Biol. 355, 356; Chem. 142	7
Math. 215, 216, 310; Phys. 151, 152, 153, 154, or Phys. 201, 202, 203	20-21
Electives to satisfy total credits	

Plant Science Option: Course work emphasizes the biological and other sciences basic to an understanding of economic plants. Electives permit some specialization in crop science, horticulture, or plant pathology. Students who pursue their option should be well prepared for graduate study or positions requiring a strong background in the plant sciences.

Group II Requirements	Credits
P.S.W. 100, 222, 304, 306, 327, 331, 356, 400, 471	25
Ag. 270	3
Biol. 300, 306, 333, 334, 355, 356	16
Ent. 391	3
Chem. 172 or 102 and 142	4-8
Phys. 103, 104 or 151, 152	6
Electives to satisfy total credits	

Soil Science Option: This option stresses the physical and biological sciences, mathematics, and soil science. It prepares students for graduate study and for positions as soil scientists with federal and state agencies engaged in soil survey management or

research, and with industries involved in production and sale of fertilizers and soil amendments.

<i>Group II Requirements</i>	<i>Credits</i>
P.S.W. 100, 222, 304, 306, 325, 327, 331, 344, 400, 421, 422, 441	33
Ag. 270	3
Chem. 171, 172 and B.Ch. 301 ¹ or Chem. 103, 104 and 142 ²	11
Chem. 330; Geol. 101	8
Math. 102; Phys. 151, 152	8
Satisfy the requirements of either <i>Group A</i> or <i>Group B</i> below:	
<i>Group A, Biological Sciences</i> ¹	
Biol. 306, 355, 356; or P.S.W. 424 or 471	7-8
<i>Group B, Geological-Plant Sciences</i> ²	
R.N.R. 345	3
Geol. 102, 211, 212	8
Electives to satisfy total credits	

Renewable Natural Resources Major (R.N.R.)

The renewable natural resources major offers a program which balances a sound background in basic disciplines, flexibility in choice of specialized education, and emphasis on developing analytical skills necessary for the many positions available in renewable natural resource management.

A student may elect options in either forestry, wildlife management, range management, recreation area management, watershed management, or wildland conservation. These options correspond to recognized professions, and each offers a distinct curriculum that meets appropriate professional and civil service requirements. As a rule the curriculum in any option can be arranged 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, physics, or ecology.

The renewable natural resources curriculum consists of preprofessional- and professional-level course work. The preprofessional program includes lower-division classes while the professional program consists of upper-division core requirements, professional option requirements, and electives. To qualify for admission to the professional level, a student must satisfy the following requirements:

1. Classification as a junior (60 credits)
2. Complete and attain a GPA of 2.35 in the following courses:

Math. 110 or equivalent	3
Phys. 101	3
Chem. 101	4

¹ Recommended for students specializing in soil fertility or crop-related studies.
² Recommended for specialization in soil survey, soil classification.

Geol. 101	4
A.R.Ec. 202 or Ec. 101	3
Biol. 101, 201 or 202, 212	11
P.S.W. 222	4
Ag. 270	3
R.N.R. 100, 292	6
	41

3. Complete the remaining 19 credits in the following areas:

- Basic agriculture resource courses
- Humanities and social sciences
- Other electives

Acceptance to the Professional Program

Upon completion of the sophomore year each student must apply for acceptance to the professional program using forms supplied by the division.

All students' applications meeting the above standards are approved. Students who do not meet the above standards will not be given preference for enrollment in upper-division courses. Students have the option of retaking the required lower-division courses to raise their GPA's.

Transfer Students

Transcripts of transfer students are to be evaluated through the normal University and college procedures, and credit given for equivalent courses. Any deficiencies must be corrected before the student is accepted into the professional program.

Required GPA for Graduation

A GPA of 2.25 must be achieved in all major courses, excluding individualized study, such as internships and independent study.

Forestry Option: The core of professional forestry courses is oriented at management of forested lands. Students preparing for this curriculum are urged to acquire a substantial background in mathematics and science. Permanent employment opportunities are found with industrial and consulting firms or state and federal agencies, such as Nevada Division of Forestry, United States Forest Service, Bureau of Land Management, and National Park Service.

<i>Group II Requirements</i>	<i>Credits</i>
<i>Core:</i> Ag. 270; Biol. 212; Geol. 101; Phys. 151; P.S.W. 222; R.N.R. 100, 292, 302, 393, 420, 493, 494	39
<i>Option:</i> R.N.R. 301, 303 or 401, 391, 402, 482	20
Electives to satisfy total credits	

Wildlife Management Option: This curriculum stresses management aspects of wildlife species based on ecological principles. Emphasis is given to habitat improvement; game management in relation to hunting; habitat

requirements and game farming; and the role of wildlife in multiple-use management of forest, range, and agricultural areas. It prepares students for careers in private or public agencies as managers or administrators.

<i>Group II Requirements</i>	<i>Credits</i>
<i>Core:</i> Ag. 270; Biol. 212; Geol. 101; Phys. 151; P.S.W. 222; R.N.R. 100, 292, 302, 345, 420, 493, 494	39
<i>Option:</i> Chem. 142; R.N.R. 341	6
Vertebrate biology and classification (e.g., Biol. 372, 376, 378)	6
Physiology (e.g., Biol. 355, 385; A.Sc. 410)	3-4
Wildlife management (e.g., R.N.R. 421, 423, 425; Biol. 470)	6
Electives to satisfy total credits	

Range Management Option: The curriculum provides a wide base for management of the natural forage 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 required. Students are encouraged to seek summer employment with one of the resource agencies. Employment opportunities are found in a variety of state and federal agencies and ranch management or agribusiness.

<i>Group II Requirements</i>	<i>Credits</i>
<i>Core:</i> Ag. 270; Biol. 212; Geol. 101; Phys. 151; P.S.W. 222; R.N.R. 100, 101, 292, 302, 345, 420, 493, 494	39
<i>Option:</i> A.Sc. 211; Biol. 355; Chem. 142; R.N.R. 341, 346, 348, 441, 482	23
Electives to satisfy total credits	

Recreation Area Management Option: The core of professional courses is oriented at the aesthetic design and function operation of recreation areas. Interpretation and management of natural resources, policy-making decisions and their impact on land forms, administration and *people-problems*, and design and planning skills are emphasized. Permanent employment opportunities are found with both public and private agencies.

<i>Group II Requirements</i>	<i>Credits</i>
<i>Core:</i> Ag. 270; Biol. 212; Geol. 101; Phys. 151; P.S.W. 222; R.N.R. 100, 292, 302, 345 or 393, 420, 493, 494	39
<i>Option:</i> R.N.R. 361, 362, 463, 464, 482; A.R.Ec. 364 or 466	19
Electives to satisfy total credits	

Watershed Management Option: This curriculum prepares students as qualified by

drologists specializing in forest and range hydrology, or watershed management as it is commonly known. Group II requirements conform to criteria of Association of University Watershed Scientists and Civil Service. A strong background in math and physical sciences is suggested. Permanent employment opportunities are found with consulting and industrial firms and state and federal land management agencies.

<i>Group II Requirements</i>	<i>Credits</i>
<i>Core:</i> Ag. 270; Biol. 212; Geol. 101; Phys. 151; P.S.W. 222; R.N.R. 100, 292, 302, 345 or 393; 420, 493, 494	39
<i>Option:</i> R.N.R. 482, 484; P.S.W. 325, 331, 422; Chem. 142; Phys. 152	22
Electives to satisfy total credits	

Wildland Conservation Option: This undergraduate option is designed to give the student a maximum amount of flexibility in developing his own program. It serves students with special talents and interests related to natural resources management and provides them with an opportunity to develop a complementary area of study in a related subject matter area. Required is a group of basic courses relevant to all areas of natural resources management. Beyond this each student may, with the approval of a faculty committee, develop his own program in any direction reasonable and relevant to the field of renewable natural resources.

Upon enrolling in this option and after pre-counseling, each student is assigned to a major adviser. Each student is required to work very closely with his adviser while developing his curriculum. Before applying for graduation each student must have his proposed curriculum approved by a standing committee. Students are encouraged to have their proposed curricula tentatively approved by this committee once a year.

<i>Group II Requirements</i>	<i>Credits</i>
<i>Core:</i> Ag. 270; Biol. 212; Geol. 101; Phys. 151; P.S.W. 222; R.N.R. 100, 292, 302, 345 or 393, 420, 493, 494	39
<i>Option:</i> Courses approved in complementary areas of study	21
Electives to satisfy total credits	

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 Div. A and

program requiring 30 credits) and Plan B (nonthesis program requiring 32 credits). A Doctor of Philosophy degree is offered in biochemistry. The doctoral program in hydrology and hydrogeology offered in the Mackay School of Mines encompasses areas in the Plant, Soil, and Water Science and the Renewable Natural Resources Divisions.

The plan of study for each student is worked out 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 division 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 assistantships are available. Applications for graduate assistantships should be submitted to the chairman of the appropriate subject matter division.

Agricultural and Resource Economics Division

Graduate study in agricultural and resource economics may be pursued in the following major areas: production economics, farm and ranch management, agricultural marketing, land and water economics, recreation and wildlife 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 final two-hour oral is confined primarily to the thesis or professional paper.

Animal Science Division

A master's degree in animal science is contingent upon filling the requirements of the Graduate School and the student's advisory committee. The number and nature of gradu-

ate 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, 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 and other problems 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 3 graduate (700) credits. The literature review and the report on the professional project may be incorporated into one paper, if appropriate.

Biochemistry Division

Graduate programs in this division are offered in both biochemistry and pest control. The plan of study may involve either a major-minor or field of concentration type of program. Examination to evaluate the student's background is given during the first registration period for guidance of the advisory committee in planning the program to fit the individual student's needs.

Master of Science degree in Biochemistry: Graduates with a bachelor's degree in the physical or natural sciences including agriculture, having at least 3 hours each in biology and inorganic, organic, and analytical chemistry, and meeting the requirements of the Graduate School, may be accepted in bio-

chemistry. 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. 243, 244, 245, 246, 330, 353, 354, 355. In the major-minor option, these minors may be pursued: 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.

Master of Science degree in Pest Control: Students with a broad background in agricultural science and other biological and physical sciences may be accepted. Thesis research may be in a number of entomological areas. The program may include appropriate courses in entomology, plant pathology, weed control, and others to fit the student's needs.

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

For further information, consult the departmental publication *Graduate Studies in Biochemistry*.

Plant, Soil, and Water Science Division

Within this division, the Master of Science degree may be pursued under either Plan A or Plan B with either a major or a field of concentration. Approved thesis areas are bioclimatology, crop science, horticulture, plant pathology, soil science, and water science. Within these areas, students may select from several specialties including crop production, crop improvement, crop physiology, weed control, ornamental horticulture, plant pathology, soil fertility and management, soil chemistry, soil classification, soil physics, bioclimatology, irrigation, and drainage.

College graduates with training in agricul-

ture, biochemistry, biology, chemistry, physics, geology, and/or engineering are encouraged to enter the program with the understanding that deficiencies must be ascertained and made up as determined by the advisory committee. A student should ordinarily plan on two years to complete the master's program.

Special requirements of the division include (1) an 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; and (4) the successful completion of P.S.W. 711—Research Methodology, 3 credits.

Students pursuing Plan B must also complete a 2-credit professional paper (P.S.W. 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.

Renewable Natural Resources Division

Graduate study is directed at management and understanding of renewable natural resources. Thesis may include planning, research of implementation phases as they pertain to forests, range, game, recreation, or watersheds.

This 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.

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 2 credits at 700 level.

4. Two years' experience necessary to qualify.

a. Experience to be determined by renewable natural resources ad hoc committee.

b. Exceptions to experience requirement to be made for students of exceptional ability.

5. Final comprehensive oral examination.

SCHOOL OF VETERINARY MEDICINE

The University Board of Regents approved a School of Veterinary Medicine in May, 1976, providing a three-year preprofessional curriculum at the University of Nevada, Reno, followed by a fourth-year professional curriculum at another school of veterinary medicine with which Nevada has a contract through arrangements with the Western Interstate Commission for Higher Education (WICHE).

Acceptance into the preprofessional curriculum is contingent upon the student's demonstration of satisfactory academic performance either in high school or in previous college work; however, admission to the preprofessional program does not assure admission into a school of veterinary medicine. In the preprofessional program, a student must maintain a grade-point average of 2.2 after 30 credits, 2.8 after 60 credits, and 3.2 after 90 credits. Students failing to achieve these minimum standards have essentially no chance of acceptance later into the preprofessional program and therefore are advised into another career major. Included in the UNR preprofessional program are intensive advisement, internship with veterinary practitioners, and access to specialized facilities and teaching aids to better prepare the student for career placement.

Students who satisfactorily complete the three-year University preprofessional curriculum, including the resident credit requirements, and are accepted into a professional program, may qualify for a Bachelor of Veterinary Science degree from the University after the satisfactory completion of the first year at the professional school.

A scholarship program is available from the Gordon MacMillan endowment for Nevada resident students accepted into the professional program from the University.

Selection into the fourth year professional program is made on the basis of academic performance, practical experience in some

phase of veterinary medicine, references, motivation, personal interview, and results of the Graduate Record Examination. The GPA of successful WICHE applicants is over 3.5 out of a possible 4.0; therefore, it is mandatory that students demonstrate exceptional academic ability. Students are selected without reference to sex, race, creed, color, or age.

Veterinary Medicine

Faculty: Drake, Hanks, Marble, Taylor (Ch.)

Preprofessional Curriculum at University of Nevada, Reno

Freshman Year

First Semester

	Credits
Recreation and physical education	1
Math. 110	3
Chem. 101	4
Biol. 101	4
Engl. 101	3
A.Sc. 111, 112	2
	17

Second Semester

	Credits
Recreation and physical education	1
Math. 265	3
Chem. 102	4
Biol. 201	4
Hist. 111 or P.Sc. 103	3
Engl. 102	3
	17

Sophomore Year

First Semester

	Credits
A.Sc. 204	4
Chem. 243, 245	4
Biol. 206	2
Sp.Th. 113	3
Electives in humanities or social sciences	3
	16

Second Semester

	Credits
Biol. 202	3
Chem. 244, 246	4
Biol. 207	2
Biol. 306	4
Electives in humanities or social sciences	6
	19

Junior Year

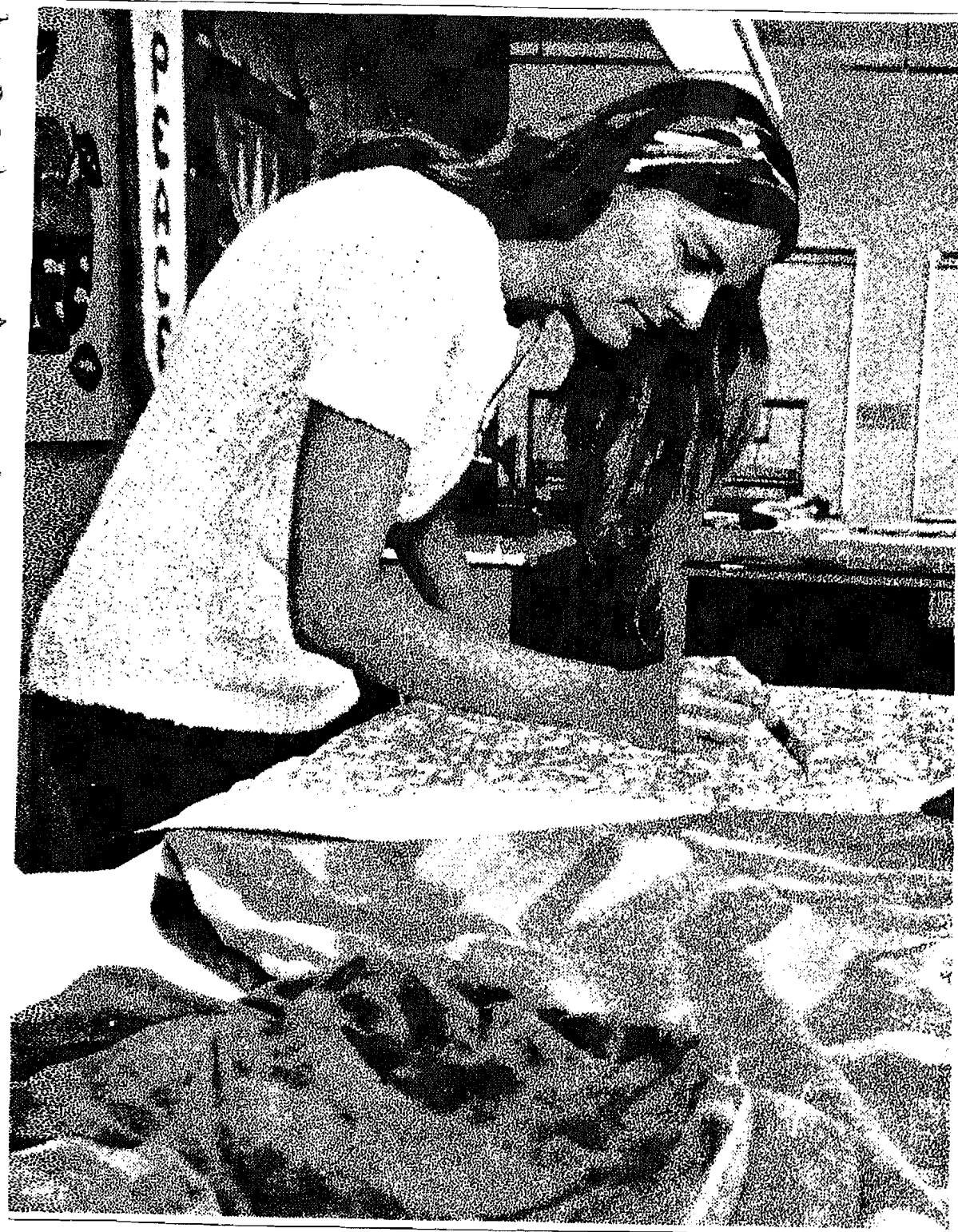
First Semester

	Credits
B.Ch. 301, 303	4
Phys. 151, 153	4
A.Sc. 405	4
Electives in humanities or social sciences	3
A.Sc. 211	3
	18

Second Semester

	Credits
Phys. 152, 154	4
Biol. 364, 464	4
A.Sc. 406	3
Electives in humanities or social sciences	3
Chem. 330	1
	16

College of Arts and Science



Departments of Instruction: Anthropology, Art, Biochemistry, Biology, Chemistry, Criminal Justice, English Language and Literature, Foreign Languages and Literatures, Geography, History, Journalism, Mathematics, Military Science, Music, Philosophy, Physics, Political Science, Psychology, Recreation and Physical Education, Social Services and Corrections, Sociology, and Speech 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 related 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

To be recommended for the degree of Bachelor of Arts, Bachelor of Science, Bachelor of Arts in Criminal Justice, or Bachelor of Arts in Journalism, a candidate must earn a minimum of 128 credits in required and elective courses.

To accomplish the aims of the College, a candidate for the baccalaureate degree must:

1. Complete the requirements listed under Prescribed Courses in Arts and Science.
2. Complete courses totaling not fewer than 40 credits in courses numbered above 300.
3. Complete requirements for a field of concentration (major and related 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 related 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 senior year.

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. 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. Information on options that may be permitted or required by certain departments 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. 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.

Courses Open to Freshmen and Sophomores Which Satisfy Group Requirements:*

Group I, Natural Sciences and Mathematics: Anth. 102; biology, all 100- and 200-level courses except 131; chemistry, all 100- and 200-level courses except 245, 246 and 291; Env. 101; Geog. 103, 212; Geol. 101, 102, 105, 160; mathematics, all 100- and 200-level courses except 101, 173 and 174; Med. S. 251-252; Met. E. 151; physics, all 100- and 200-level courses except 103, 104 153, 154, 205 and 206.

Group II, Social Sciences: Anthropology, all 100- and 200-level courses except 102 and 103; C. J. 110, 120, 220; Ec. 101, 102, 109; Geog. 106, 109, 292; Hist. 101, 102, 111, 217; Jour. 101, 102; political science, all 100- and 200-level courses; psychology, all 100- and 200-level courses except 210; social services and corrections, all 100- and 200-level courses except 260; sociology, all 100- and 200-level courses except 210; Sp. Th. 210.

Group III, Humanities: Art 115, 140, 210, 212, 214, 215, 216, 217, 218, 256, 257; P.I. 264; English, all 100- and 200-level courses except 101, 102, 105, 111, 112, 181; F.L.L. 292, 293; Fr. 221, 223; Ger. 221, 223; Ital. 221, 223; Span. 221, 222, 223; Hist. 105, 106; Mus. 121, 201, 202; Philosophy, all 100- and 200-level courses; Sp.Th. 100, 217, 221.

Courses Open to Juniors and Seniors Which Satisfy Group Requirements:*

Group I, Natural Sciences and Mathematics: Anth. 335, 430, 435; biochemistry, all 300-level courses; biology, all 300- and 400-level courses; chemistry, all 300- and 400-level courses; Geog. 322, 335, 420, 423; geology, all 300- and 400-level courses; mathematics, all 300- and 400-level courses; physics, all 300- and 400-level courses.

*Some courses have prerequisites; students are advised to see course descriptions. No course with a number above 300 is open to freshmen and sophomores without the written recommendation of the chairman of the department.

Group II, Social Sciences: Anthropology, all 300- and 400-level courses except 310, 311, 322, 335, 339, 342, 411, 415, 416, 423, 425, 430, 435, 455; economics, all 300- and 400-level courses; geography, all 300- and 400-level courses except 322, 325, 331, 334, 335, 338, 341, 420, 423, 431, 462; history, all 300- and 400-level courses except 317, 318, 328, 371, 372, 373, 384, 385, 403, 404, 427; Jour. 372; Min. E. 454, 472; political science, all 300- and 400-level courses; psychology, all 300- and 400-level courses; social services and corrections, all 300- and 400-level courses; sociology courses numbered above 200, except 210; Sp. Th. 315, 410, 411, 412, 427, 428, 433, 434.

Group III, Humanities: Anth. 310, 311, 322, 339, 342, 388, 411, 415, 416, 423, 425, 455; Art 309, 314, 315, 316, 319, 355, 357, 381, 416, 417, 418, 419; English, all 300- and 400-level courses except 305, 306, 321, 405, 406, 438; foreign languages and literatures, all 300- and 400-level courses; Basque, all 300- and 400-level courses; French, all 300- and 400-level courses except 301, 305, 306, 309, 407, 408; German, all 300- and 400-level courses except 301, 305, 306, 309, 407, 408; Russ. 357, 358; Spanish, all 300- and 400-level courses except 301, 305, 306, 309, 410; Hist. 317, 318, 328, 371, 372, 373, 384, 385, 403, 404, 427; Mus. 350, 407, 408, 414, 422, 423, 424, 426, 428, 495; philosophy, all 300- and 400-level courses; Sp. Th. 319, 320, 321, 421, 471, 472, 473, 480, 490, 495.

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 his adviser and the appropriate official of the department of foreign languages for proper advisement.

Freshman Year		Credits
(16 credits per semester)		
Engl. 101-102 (3 credits each)	6
Foreign language, natural science, social science, or humanities	5-8
Electives	5-9

Sophomore Year

(16 credits per semester)	Credits
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 2 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 the major 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 Sciences 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 related subjects) except upon the recommendation of the adviser and department chairman, 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, biochemistry, biology, botany, chemistry, English, foreign languages (French, German, Spanish), history, journalism, mathematics, music, philosophy, physical education, physics, political science, psychology, sociology, speech communication, theatre, and zoology.

The Doctor of Philosophy degree is offered in biochemistry, biology, chemistry, English, history, physics, political science, psychology, social psychology, and sociology.

Further information on these programs should be sought from the chairman of the department concerned.

Offerings Not Departmentalized

The College of Arts and Science offers courses which are not departmentalized.

These are Philosophy of Inquiry, Environmental Studies, and Library Science.

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 Chairman, Political Science Department, 138 Mack Social Science Building.

ANTHROPOLOGY (Anth.)

Faculty: d'Azevedo, Elston, Eudey, C. Fowler (Ch.), D. Fowler, Hardesty, Knudson, Winzeler
Adjunct Faculty: Kennard

The department offers courses leading to the degrees of Bachelor of Arts and Master of Arts.

Bachelor of Arts Degree

Major Interest Subject	Credits
Anth. 101, 102 (4 credits), 201, 305, 312, 335, 440 (3 credits each)	22
3-6 credits from 202, 316, 411, 415 (3 credits each) to be selected with adviser after completion of the student's freshman year	3-6
Additional credits in anthropology, 6 of which should be in area courses	8-11
	33-39

Related Subjects (15 credits): Psy. 101, Soc. 101 (3 credits each), and Soc. 210 (4 credits) or 392 (3 credits), plus at least 6 additional credits, to be chosen with the adviser and with approval of the department chairman and the dean. History and Social Theory is an approved related area of study for anthropology majors. See Interdisciplinary and Special Programs section for description.

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 requirements for the master's degree. With the Plan B option, however, the department requires the submission of a professional paper. The candidate may select a program emphasis in general anthropology, or in a special applied field such as conservation archaeology or museology. However, the candidate who intends to proceed to a Ph.D. program in anthropology at another university is expected to take the comprehensive examination in general anthropology and 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 and occasional research funds are available to graduate students in anthropology. In addition,

the Knudtsen Award is given each year to a student who submits a superior research proposal in Great Basin Anthropology. More information may be obtained from the department chairman. Applications for financial aid should be made directly to the department; the deadline for such applications is March 1.

ART (Art)

Faculty: Griffin, Howard, Loevgren, Martinez, McCormick (Ch.), Moroni, R. Morrison, Reid, Rosenberg, Stegall, Unterseher

The department offers courses leading to the degree of Bachelor of Arts.

Major Interest Subject	Credits
Art 100, 121	6
Art 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	6-7
Art 403	2
Art courses numbered 300 or above, chosen with the approval of the adviser and dean	15
	38-39

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.

Related Subjects (20 credits): At least 12 credits in one approved academic area (excluding art, recreation and physical education skill areas, and education) to be chosen in consultation with and approved by the adviser. These courses are in addition to those required by the College of Arts and Science. An additional 8 credits (other than those used for the above 12 units) above the 300 level to be chosen with the approval of the adviser and dean.

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 Ed.F.M. 210; C.A.P.S. 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.

For further information, please contact the Department of Art.

BIOCHEMISTRY (B.Ch.)

Faculty: Blincoe, Blumquist, Drelling, Heisler, Lewis, Par-dini (Ch.), Reitz, Welch, Woodin

Graduate Degrees

Advanced degrees are offered at the Master of Science and the Doctor of Philosophy levels and may be pursued under the direction of the graduate faculties in the College of Agriculture, College of Arts and Science, or School of Medical Sciences. Since requirements are determined by the Graduate School and not by the individual colleges, they are identical and are shown under Graduate Offerings from the College of Agriculture. Further information may be obtained in the publication *Graduate Study in Biochemistry* from the department.

BIOLOGY (Biol.)

Faculty: Baepler, Comanor, Gubanich, Jenkins, Kleiner, Knoll, Mead (Ch.), Mozingo, Nellor, Ort, Prusso, Rust, Ryser, Tibbitts, Vig, 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 students in the department are required to complete certain core courses, whatever their particular area of specialization. These are listed below:

Core Courses	Credits
Biol. 101	4
Biol. 201	3
Biol. 202	3
Genetics or evolution	3
Cell biology or physiology	4
Ecology	3
	<hr/>
	20
Additional credits in biology, botany, or zoology ...	18
	<hr/>
	38*

Required Related Subjects: General chemistry (one year), analytical chemistry or organic chemistry or biochemistry.

Recommended Electives: Mathematics and physics.

Beyond this core program the Biology Department does not require a fixed curriculum. Students electing a program leading to the Bachelor of Science degree with a major in biology, botany, or zoology may pursue several options. The student and adviser should develop a curriculum which is tailored to the

individual's needs. This should be done whether the student is interested in a general background in the biological sciences or in one of the specialized areas of concentration, which include options in ecology and microbiology. The curricula of each of the following areas are designed to prepare the student for professional work or continuing education at the graduate level.

Botany

A student wishing to specialize in botany follows the curriculum listed under *Core Courses*. Each student should take courses in plant physiology and the taxonomy of lower and higher plants.

Recommended Electives: General physics, statistics, mathematics through calculus.

Zoology

A student wishing to specialize in zoology follows the curriculum listed under *Core Courses*. A curriculum in zoology would include comparative anatomy.

Recommended Electives: General physics, statistics, mathematics through calculus.

Ecology

A student desiring to specialize in ecology follows the curriculum listed under *Core Courses*. Depending upon the student's particular orientation in ecology, relevant courses available elsewhere in the University should be elected.

Required Related Subjects: General physics, statistics.

Recommended Electives: Soils, geology, climatology, mathematics through calculus, computer programming.

Microbiology

A student wishing to specialize in microbiology follows the curriculum listed under *Core Courses*. Each student should take courses in microbiology, mycology, and invertebrate zoology in addition to the core courses, for a total of 38 credits.

Recommended electives: Biochemistry, mathematics, physics.

Preparation for Transfer to Dental and Medical Schools

Students planning to pursue a career in the health-related professions have two options: they may enroll as regular biology majors in the department prior to enrolling in a professional school, or they may enroll as premedical students in the School of Medical Sciences.

Students enrolling as biology majors and planning to apply to out-of-state medical or dental schools should take the following courses: general biology (one year), 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.

Required Related Subjects: General physics with lab (one year), organic chemistry (one year), analytical chemistry.

Recommended Electives: Mathematics through calculus, psychology (6 credits) required by some medical schools.

Master of Science Degree

The Department of Biology offers graduate programs leading to the Master of Science degrees in botany, zoology, and biology. Two plans are available: (A) with a thesis, or (B) without a thesis. Further details may be obtained from the Office of the Dean of the Graduate School or from the chairman 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
	<hr/>
	72

At least two-thirds of the total credits, including thesis research, must be taken in the major field.

Programs of study leading to the Ph.D. degree with a major in biology are offered in the following areas (either in botany or zoology): physiology, taxonomy, morphology (including ultrastructural anatomy), and ecology.

For further information, contact the Chairman of the Biology Department.

CHEMISTRY (Chem.)

Faculty: Baglin, Burkhardt, Fickes, Harrington, Kemp, LeMay, Lightner, Nelson, Rose, Scott, Shin (Ch.)

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; 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 electives are taken.

Bachelor of Science in Chemistry

Major Interest Subject	Credits
Chem. 103, 104 recommended (or 101-102)	8
Chem. 243, 244, 245, 246	10
Chem. 330, 434	7
Chem. 353, 354, 355	8
Chem. 387	1
Chem. 497	2-4
Chem. 415, 456, and two 3-credit 400-level chemistry courses	11
	<hr/>
	47-49

Related Subjects (39 credits): Math. 215, 216, 310, 320 (14 credits); Phys. 201, 202, 204, 205 recommended (151, 152, 153, 154 acceptable) (8 credits); Ger. 101, 102, 203, 204, or 101, 102, 205, 209, or equivalent courses in French or Russian.

Recommended Elective: Math. 330.

Bachelor of Science with Field of Concentration in Chemistry

Major Interest Subject	Credits
Chem. 103, 104 recommended (or 101, 102)	8
Chem. 243, 244, 245, 246	8-10
Chem. 330	4
Chem. 353-354 or 357 and 451	6
Chem. 355	2
Two of the following courses, including one laboratory course: Chem. 415, 434, 442, 443, 450 or 456	5-6
	<hr/>
	33-36

Related Subjects (17 credits): Math. 215, 216, (8 cred-

*A maximum of 8 credits in special problem courses may be applied towards the total of 38 credits from biology, botany, and zoology offerings.

its); Phys. 201, 202, 204, 205 recommended (151, 152, 153, 154 acceptable) (8 credits).

Recommended Electives: Chem. 456; Math. 310, 320

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 and 9 upper division credits in chemistry. A maximum of 2 credits of Chem. 387, 391 and 497 may be applied to make up the 9 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 2 credits of seminar) are in the major, 6 are in the minor, and the remaining 6 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	3
Electives	12

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 Chairman of the Department of Chemistry.

CRIMINAL JUSTICE (C.J.)

Faculty: Barnhill, Braunstein (Ch.), Fahrenkopf, Swinney

The Bachelor of Arts in Criminal Justice is a professional degree. Students are prepared for graduate study in criminal justice, law school, public positions in all aspects of the justice system, in justice-related positions, or in industrial security. An Associate of Science degree is no longer offered.

Advisement of all criminal justice majors is mandated by departmental policy.

Bachelor of Arts in Criminal Justice

At least 15 credits of required criminal justice courses must be completed at UNR.

<i>Major Interest Subject</i>	<i>Credits</i>
C.J. 110, 112, 120, 220, 226, 230, 320, 324, 410, 420, 421	29
<i>Related Subjects</i>	
Psy. 101, 231, 441	8
Soc. 101	3
Sp.Th. 113	3
L.Sc. 135	1
	<hr/> 44

<i>Minor Interest Subject</i>	<i>Credits</i>
C. J. 110 and 410	5
Additional courses to be selected from C.J. 120, 220, 226	6
Additional courses to be selected from C.J. 320, 324, 420, 421	4
Criminal Justice upper division electives	3
	<hr/> 18

NOTE: C.J. 120 and 220 are prerequisites for C.J. 420 and 421.

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 LANGUAGE AND LITERATURE (Engl.)

Faculty: Boardman, Brown, Brownell (Ch.), Connor, Diamond, Essa, Francis Gorrell, Haddawy, Harvey, Hettich, Hooper, Howard, Jacobsen, MacDougall, Merrill, Morrison, Reid, Ronald, Wilborn, Woods

Bachelor of Arts Degree

In consultation with the adviser, the student elects a program leading to the bachelor's degree in accordance with one of the following options:

Literature

<i>Major Interest Subject</i>	<i>Credits</i>
Engl. 281 or 282, 291, 292	9
Additional courses to be selected from Engl. 305-306, 405-406 (a total of no more than 6 credits), and other courses numbered above 400. At least 6 credits must come from Engl. 417, 418, 451, 453, 460, 461, 463, 464, 465, 469, 470, and 471	23

At present the department offers courses allowing for the following, more specific areas of concentration: English literature, American studies, and drama.

In consultation with the adviser, each student selects courses appropriate to these areas, or may follow a broader principle of selection.

Related Subjects (18 credits): The student and adviser arrange a sequence of courses amounting to at least 18 credits subject to approval by department chairman and dean. Courses elected must be other than those used in fulfilling the Arts and Science group requirements.

Language and Linguistics

<i>Major Interest Subject</i>	<i>Credits</i>
Engl. 281 or 282; 311 or 415; 411, 413, 417, 419, 451	21
Additional courses to be selected from courses numbered 291 and above, plus Engl. 235-236 ..	11

Related Subjects (18 credits): Any of the following not used to satisfy Arts and Science requirements or requirements listed above—Engl. 311, 316, 385, 415; Anth. 305, 311 (if not taken as Engl. 311), 316 (if not taken as Engl. 316), 339 (if not taken as Engl. 339), 388, 415 (if not taken as Engl. 415), 416 (if not taken as Engl. 416), 420, 455; Basq. 455; F.L.L. 455, 458; Ger. 455, 458; Math. 201, 307, 308; Phil. 326, 406; Sp.Th. 433; S.P.A. 310, 357, 467; courses in foreign languages numbered in the 100's and 200's and 301, 305, 306, 309, 407, 408, 410.

Secondary Teaching

<i>Major Interest Subject</i>	<i>Credits</i>
Engl. 281 or 282, 291, 292, 321, 385	15

Additional courses to be selected from courses numbered above 400. At least 6 credits come from Engl. 425, 451, 460, 461, 463, 464, 465, 469, 470, 471	17
	<hr/> 32

Related Subjects (18 credits): Those courses in education required for certification for secondary teaching. 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.

<i>Minor Interest Subject</i>	<i>Credits</i>
(Program for teachers selecting English as a minor teaching subject)	
Engl. 281 or 282, 291, 321, 385	12
Additional courses to be selected from Engl. 235, 236, 241, 292 or any of the 400-level courses ...	8
	<hr/> 20

Students thinking of majoring in English are strongly advised to take 281 (or 282) and 291 no later than the sophomore year, and 291 by no means later than the second semester after declaring the major.

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 Chairman 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, and other subjects needed by teachers in both primary and secondary school. Foreign language proficiency is not required for this degree. Students pursuing the MATE degree normally do not expect to continue their studies beyond the Masters 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 aptitude 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 (F.L.L.)

Faculty: Carney, Curry (Ch.), Fricke, Grotegut, Hagner, Landerman, Leneaux, Macura, Manca, Petersen, Rebollo, Rojas, Tobin.

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 and Master of Arts with fields of concentration in French, German, and Spanish language and literature. In addition, students may take courses in Arabic, Basque, Chinese, classical Greek, Hebrew, Italian, Japanese, Latin, Norwegian, 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 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 8 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 (2 credits), 311, 312, and 455 or approved equivalents. German majors must take Ger. 221, 301, 305-306, 309 (2 credits), 311, and 455 or approved equivalents. Spanish majors must take Span. 221, 222, 301, 305-306, 309 (2 credits), 311, 357, 359, and 455 or approved equivalents. 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 department 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, 50 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 (2 credits), and 311, 312. German majors must take Ger. 221, 305-306, 309 (2 credits), and 311. Spanish majors must take Span. 221, 222, 305-306, 309 (2 credits), 311, 357, and 359. 20 credits in related subjects which must be pertinent to the major interest are required. The student has a choice of one of the groups below.

Related Subjects: 20 credits in related subjects which must be pertinent to the major interest are required. The student has a choice of one of the groups below.

1. *Area Studies*—related courses in anthropology, geography, history, political science, etc., and culture and civilization courses in the Department of Foreign Languages and Literatures.
2. *Fine Arts*—related courses in the appreciation and history of art, music, theatre, and philosophy (aesthetics). Skills courses are not applicable.
3. *Linguistics*—appropriate courses offered by the Departments of Anthropology, English, Foreign Languages and Literatures, Mathematics, Psychology, Speech and Theatre, etc.
4. *Other literatures*—may include emphasis in English literature or a literature in a foreign language offered in the Department of Foreign Languages and Literatures. No more than 6 credits of language skills courses may be substituted. Spanish-American literature will not count as a related subject to Peninsular literature, and vice versa.
5. *Other languages*—credits earned in basic courses of one other language and including courses 305-306 and 309 (2 credits).
6. *Medieval and Renaissance Studies*—for description see Interdisciplinary and Special Programs.
7. *Ethnic Studies* (for Spanish majors only)—for description see Interdisciplinary and Special Programs.
8. *Special Interest*—other related subject areas may be chosen in consultation with the adviser and with the approval of the chairman and the dean. Each course must be coherent with the major interest subject.
9. *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, no less than 10 of which must be at the upper-division level and which must include courses 305-306.

Minor Programs in French, German and Spanish.

For a minor, 18 credits are required of which 12 must be numbered above 300. French minor: 204, 221, 305, 306, 309 (2 credits) and two other 3-credit French courses numbered above 300. (Fr. 311 is recommended.) German minor: 204, 221, 305, 306, 309 (2 credits) and two other 3-credit German courses numbered above 300. (Ger. 311 is recommended.) Spanish minor: 204, 221 or 222, 305, 306, 309 (2 credits) and two other 3-credit Spanish courses numbered above 300.

Master of Arts Degree

The Department of Foreign Languages and Literatures offers programs of graduate study leading to the degree of Master of Arts 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 6 thesis credits, must be in courses numbered 700 or above. If a minor is approved, no less than 6 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 8 graduate credits are required in the minor area.

Further details of the programs may be obtained from the department.

GEOGRAPHY DEPARTMENT

(Geog.)

Faculty: Hoffer, Houghton, James, Kersten (Ch.), Kramer

The department offers courses leading to the degree of Bachelor of Science in Geography. The curriculum is currently being revised in terms of options available and course requirements. Students interested in majoring in Geography should consult the chairman of the department in regard to these changes.

GEOGRAPHY PROGRAM

The curriculum leading to the degree of Bachelor of Science, is designed as a core program in liberal and international studies as well as a knowledge base for professional land use analysis. As part of a liberal studies pro-

gram, geography provides a broad interdisciplinary view of the earth, its people, and its resources. As a preprofessional curriculum, geography offers three areas of concentration: a physical-environmental option, an urban planning option, and a cultural-international relations option.

Courses Required of All Majors in Geography

<i>Courses</i>	<i>Credits</i>
Geog. 103, 106, 109, 212, 314, 322, 335, 418, one regional course	27
Chem. 100 and P.S.W. 120	6
Ec. 101-102	6
Ec. 261	3
Math. 102, 110	5
<i>Additional Courses Required for Physical-Environmental Studies Option</i>	

<i>Courses</i>	<i>Credits</i>
Geog. 331 or 341, 334, 431	9
Biol. 101	4
Geol. 101, 480	6 or 7
Phys. 151-152	6
<i>Additional Courses Required for Cultural-International Relations Option</i>	

<i>Courses</i>	<i>Credits</i>
Geog. 319, 355	6
Anth. 101	3
Ec. 301	3
P.Sc. 104, 211, 231	9
Soc. 101	3
<i>Additional Courses Required for Urban Planning Option</i>	

<i>Courses</i>	<i>Credits</i>
Geog. 415, 430	6
S.E. 401	3
P.Sc. 208, 341, 406	9
Soc. 101	3
R.N.R. 464	4
Ec. 451	3
Ec. 262	3
I.S. 250	3

Because of the necessity of tailoring specific programs to the student's needs and desires, close contact between the student and the adviser is encouraged at all stages. Interaction among students in geography is furthered through the local chapter of Gamma Theta Upsilon, national geography student organization.

EARTH SCIENCE

The geography department provides courses in cooperation with the Department of Geological Sciences for a Bachelor of Science degree in Earth Sciences in the Mackay School of Mines. The curriculum is listed under Geological Sciences.

HISTORY (Hist.)

Faculty: Brodhead, Coray, Edwards, Ferguson, Folkes, Hartigan, Hulse, Marschall, Metzgar, Moran, Rowley, Shepperson, Tigner (Ch.), Townley (Adjunct)

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

<i>Major Interest Subject</i>	<i>Credits</i>
Hist. 101-102	(required) 6
Hist. 105-106 (3 credits each)	6
24 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 6 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
	30

Related Subjects (20 credits): All students concentrating in history, excepting prelegal students, must select 20 credits from a subject area, in consultation with the adviser and with approval of the department chairman and the dean of the college. The following subject areas are recommended: anthropology, economics, education, geography, history and social theory, journalism, literature (American, English, European), literature in foreign language, philosophy, political science, psychology, sociology, speech and theatre.

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 2.5, 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 6-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 Office of the Dean of the Graduate School and from the chairman of the department.

Doctor of Philosophy Degree

Students wishing to work toward the Ph.D.

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 Master of Arts degree, have a cumulative GPA in all undergraduate and graduate work of 3.0, and achieve a satisfactory score on the Graduate Record Examination. The Ph.D. degree program requires an oral qualifying examination, 48 semester credits of approved course work beyond the bachelor's degree, a reading knowledge of one foreign language and meeting of the University language requirement, written and oral comprehensive examinations in four fields of history, 24-semester-credit 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 expect to major in American history and develop a research emphasis in the history of Nevada, Western North America, or American immigration. Further details may be obtained from the Office of the Dean of the Graduate School and from the chairman of the department.

For information contact the chairman of the department.

JOURNALISM (Jour.)

Faculty: Conover, Frohnen, Garberson, Gilleland (Ch.), Land, Metz

The department offers courses leading to the degrees of Bachelor of Arts in Journalism and Master of Arts.

Bachelor of Arts in Journalism

Journalism today requires its practitioners to be broadly educated and professionally skilled. Combining the arts and sciences with professional courses, undergraduate journalism students take about three-fourths of their courses for a B.A. degree outside the journalism curriculum.

A core program, required of all journalism majors, and four sequences are offered to prepare men and women for careers in print and broadcast media, advertising, and public relations. In addition, the department helps its students work out special study programs involving engineering, agriculture, social service, business, home economics, education, mining, political science, international relations, and other fields.

Journalism undergraduate majors in all sequences complete requirements for the B.A. degree in the College of Arts and Science.

Some electives in journalism may be taken to complete the individual student's program in each sequence.

The Core Program

The core program is designed to introduce the student to aspects of professional journalism that are applicable to all the sequences.

<i>Courses</i>	<i>Credits</i>
Jour. 101—Interpreting the Day's News	3
Jour. 221—Introduction To News	3
Jour. 222—News Gathering and Writing	3
Jour. 280—Introduction to Broadcasting	2
Jour. 351—News Editing	2
Jour. 354—Advanced Reporting	2
Jour. 356—Principles of Advertising	2
Jour. 375—Photojournalism	3
Jour. 372—Law of the Press	3
Jour. 404—History and Ethnics of Journalism	3
	26

In addition, journalism majors must take such courses as literature, philosophy, political science, economics, business administration, and the fine arts, as recommended by the adviser.

The Sequential Programs

I—Newspaper and Other Print Media

<i>Courses</i>	<i>Credits</i>
Jour. 373—Typography and Layout	2
Jour. 454—Public Affairs Reporting	2
Jour. 480—Publication Production and Management	2
Jour. 481—Journalism Internship	3
	9

In addition, for those planning a career in newspaper or other print media, courses in areas to reinforce their programs and particular interests of specialization, as recommended by the adviser, are required.

II—Broadcast News

<i>Courses</i>	<i>Credits</i>
Jour. 311—Radio and Television News Writing and Editing	3
Jour. 312—Radio and Television News Writing and Editing	3
Jour. 481—Journalism Internship	3
	9

In addition, such courses as public speaking, radio-television, and film production and theatre, as recommended by the adviser, are required.

III—Public Relations

<i>Courses</i>	<i>Credits</i>
Jour. 301—Public Relations Principles and Practice	2
Jour. 302—Public Relations Problems	2
Jour. 373—Typography and Layout	2
Jour. 481—Journalism Internship	3
	9

In addition, for those planning a career in public relations, courses in psychology, economics, sociology, and speech and theatre, as recommended by the adviser, are required.

IV—Advertising

	Credits
Jour. 358—Advertising Media	2
Jour. 359—Advertising Copy Writing	2
Jour. 373—Typography and Layout	2
Jour. 481—Journalism Internship	3
	9

In addition, for those planning a career in advertising, courses in speech and theatre, psychology, economics, marketing, and art, as recommended by the adviser, are required.

The Minor in Journalism

Students majoring in another field may declare a minor in journalism by completing the core program. They may add electives to reinforce their special areas of journalistic interest.

Journalism Teaching

Students may prepare for the teaching of journalism in high school through a combination of courses in journalism and education. The program is offered in cooperation with the College of Education.

Agricultural Journalism

See the College of Agriculture section.

Master of Arts Degree

Thirty credits in graduate courses, including 20 in journalism and 10 in related subjects, approved by the department, and a thesis (6 credits) are required. See the Graduate School section for general master of arts degree requirements.

LIBRARY SCIENCE (L.Sc.)

Not a department; however, information may be obtained from the Director of Libraries.

MATHEMATICS (Math.)

Faculty: Beesley (Ch.), Blackadar, Collison, Constantino, Davis, Hallett, T., Hooper, Kimble, Macauley, McMinn, Pfaff, Tompson, Wagner, Wishart

The department offers courses leading to the degrees of Bachelor of Science or Bachelor of Arts (student's option), and Master of Science.

Mathematics

Major Interest Subject	Credits
Math. 215, 216, 251, 310, 311, 320, 330, 331, 341	29
Courses selected from the following: mathematics courses numbered above 300	1-7
	30-36

Students who are preparing for secondary school teaching may substitute two of the three courses: Mathematics 373, 374, 375 for Math. 311 and 320.

Related Subjects (14–20 credits—the total number of credits in the field of concentration must be 50): The student selects a program in consultation with the adviser and with the approval of the department chairman. 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.

Computer Science Option

Major Interest Subject	Credits
Math. 215, 216, 251, 283, 310, 330, 385, 386, 485	29
Courses selected from Math. 307, 320, 321, 351, 353, 354, 383, 387, 422, 423, 429, 435, 453, 486, 489	5-7
	34-36

Minor in Mathematics

A student in any college who satisfies the University requirement - 18 credits in the Department of Mathematics including 9 credits at upper-division (300-400) level - and who completes at least four upper-division courses in the mathematics department satisfies the requirement for a minor in mathematics.

Related Subjects (14–16 credits—the total number of credits in the field of concentration must be 50): The related subjects and the major interest electives collectively should cover a recognized subarea of computer science. Attention is invited to various courses in computing applications or computer science foundations from other departments.

Master of Science Degree

The Department of Mathematics 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 chairman of the department.

MILITARY SCIENCE (Mil.)

Faculty: Bauman, Coe, Czech, Gearhart, George, Iori (Ch.), Jaykins, Rahlf, Winters.

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. ROTC is in consonance with the Morrill Land-Grant Act of 1862 and is authorized under the National Defense Act of 1916. 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
II 3 years of JROTC	0
III 12 or more months continuous federal service	0
IV Mil. 204—Basic Summer Camp	2

Advance Course requirement

Mil. 301, 302, 303, 401, 402	14
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Additional elective/required hours for credit

Mil. 203, 304, R.P.Ed. 181	4-12
	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 in local Army Reserve and National Guard units as well as 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.

Seniors 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 twenty-

eight birthday (can be waived).

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 and the college dean.

6. Have executed a written contract with the United States Government.

Cadet Battalion

The cadet battalion is the student organization within the Military Science Department which exists to complement the overall ROTC classroom curriculum. Most leadership laboratory training, as well as numerous additional activities, are conducted through the instrument of the cadet battalion. Some of these additional activities include enrichment seminars, ROTC summer camp preparation for juniors, social events, weekend training exercises, parades, intramural sports, and civic service projects. The battalion organization offers the opportunity and challenge for students to earn cadet rank and thereby to increase their leadership experience.

Volunteer Extracurricular Activities

Sierra Search and Rescue—A voluntary organization of students who wish to offer their services in emergency situations and learn valuable skills. The training is mentally and physically rigorous and includes advanced first aid, mountaineering, evacuation procedures, emergency survival, land navigation, communication procedures, and search techniques. Students do not have to be enrolled in military science subjects to be participants in this activity.

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 competes in drill meets throughout the western United States and is well regarded for its professional competence and esprit de corps. A distinctive uniform is issued.

Silver Caissons—A competitive women's precision drill team with membership open to all women students on campus. The team competes in drill meets throughout the western United States as well as participating in numerous local events. A distinctive uniform is issued.

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. A distinctive and fashionable uniform is purchased by each member.

Rifle Team—Interested students can compete on the .22 caliber indoor rifle range without personal expense. Rifles and ammunition are furnished and an Army coach is available full time to assist. Members of this nationally ranked rifle team participate in intercollegiate and National Rifle Association matches throughout the 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. For detailed information regarding a professional or Regular Army career, contact the Military Science Department.

Active Duty and Reserve Obligations

Students commissioned from the ROTC program normally must 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 four years if a vacancy exists in a unit within a reasonable distance from their homes.

Active Duty for Training

Students commissioned from the ROTC program may serve on Active Duty for Training. This consists of three to six months' active duty, and a six-year obligation with the reserves.

Financial Assistance

Students taking the basic course receive no pay unless they have ROTC scholarships. Students awarded Department of the Army one-, 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 ROTC students who elect to serve in the Nevada National Guard after commissioning. This is a particularly valuable option 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 retain upon graduation. In the event the student withdraws from the advanced course for his own convenience, he must return the uniform or reimburse the University a proportionate amount of the cost.

MUSIC (Mus.)

Faculty: Booth, Carrico (Ch.), Goddard, Jones, Lenz, McGranahan, Puffer, Smith, Williams

The department offers courses leading to the degrees of Bachelor of Arts 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 or 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, University Singers, 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.

Music majors in the College of Arts and Science may qualify for secondary school teaching in Nevada by completing a sequence of 22 semester credits as prescribed by the State Department of Education and outlined by the College of Education.

Students planning to major in music may select one of the three following degree programs: music history and literature, applied music, or general music.

In addition, experimental degree programs with a heavier professional emphasis are available in applied music and music education. Information concerning these programs may be obtained from the department chairman.

Music History and Literature

<i>Major Interest Subject</i>	<i>Credits</i>
Mus. 151, 251, 351, 451	8
Mus. 201, 202, 207, 208, 301, 302	22
To be chosen from Mus. 350, 406, 407, 414, 422, 423 and 424	9
	39

Related Subjects (11 credits): To be selected from Art 210, 212, 214, 216, 217; English courses numbered above 102; foreign languages beyond Arts and Science requirements; Hist. 105-106, 371, 372, 403-404; Phil. 110, 211, 213; R.P.Ed. 269, 283; Sp. Th. 471, 472, 473.

Applied Music

(Piano, Organ, Voice, Strings, Percussion, Brass, or Woodwind Instruments)

<i>Major Interest Subject</i>	<i>Credits</i>
Applied music major	12
Piano or applied music minor	4
Mus. 201, 202, 207, 208, 301, 302	22
	38

In addition, a public recital is required of those selecting the applied music option.

Related Subjects (12 credits): To be selected from the courses listed under the related subjects for the music history and literature option.

General Music

<i>Major Interest Subject</i>	<i>Credits</i>
Applied music (1 credit each semester)	8
Mus. 201, 202, 207, 208	16
Selected from Mus. 406, 407, 414, 422	6
Elective music courses including 4 credits in ensemble	6
	36

Related Subjects (14 credits): To be selected from the courses listed under the related subjects for the music history and literature option.

Master of Arts and Master of Music Degrees

The Master of Arts degree is offered with fields of concentration in music history and literature, theory, and composition. The Master of Music degree with performance thesis is offered in theory and composition and applied music. Both the pedagogy and performance specializations are available for the applied music concentration, subject to approval of the department faculty. Further details may be obtained from the chairman of the department.

PHILOSOPHY (Phil.)

Faculty: Halberstadt, Hoffman, Kelly (Ch.), 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.

<i>Major Interest Subject</i>	<i>Credits</i>
Phil. 211, 213, and either Phil. 114 or 326 (required)	9

At least 6 credits in each of the following three groups with at least 3 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. 204, 324, 403, 404, 405, 406	6
Group C — Ethics and Value Theory: Phil. 201, 202, 203, 207, 323, 325, 401, 402, 407	6
Additional credits in philosophy	9
	36

Related Subjects (14 credits): The student and adviser arrange a sequence of courses amounting to at least 14 credits on the 200-level and above in a department or area of study in the College of Arts and Science, subject to the approval of the chairman and dean. Courses elected must be other than those used in fulfilling the Arts and Science group requirements. Prelegal students should contact the Chairman of the Philosophy Department.

History and Social Theory is an approved related area of study for philosophy majors. See Interdisciplinary and Special Programs for description.

Master of Arts Degree

Candidates are expected to complete all requirements set for the University through the Graduate School, including the course and thesis requirements, and the final examination. In addition, the Department of Philosophy has specific requirements enumerated below.

Departmental Requirements

To be admitted for graduate study leading to the degree of Master of Arts in philosophy, a student must:

1. Currently hold a B.A. degree in philosophy from an accredited institution of higher learning, or
2. Have received from an accredited institution of higher learning a minimum of 18 undergraduate credits in philosophy.

The candidate for the M.A. degree must complete a minimum of 18 credits, including thesis, in 700-level philosophy courses. A total of 30 graduate credits is required. A maximum of 6 of the total credits may be in a related field, as determined in each case 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.

Every candidate for the degree of Master of Arts is required to pass a written examination administered by the Philosophy Department,

as well as a final oral examination.

PHYSICS (Phys.)

Faculty: Altick (Ch.), Barnes, Bettler, Cathey, Frazier, Hallett, Hoffer, Kliwer, Lamb, Marsh, Moore, Scott, Sill, Telford, Vaziri, 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 in physics is designed to prepare the student for a variety of scientific careers such as would be offered by industry, or high school and junior college teaching. After appropriate graduate study, it is possible for the student to go into advanced research and/or university teaching, or into an interdisciplinary field such as astrophysics, biophysics, or the philosophy of science.

<i>Major Interest Subject</i>	<i>Credits</i>
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 3 laboratory credits	6
	30

Related Subjects (22 credits): Chem. 103, 104 (8 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, and 355-356.

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 in physics or atmospheric physics. The physics option courses should include 701, 702, 711, 721-722, 751-752, and 712 when feasible. The atmospheric physics option courses should include 701, 740, 741, 742, 743, 749, and 751-752. 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 6 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

The chief requirement for the Doctor of Phi-

losophy degree is the completion of original research, the results of which represent a significant contribution to the knowledge of physics and warrant publication. The purpose of the formal course work is two fold: 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 3 credits of Phys. 751, 752	3
Credits selected from other 700-level physics and/or mathematics courses	12
Credits of approved electives	9
	48

For persons with a specialization in atmospheric physics, Phys. 745 and 748 may be substituted for Phys. 732 and 761.

Before being accepted as a candidate, the student must demonstrate a reading knowledge of one language other than his native tongue (languages normally acceptable are French, German, and Russian, but the student's choice is subject to the approval of his advisory committee), and pass a comprehensive examination on graduate-level material in physics.

POLITICAL SCIENCE (P.Sc.)

Faculty: Chase, Crowley, Driggs (Ch.), Fox, Ganzel, Helke, Roberts, Rusco, Siegel, Weinberg, Wilcox

The department offers courses leading to the degrees of Bachelor of Arts, Master of Arts, Master of Public Administration, and Doctor of Philosophy.

Bachelor of Arts Degree

Major Interest Subject (30 credits)
Political Science 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

4. Comparative government
5. International relations

Eighteen of the 30 credits must be in courses numbered above 300. Only 6 credits of internship courses may be used to fulfill the 30-credit major requirement.

Related Subjects (20 credits): All students concentrating in political science, excepting prelegal and foreign affairs students, select 20 credits from a subject area or an interdisciplinary field in consultation with the adviser and with the approval of the department chairman and the dean of the college. History and Social Theory is an approved related area of study for political science majors. See Interdisciplinary and Special Programs section for description.

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 Chairman of the Political Science Department.

Prerequisite

Prerequisite for all courses, except 103, is P.Sc. 104 or approval of the instructor.

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 chairman of the department.

Master of Public Administration Degree

An interdisciplinary Master of Public Administration 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.

Doctor of Philosophy Degree

Applicants for the Ph.D. degree in political science must meet general University requirements for admission. Graduate School

requirements, including a satisfactory score on the Graduate Record Examination, and department requirements. In addition to the course and dissertation requirements for the degree, the candidate must demonstrate a reading knowledge of at least one foreign language other than his native tongue. A second language may be required at the discretion of the Ph.D. committee. The candidate must also demonstrate proficiency in the use of a research tool to the satisfaction of the department.

Detailed information on requirements may be obtained from the Dean of the Graduate School and the graduate adviser of the department.

Public Administration

The Certificate in Public Administration 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 some detail some of the problems and techniques of public administration. In some cases the course of study supplements in-service 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 of Nevada or elsewhere may be applied toward the certificate, but a minimum of 20 credits must be earned at the University of Nevada, 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 Chairman of the Department of Political Science.

Value of Quantitative Skills

Students who intend to do graduate work 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. Students with these interests are encouraged to take several courses in social science re-

search methods, statistics, and computer science.

Foreign Affairs

For information, contact the Chairman of the Department of Political Science.

PSYCHOLOGY (Psy.)

Faculty: Davis, Day, DeVoge, B. Gardner, R. Gardner, Ginsburg, Harrington, McQueen, McReynolds, Mikawa, Peterson, Varble, Wallace (Ch.)

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

<i>Major Interest Subject</i>	<i>Credits</i>
Psy. 101, 210, 301	11
Additional credits in psychology	21
	<hr/> 32

Related Subjects (18 credits): 18 additional credits to be chosen from one of the related fields below in consultation with the adviser and with the approval of the dean of the college: anthropology, biochemistry, biology, chemistry, history and social theory, mathematics, philosophy, social services and corrections, and sociology. Alternatively, a student may combine additional psychology, sociology, and anthropology courses. Other related areas are accepted subject to the approval of the adviser, the department chairman, and the dean of the college.

Social Psychology

<i>Major Interest Subject</i>	<i>Credits</i>
Anth. 101	3
Psy. 101, 210, 261, 362, 392	16
Soc. 101	3
Additional credits in psychology	12
	<hr/> 34

Related Subjects (16 credits): 16 additional credits to be chosen from one of the related fields below in consultation with the adviser and with the approval of the dean of the college: anthropology, biochemistry, biology, chemistry, history and social theory, mathematics, philosophy, social services and corrections, and sociology. Alternatively, a student may combine additional psychology, sociology, and anthropology courses. Other related areas are accepted subject to the approval of the adviser, the department chairman, and the dean of the college.

Advanced Degrees

Master of Arts Program

The Master of Arts degree program attempts to give the student a broad knowledge of the field, with emphasis in the social, clinical, or experimental fields.

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 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.

Students in this program may elect a concentration in either experimental psychology or clinical psychology. Details may be obtained by writing 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. The student may register in and receive a degree basically in one department or the other, although work is done in both.

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.

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 is highly desirable.

Preliminary Screening

Individuals wishing to attend as graduate students should write to the Chairman, 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).

Financial Assistance

A variety of graduate assistantships, fellowships, and traineeships are available to well-qualified students. Stipends range up to \$3,050 plus tuition and registration fee exemptions. In some instances, allowances of \$500 per dependent are awarded in addition. *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 AND PHYSICAL EDUCATION (R.P.Ed.)

Faculty: Ault, Avansino, Bailey, Ballew, Broten, Carey, Cook, Daniel, Eoff, Laughter, Legarza, Loper (Ch.), McGuffey, Magney, Mowrer, Newell, Plummer, Rupp, Smith, Spencer, Trachok, Twardokens

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.

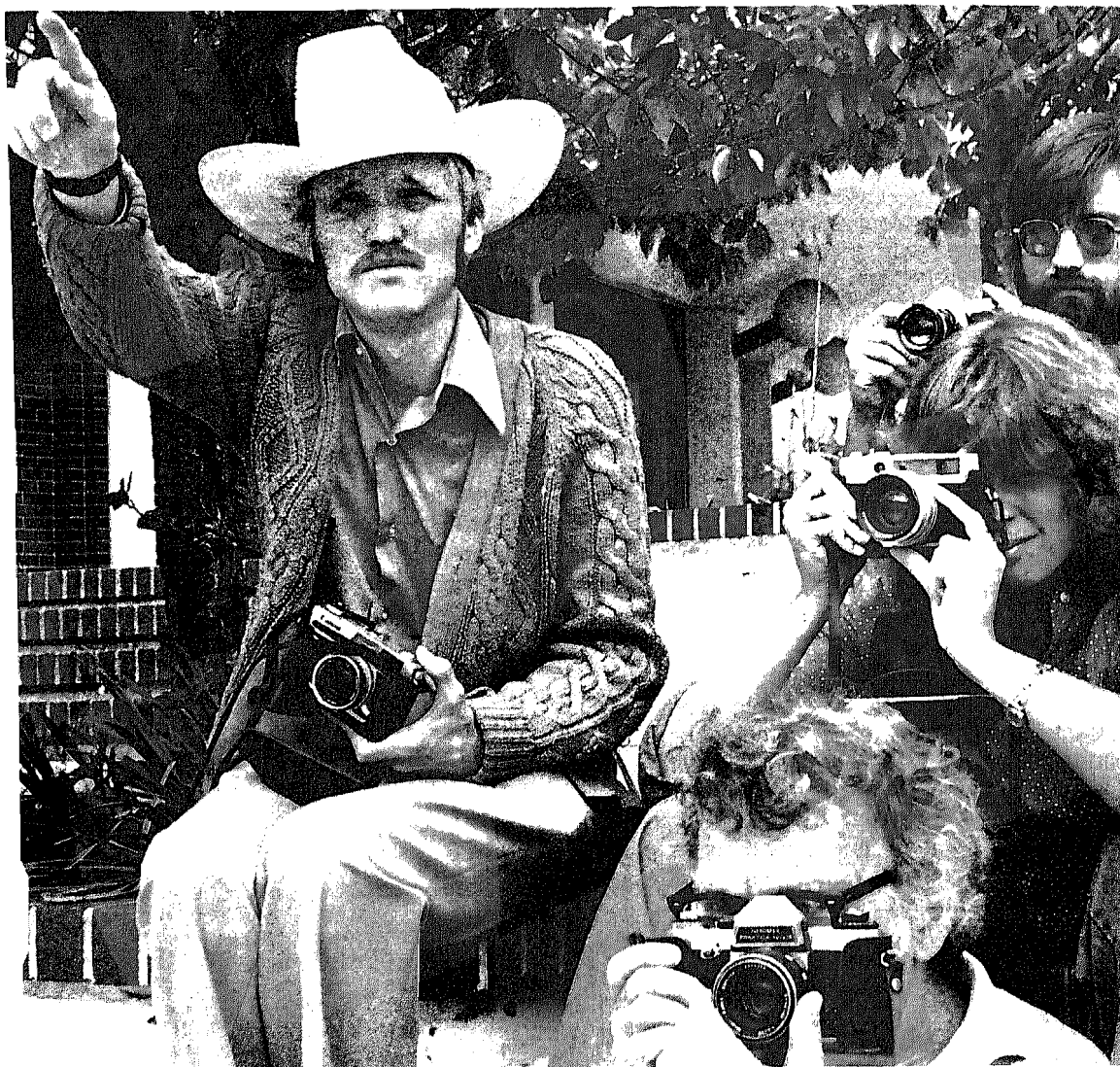
<i>Major Interest Subject</i>	<i>Credits</i>
<i>Required:</i> R.P.Ed. 201, 290 or 396, 372, 403, 405, 406	16
R.P.Ed. 220 through 230 (select 6 credits)	6
R.P.Ed. 240, 250, 251, 261, 262, 270, 271, 340, 350, 360, 361, 373, 401, 402, 421, 440, 450, 460, 461, 462 (select 6 credits)	6
R.P.Ed. 202, 299, 301, 302, 303, 321, 322, 323, 324, 325, 326, 330, 331, 370, 407, 420, 422, 495, 496, 497, 498, 499 (select 6 credits)	6
	<hr/> 34

Related Subjects (15-17 credits): Chem. 100, 101, or 171 (3 or 4 credits); Med.S. 103 (3 credits) or 205 (2 credits); Biol. 101 (4 credits), 262 and 263 (6 credits).

Physical Education with Emphasis in Dance

<i>Major Interest Subject</i>	<i>Credits</i>
R.P.Ed. 100-199, 220-230	6
R.P.Ed. 201, 202, 224, 230, 261 (Select any 4 courses)	8
R.P.Ed. 301, 360, 361, 372, 396, 403 (Select 10 credits)	10
R.P.Ed. 406, 460	5
	<hr/> 29

Related Subjects (21 credits): Biol. 101 (4 credits);



Chem. 100, 101, or 171 (3-4 credits); and 13-14 credits, outside of recreation and physical education, selected with the approval of the adviser. Courses should relate to the two areas of dance education or dance as a performing art.

Recreation (Municipal Recreation Option)

Major Interest Subject	Credits
R.P.Ed. 100-183	3
R.P.Ed. 220-230	3
R.P.Ed. 201, 240, 250, 251, 290, 340, 373, 402, 421, 440	22
R.P.Ed. 495	4
R.P.Ed. 496	3
	<hr/> 35

Related Subjects (15 credits): Jour. 280 (2 credits), 302 (2 credits), Mus. 121 (2 credits), Psy. 101 (3 credits), Sp.Th. 210 (3 credits), 329 (3 credits).

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 chairman of the department.

SOCIAL SERVICES AND CORRECTIONS (s.sv.c.)

Faculty: Larsen (Ch.), Pillard, Stotler, Tebor
Adjunct Faculty: Abbott, Howard

The department offers courses leading to the degree of Bachelor of Arts. In recent years extensive new prevention and treatment pro-

grams in public assistance, child welfare, mental health, rehabilitation, community action, crime, and delinquency have created an acute need for persons qualified in these areas. Because of these shortages many students enter social work practice immediately after receiving their bachelor's degree. Other students enter graduate professional schools of social work which offer two-year programs leading to a master's degree.

The department prepares students for employment in those positions not requiring a master's degree and also for meeting requirements for admission to graduate study. Supervised field experience in social and correctional agencies is a part of the program of study leading to the Bachelor of Arts degree. Among the types of agencies used for placement are child welfare, family and marital counseling, mental health, mental retardation, public assistance, economic opportunity (community action), crisis call, prison, probation, and parole. The department's program is accredited by the Council on Social Work Education, the national accrediting association.

Special study programs and minors may be worked out for students in other fields, including education, home economics, journalism, nursing, premedical and prelegal curricula, sociology, and others.

A core program, consisting of 30 credits in required courses plus 5 credits selected from other courses in the department, is required of all majors in social services and corrections. For the additional 15 hours (for the 50 credits required for a major) a number of courses from other divisions of the University are recommended for the student's consideration.

Special studies and individual reading in social services and corrections (S.Sv.C. 497, 498, and 499) may be taken on an individual basis or in cooperation with a group to supplement and deepen the student's knowledge in the areas of interest.

Social Services and Corrections

Required Courses	Credits
S.Sv.C. 101—Social Issues and Policies	3
S.Sv.C. 220—Introduction to the Social Services ..	3
S.Sv.C. 320—Individual in Society	3
S.Sv.C. 330—Methods of the Social Services I	3
S.Sv.C. 331—Methods of the Social Services II	3
S.Sv.C. 390—Introduction to Research and Statistics	3
S.Sv.C. 450—Social Welfare Institutions	2
S.Sv.C. 480—Field Experience in Social Service ...	5

S.Sv.C. 481—Field Experience in Social Service ...	5
	<hr/> 30

<i>Plus 5 credits selected from the following in consultation with adviser</i>	5
	<hr/> 35

S.Sv.C. 230—Crisis Intervention	3
S.Sv.C. 280—Community Observation	3
S.Sv.C. 360—The Law and Social Services	2
S.Sv.C. 368—Corrections	3
S.Sv.C. 370—The Child in the Community	3
S.Sv.C. 372—Social Services, Ethnic Minorities, and Women	2
S.Sv.C. 374—Social Intervention in Alcohol and Drug Abuse	3
S.Sv.C. 376—Social Services for the Aging in American Society	2
S.Sv.C. 486—Supervision and Administration in the Social Services	2

Related Subjects (15 credits are required in addition to the 35 credits in "Required Courses" listed previously.): The 15 additional credits are to be chosen from related fields in consultation with the adviser and with the approval of the dean of the college. The department accepts related areas in anthropology, biology, economics, education, English, history, home economics, criminal justice, sociology, psychology, political science, and health sciences. Other related areas are accepted subject to the approval of the adviser, the department chairman, and the dean of the college.

SOCIOLOGY (Soc.)

Faculty: Backman, Berberoglu, Harvey, Koh, Kreplin, Richardson, Stafford, Warner (Ch.)

The department offers courses leading to the degrees of Bachelor of Arts, Master of Arts, and, in conjunction with the Department of Psychology, a Doctor of Philosophy degree in social psychology.

Bachelor of Arts Degree

Major Interest Subject	Credits
Soc. 101 (3 credits); 210 (4 credits); 392, and 491-492 or 207; and one of 342, 371, 373, 391, 393; and one of 333, 376, 463, 480, 485	22
Additional courses in sociology	9
	<hr/> 31

Related Subjects (20 credits): Anth. 101 (3 credits) and one additional anthropology course, plus any one of the following sequences: I—Psy. 101, 261, 362 (3 credits each); II—Ec. 101, 102, 301 (3 credits each); III—P.Sc. 103, 104, 423 or 452 (3 credits each); IV—Any sequence of related courses in other departments (selected with approval of department chairman and the dean) that totals 8 or 9 credits; plus any 5 additional credits selected with approval of the department chairman and the dean.

History and Social Theory is an approved related area of study for sociology majors. See Interdisciplinary and Special Programs section for description.

Social Psychology

<i>Major Interest Subject</i>	<i>Credits</i>
Soc. 101 (3 credits), 210 (4 credits), 261, 362, 392 (3 credits each)	16
Psy. 101	3
Anth. 101	3
Additional credits in sociology	12
	34

Related Subjects (16 credits): 16 additional credits in any of the above three fields or combination thereof, to be chosen in consultation with the adviser and with approval of the dean.

Advanced Degrees

The Department of Sociology offers a graduate program leading to the degree of Master of Arts in sociology, the Ph.D. in sociology, and, in conjunction with the Department of Psychology, a graduate program leading to the Ph.D. degree in social psychology. Further details may be obtained from the Dean of the Graduate School or from the chairman of the department.

The program of graduate studies in sociology is designed to prepare sociologists for careers in the academic world and in areas of policy-related research. Strong emphasis is given to theory, classical and modern, traditional and critical, but always within a context which actively translates that theory into concrete research activity. Firm foundations in both theory and research technique are emphasized, but only as tools developed to study modern social relations in their historical and comparative perspectives.

Emphasis in the graduate programs is placed upon scholarship.

Master of Arts Program

Master of Arts degrees may be taken with emphasis in general sociology or social psychology. The program in social psychology is interdisciplinary, the student taking work in psychology as well as in sociology.

An M.A. degree is granted when the student (1) satisfactorily completes 30 semester credits in graduate-level courses, including Soc. 691—History of Social Thought, 3 credits; Soc. 692—Contemporary Sociological Theory, 3 credits; Soc 706-707—Intermediate Statistics, 6 credits; Soc. 718—Advanced Research Methodology, 3 credits; and one other seminar in sociology; (2) earns a minimum of 21 graduate credits while in residence; (3) passes a comprehensive examination made up of four parts, two of which are

required (methodology-statistics and sociological theory), and two of which are selected from fields of substantive sociology; and (4) produces a thesis under the supervision of three faculty members, and passes an oral examination given by the department faculty.

An alternate method of earning an M.A. degree is the nonthesis approach. This method includes items (1) through (3) with the total of 32 semester credits required.

Doctor of Philosophy Program In Social Psychology

This is an interdisciplinary program offered jointly in the Departments of Psychology and Sociology. The student may register in either department for this degree, although work is done in both.

For additional information on this interdisciplinary program, see Psychology Department.

Doctor of Philosophy Program In Sociology

The Doctor of Philosophy degree in sociology is designed for students who wish to obtain a broad mastery of sociology combined with a high level of competence in research and intensive exposure to two specific areas of the discipline. Additional information about this program is available from the department chairman.

General Requirements for Admission

In addition to the general requirement that the applicant have a bachelor's degree and a minimum of 18 hours of undergraduate work in sociology, the following departmental requirements must be met:

1. Credit in a course in statistics.
2. An overall undergraduate GPA of 2.5.
3. Recommendations from former instructors to the effect that the student is capable of doing graduate work at an acceptable level of performance.
4. Adequate scores in the Aptitude and Advanced Tests portions of the Graduate Record Examination. *Applicants are not considered unless they have submitted Graduate Record Examination scores.*

In some instances where 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 cleared.

Preliminary Screening

A person desiring to become a graduate student in the Department of Sociology should write at the earliest possible date to the department chairman, stating the desired degree program and whether or not consideration for financial assistance is requested.

Departmental application forms are then sent which should be returned together with two copies of official transcripts of all undergraduate work. The prospective applicant should arrange to take the Graduate Record Examination (Aptitude and Advanced Tests) at the university most convenient and have these scores forwarded to the department. It is most important to make arrangements early for taking the Graduate Record Examination as it is given only at certain times of the year. Tentative approval of a student by the department *does not constitute admission* to the University of Nevada; selected students are encouraged to make formal application for admission to the University (refer to section on Admission).

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 \$2,050 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 AND THEATRE (Sp.Th.)

Faculty: Bernardi, Dillard, Lemon, Owen, Page, Siebert, Vogel, Zimmerman (Ch.).

Adjunct Faculty: Stumpf

The department offers the Bachelor of Arts degree with a major in speech and theatre including emphasis in speech communication or theatre arts and interpretation. A Master of Arts degree is offered with majors in speech communication and theatre.

Bachelor of Arts Program Speech Communication

<i>Major Interest Subject</i>	<i>Credits</i>
Required: Sp.Th. 113, 210, 212	9
Electives (A minimum of 18 credits must be taken at the 300-400 level)	24
	33

Related Subjects (17 credits): Under advisement, a student may develop a minor field of concentration with 17 credits acceptable to this department, subject to the approval of the chairman and dean.

Theatre and Interpretation

<i>Major Interest Subject</i>	<i>Credits</i>
Required: Sp.Th. 100*, 118, 119, and 221	12
To be selected from Sp.Th. 203, 403	9
To be selected from Sp.Th. 250, 251, 350, 351, 452, 453, 454, 455	6
To be selected from Sp.Th. 471, 472, 473	6
	33

Related Subjects: A student may develop a minor field of concentration under advisement with 17 credits acceptable to this department, subject to the approval of the department chairman and the dean.

Foreign Language Option for Speech and Theatre

Students majoring in the department may satisfy the college requirement in foreign languages with any of the following options:

- For Theatre majors:
- a. Completion of regular college requirement.
 - b. Successful completion of one year of study in each of two foreign languages.
- For Speech Communication majors:
- a. Completion of the regular college requirement.
 - b. Successful completion of one year of study in each of two foreign languages.
 - c. Successful completion of one year of study in one foreign language, plus 6 credits in a linguistics option, to be selected from Engl. 281, and one course selected from Engl. 311, Engl. 411, or Anth. 305.

Master of Arts Program In Speech Communication

The department offers a graduate program leading to the M.A. degree 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 man-

*Speech and Theatre 200 should be taken prior to or concurrently with all other theatre courses

agement, organizational administration, and negotiation may be included as part of the candidate's program.

Requirements for admission to graduate standing in Speech Communication 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 9 upper-division credits in Speech Communication and 9 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 9 credits of graduate special courses may apply toward the M.A. degree.

Graduate teaching fellowships are available to qualified applicants. Stipends begin at \$3,600 per year plus waiver of tuition and registration fees; however, a \$6 per credit fee is

assessed. 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.

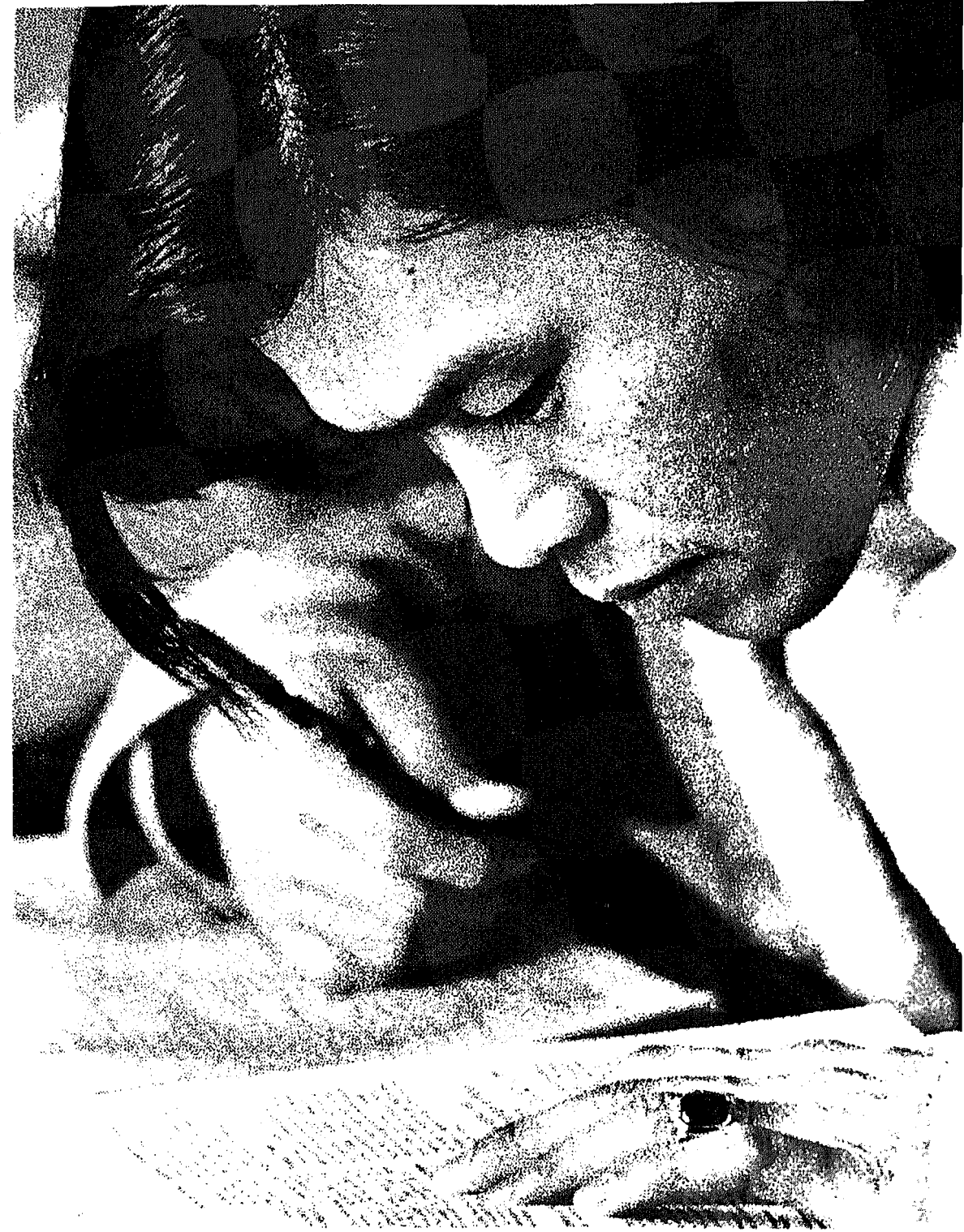
Master of Arts Program in Theatre

The department offers a graduate program leading to the M.A. degree in theatre. Students may design a program emphasizing acting and directing, technical theatre, and/or oral interpretation. Two plans are available: A with a thesis, or B without a thesis. The graduate program in theatre includes opportunities to work with the Nevada Repertory Company.

See the Graduate School section for general Master of Arts degree requirements. Contact the Director of Graduate Programs in Theatre for further information.



College of Business Administration



RICHARD E. HUGHS, *Dean*

Departments of Instruction: Accounting and 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 Association 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.

Programs

The College of Business Administration offers the following programs:

Baccalaureate Degrees: (a) Bachelor of Science in Business Administration with majors, areas, and options as follows: accounting (accounting, information systems); office administration; economics; managerial sciences (finance, insurance, management, marketing, business law and real estate); (b) Bachelor of Arts in economics.

Master's Degrees: (a) Master of Business Administration; (b) Master of Science in business administration; (c) Master of Science in economics; and (d) Master of Arts in economics.

Supplementary Programs: Several supplementary programs are maintained which may be taken along with standard baccalaureate degree programs. These programs are: (1) Public Administration, (2) Law School Preparation, and (3) Secondary School Teaching.

Academic Standards

Students enrolled in the College of Business Administration either as prebusiness or declared majors must have their courses reviewed by a faculty adviser before registering. Students placed on College or University probation are not eligible to progress from prebusiness 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.

Requirements for Acceptance to a Major

1. Completion of 60 credits or more with an overall GPA of 2.0 or better.
2. Completion of the lower division business core with an overall GPA of 2.3 or better. The following courses presently constitute the lower division core: Acc. 201, 202; I.S. 250; Ec. 101, 102, 261, 262; Math. 265.

Requirements for Graduation in a Major

1. Complete 128 credits or more with an overall GPA of 2.0 or higher.
2. Complete all College of Business Administration courses with a GPA of 2.3 or higher.
3. Complete all major department courses 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 less than five years, or the year of graduation. 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.

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. Courses to be included in the subject matter areas shown in each curriculum (humanities, natural science and mathematics, and social science) are to be selected with the approval of the major advisers. 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 120 credits excluding recreation, physical education and military courses numbered below 300.
 - b) A minimum of 40 credits in courses numbered 300 or above of which 33 must be in business.
 - c) A minimum of 54 credits in nonbusiness which include the following:

	Credits
Engl. 101-102	6 ✓
Humanities	9
(including 3 credits in philosophy)	
Natural science and math	9
(including 3 credits in natural science and excluding Math 101)	
Social science (excluding economics)	15
(including satisfaction of University requirements for study of the United States and Nevada Constitutions. ¹)	
Other nonbusiness courses	15

- d) 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
Mgr.S. 325—Legal Environment or Mgr.S. 373 and 374—Business Law I and II	3-6
Ec. 101-102—Principles of Economics I and II	6
Ec. 261-262—Principles of Statistics I and II	6
Ec. 300 (or above)—theory course	3
I.S. 250—Introduction to Data Processing	3
Mgr.S. 310—Marketing Principles	3
Mgr.S. 323—Organization and Interpersonal Behavior	3
Mgr.S. 352—Operations Management	3
Mgr.S. 365—Corporation Finance	3
Mgr.S. 488—Policy Formulation and Administration	3
International Business	3
Must be selected from the following:	
Ec. 301—Comparative Economic Systems	
Ec. 458—International Economics	
Ec. 459—Economic Development	
Ec. 410—Multinational Corporations	
Mgr.S. 420—International Finance	
Mgr.S. 452—Comparative Management	
Mgr.S. 470—International Marketing	
Other College of Business Administration courses to an overall total of	51

e) Completion of course requirements for the selected major.

Freshman Courses Which Satisfy Requirements

The courses open to freshmen which may be used to fulfill the foregoing requirements in natural sciences, social sciences, and humanities are listed below:

Group I, *Natural Sciences and Mathematics:* Anth. 102; biology, all 100- and 200-level courses; chemistry, all 100- and 200-level courses except 291; Env. 101; Geog. 103, 212; Geol. 101, 102, 105, 160; mathematics, all 100- and 200-level courses except 101, 173, and 174; Med. S. 251-252; Met.E. 151; physics, all 100- and 200-level courses except 103 and 104.

Group II, *Social Sciences:* Anthropology, all 100- and 200-level courses except 102; C.J. 110, 120, 220, 260; Ec. 109, 200; Geog. 106, 109, 292; Hist. 101, 102, 111, 217; Jour. 101, 102; political science, all 100- and 200-level courses; psychology, all 100- and 200-level courses except 210; social services and corrections, all 100- and 200-level courses; sociology, all 100- and 200-level courses except 210; Sp.Th. 210.

Group III, *Humanities:* Art 115, 116, 117, 140, 210, 212, 214, 215, 218, 256, 257; English, all 100- and 200-level courses except 101, 102, 105, 111, 112, 181; foreign languages and literatures 292, 293; Fr. 221, 223; Ger. 221, 223; Ital. 221, 223; Span. 221, 222, 223; Hist. 105, 106; Mus. 121, 201, 202; philosophy, all 100- and 200-level courses; P.I. 264; Sp.Th. 200, 217, 221.

Upper-Division Courses Which Satisfy Requirements

Courses requiring a prerequisite or sophomore or upper-division standing which may be

¹ Both Constitution requirements may be satisfied by Hist 111 or PS 103. United States Constitution by PS 409, Hist 101, 401, 402. Nevada Constitution by PS 208, 408; Hist 102, 217.

used to fulfill requirements in natural sciences, social sciences, and humanities include:

Group I, *Natural Sciences and Mathematics*: Anth. 335, 430, 435; biochemistry, all 300-level courses; biology, all 300- and 400-level courses; chemistry, all 300- and 400-level courses; Geog. 322, 335, 423; geology, all 300- and 400-level courses; mathematics, all 300- and 400-level courses; physics, all 300- and 400-level courses.

Group II, *Social Sciences*: Anthropology, all 300- and 400-level courses except 310, 311, 322, 335, 339, 342, 411, 415, 416, 423, 425, 430, 435, 455; geography, all 300- and 400-level courses except 322, 325, 331, 334, 335, 338, 341, 420, 423, 431, 432, 462; history, all 300- and 400-level courses except 317, 318, 328, 371, 372, 373, 384, 385, 403, 404, 427; Jour. 372, 479; Min.E. 454, 472; political science, all 300- and 400-level courses; psychology, all 300- and 400-level courses; social services and corrections, all 300- and 400-level courses; Sp.Th. 315, 410, 411, 412, 427, 428, 433, 434.

Group III, *Humanities*: Anth. 310, 311, 322, 339, 342, 388, 411, 415, 416, 423, 425, 455; Art 309, 314, 315, 316, 319, 355, 357, 381, 416, 417, 418, 419; Engl., all 300- and 400-level courses except 305, 306, 321, 405, 406, 438; foreign languages and literatures, all 300- and 400-level courses; Basque, all 300- and 400-level courses; French, all 300- and 400-level courses except 301, 305, 306, 309, 407, 408; German, all 300- and 400-level courses except 301, 305, 306, 309, 407, 408; Russ. 357, 358; Spanish, all 300- and 400-level courses except 301, 305, 306, 309, 410; Hist. 317, 318, 328, 371, 372, 373, 384, 385, 403, 404, 427; Mus. 350, 407, 408, 414, 422, 423, 424, 426, 428, 495; philosophy, all 300- and 400-level courses; Sp.Th. 317, 319, 320, 321, 401, 430, 471, 472, 473, 480, 490, 495, 496.

Upper-Division Courses

Courses numbered 300 or above are not open to freshmen or sophomores without written recommendation of the chairman of the department and approval of the dean.

Satisfactory/Unsatisfactory Courses

Students in the College of Business Administration may apply a maximum of 15 *S/U* credits (physical education and military science excluded) toward the baccalaureate degree. Prebusiness or major students may register for *S/U* courses in Business Administration only for thesis or intern work.

ACCOUNTING AND INFORMATION SYSTEMS

(Acc., I.S.)

Faculty: Chism, Crawford, Fuller, Greenlees (Ch.), Hoyt, Kaiser, Neidert, Palmer, Ray, Smith, Weaver, Wright, Zane

The department brings together the individual disciplines of accounting, information systems, and office administration. The stu-

dent in this department may choose to concentrate on studies in any one of these individual subject areas, or in the combined area of data processing and accounting. Upon making a choice, the student must meet the requirements established for the several subject areas.

Accounting and Information Systems

Accounting, by its nature, operates within a broad socio-economic environment. Therefore, great emphasis is placed upon conceptual knowledge; that is, that the student not only know, but that he understand.

The accounting major is provided with the theories and procedures which prepare the student for the many facets of the accounting professions, public, industrial, managerial, tax, and governmental accounting. Additionally, programs are provided in the field of information systems (data processing) in order that the student may become prepared in this expanding area of the business community.

Freshman Year

	<i>Credits</i>
Engl. 102—Composition II*	3
Math. 265—Elements of Calculus I	3
Ec. 101-102—Principles of Microeconomics and Macroeconomics	6
Mathematics or natural science	3
Philosophy	3
Humanities and social science	14
	32

Sophomore Year

	<i>Credits</i>
Acc. 201—Introductory Accounting I	3
Acc. 202—Introductory Accounting II	3
I.S. 250—Introduction to Business Information Systems	3
Ec. 261-262—Principles of Statistics	6
Humanities and social science	7
Mathematics or natural science	3
Electives—nonbusiness	6
	31

Accounting Option

Junior Year

	<i>Credits</i>
Acc. 303-304—Intermediate Accounting	6
Acc. 307—Governmental Accounting	3
Acc. 309—Cost Accounting I	3
Mgr. S. 373-374—Business Law I and II	6
Mgr. S. 323—Organization and Interpersonal Behavior	3
Mgr. S. 365—Corporation Finance	3
Ec. 300 (or above)—theory course	3
Electives—nonbusiness	3
Electives—any area	3
	33

* See college core requirement

Senior Year

	<i>Credits</i>
Acc. 313—Federal Tax Accounting I	3
Acc. 405—Advanced Accounting	3
Acc. 411—Auditing I	3
Mgr. S. 352—Operations Management	3
Mgr. S. 310—Marketing Principles	3
Mgr. S. 488—Policy Formulation and Administration	3
O. A. 404—Business Communications	3
Electives—nonbusiness	7
Electives—any area	4
	32

Accounting and Information Systems Option

Junior Year

	<i>Credits</i>
Acc. 303-304—Intermediate Accounting	6
Acc. 307—Governmental Accounting	3
Acc. 309—Cost Accounting	3
I.S. 251—COBOL	3
I.S. 350—Computer Operating Systems	3
Mgr. S. 323—Organization and Interpersonal Behavior	3
Mgr. S. 373-374—Business Law I and II	6
Ec. 300 (or above)—theory course	3
Elective—nonbusiness	3
	33

Senior Year

	<i>Credits</i>
Acc. 313—Federal Tax Accounting I	3
Acc. 405—Advanced Accounting	3
Acc. 411—Auditing I	3
I.S. 451—Advanced Computer Problems	2
I.S. 480—Accounting Systems and Automation	3
Mgr. S. 365—Corporation Finance	3
O. A. 404—Business Communication	3
Mgr. S. 310—Marketing Principles	3
Mgr. S. 488—Policy Formulation and Administration	3
Mgr. S. 352—Operations Management	3
Electives—nonbusiness	3
	32

Information Systems Option

Freshman Year

	<i>Credits</i>
Engl. 102—Composition II ¹	3
Math. 265—Elements of Calculus I	3
Ec. 101-102—Principles of Microeconomics and Macroeconomics	6
Philosophy	3
Humanities and social science	9
Mathematics or science	3
Other nonbusiness core requirements	3 to 5
	30-32

Sophomore Year

	<i>Credits</i>
Acc. 201—Introductory Accounting I	3
Acc. 202—Introductory Accounting II	3
I.S. 250—Introduction to Business Information Systems	3
I.S. 251—COBOL	3
Ec. 261-262—Principles of Statistics	6
Humanities and social science	12
Mathematics or science	3
	33

Junior Year

	<i>Credits</i>
Accounting elective	3
I.S. 252—FORTRAN	3

¹ See college core requirement.

I.S. 350—Computer Operating Systems	3
I.S. 352—Computer Applications	3
Electives—any area	4
Electives—nonbusiness	7
Mgr. S. 323—Organizations and Interpersonal Behavior	3
Mgr. S. 352—Operations Management	3
Ec. 300 (or above)—theory course	3
	32

Senior Year

	<i>Credits</i>
I.S. 451—Advanced Computer Problems	3
I.S. 480—Accounting Systems and Automation	3
Mgr. S. 365—Corporation Finance	3
O. A. 404—Business Communications	3
Mgr. S. 488—Policy Formulation and Administration	3
Electives—nonbusiness	3
Electives—any area	5
Mgr. S. 310—Marketing Principles	3
Mgr. S. 373-374—Business Law I and II	6
	32

Office Administration

The following curriculum is designed for the major in office administration who plans to graduate with a Bachelor of Science in Business Administration.

Freshman Year

	<i>Credits</i>
Hist. 111—Survey of American Constitutional History ¹	3
Engl. 102—Composition II ¹	3
O. A. 101-102—Elementary and Intermediate Typewriting	4
O. A. 111-112—Elementary and Intermediate Stenography	6
Ec. 101-102—Principles of Economics	6
Philosophy	3
Math. 265—Calculus for Social and Biological Sciences	3
Social science	3
	31

Sophomore Year

	<i>Credits</i>
Acc. 201—Introductory Accounting I	3
Acc. 202—Introductory Accounting II	3
I.S. 250—Introduction to Data Processing	3
Psy. 101—General Psychology	3
O. A. 202—Business Machines	3
O. A. 211 or 212—Advanced Stenography	3
Humanities	6
Natural science	3
Electives	5
	32

Junior Year¹

	<i>Credits</i>
Ec. 261-262—Principles of Statistics I and II	6
Mgr. S. 323—Organization and Interpersonal Behavior	3
Mgr. S. 310—Marketing Principles	3
Mgr. S. 373-374—Business Law I and II	6
Humanities	3
Natural science	3
Social science	6
Ec. 300 (or above)—theory course	3
	33

Senior Year²

	<i>Credits</i>
Mgr. S. 352—Operations Management	3
Mgr. S. 365—Corporation Finance	3
Mgr. S. 488—Policy Formulation and Administration	3
O. A. 300—Office Organization and Management	3
O. A. 404—Business Communications	3
Electives	17
	32

² Sufficient credits, 300 or above, to equal 40.

Office Administration Option

The following curriculum is designed for the major in office administration who wishes to receive a Certificate of Accomplishment upon the completion of two years of study.

Nonbusiness Courses

	<i>Credits</i>
Engl. 102—Composition II*	3
Hist. 111—Survey of American Constitutional History*	3
Psy. 101—General Psychology	3
Natural science and mathematics	9
Humanities	5
Social science	3
	26

Business Courses

O.A. 102—Intermediate Typewriting	2
O.A. 111, 112, 211—Stenography (any two courses)	6
Acc. 201—Introductory Accounting I	3
I.S. 250—Introduction to Data Processing	3
Ec. 102—Principles of Economics I	3
O.A. 202—Business Machines	3
O.A. 302—Secretarial Procedures	3
Mgr.S. 325—Legal Environment	3
Electives (nonbusiness and business)	12
	38
Grand Total	64

ECONOMICS (Ec.)

Faculty: Atkinson, Cargill, Chu, Dahl, Eadington (Ch.), Hallagan, Houwink, Larsen, Reed, Sears, Walker, Wilson

The economics major curricula are designed to prepare qualified students for positions as economic analysts in business, labor organizations, and government and for the teaching profession. In addition, they serve as ideal foundations for graduate study and research work in the fields of business, law, and economics. To provide a broad background, students are encouraged to elect courses in philosophy, sociology, psychology, political science, history, mathematics, physics, and English in addition to economics and business administration.

There are two economics degree programs offered. One leads to the Bachelor of Science in Business Administration and complies with all requirements of the American Association of Collegiate Schools of Business (see Bachelor of Science).

The other program leads to the Bachelor of Arts in economics and follows the traditional liberal arts approach (see Bachelor of Arts).

The department also offers a minor or re-

lated area program in economics (see Minor or Related Area).

Bachelor of Science

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.

Freshman Year

	<i>Credits</i>
Engl. 102—Composition II*	3
P. Sc. 103—Principles of American Constitutional Government ¹	3
Math. 265—Calculus for the Social and Biological Sciences	3
Ec. 101-102—Principles of Economics	6
Philosophy	3
Social science	3
Electives	3
Nonbusiness electives	3
	30

Sophomore Year

	<i>Credits</i>
Acc. 201—Introductory Accounting I	3
Acc. 202—Introductory Accounting II	3
I.S. 250—Introduction to Data Processing	3
Ec. 261-262—Principles of Statistics	6
Humanities	4
Mathematics or natural science	3
Electives	3
	30

Junior Year

	<i>Credits</i>
Mgr.S. 325—Legal Environment	3
Mgr.S. 323—Organization and Interpersonal Behavior	3
Mgr.S. 352—Operations Management	3
Mgr.S. 365—Corporation Finance	3
Mgr.S. 310—Marketing Principles	3
Ec. 303—Money and Banking	3
Ec. 321—Price Theory	3
Ec. 322—Income Theory	3
Mathematics or natural science	3
Social science	3
Electives	4
	34

Senior Year

	<i>Credits</i>
Humanities	2
Social science	3
Other economics courses (300 or above)	12
Mgr.S. 488—Policy Formulation and Administration	3
Nonbusiness electives	12
Electives	2
	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

*See college core requirement

present the equivalent of 14 credits of foreign language, part or all of which may consist of high school foreign language units. They are also required to present a minimum of 38 credits of economics courses.

Freshman Year

	<i>Credits</i>
P.Sc. 103—Principles of American Constitutional Government ¹	3
Foreign language ²	8
Engl. 102—Composition II ¹	3
Math. 265—Calculus for the Social and Biological Sciences	3
Ec. 101-102—Principles of Economics	6
Social science	3
Electives	4
	30

Sophomore Year

	<i>Credits</i>
Foreign language ²	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
Electives	9
	30

Junior Year

	<i>Credits</i>
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
Electives	12
	34

Senior Year

	<i>Credits</i>
Humanities	4
Economic history	3
Ec. 481—History of Economic Doctrine	3
Ec. 431—Introduction to Mathematical Economics	3
Other economics courses (300 or above)	8
Electives	13
	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 Economics	6
Ec. 321—Intermediate Price Theory	3
Ec. 322—Intermediate Income Theory	3

¹ See college core requirements.

² Students may meet the foreign language requirement by completing course 204 or 209 in any language.

Other College of Business Administration courses taught by Economics Department faculty	6
	18

MANAGERIAL SCIENCES

(Mgr.S.)

Faculty: Ansari, Barone, Brigham, Cotter, Evans, Ghymn, Haig, Heflin, Kaye, Knight (Ch.), Leister, Sekiguchi, Skargerberg, Winne.

The Managerial Sciences Department combines the functional areas of finance, management, and marketing. The department also includes academic programs in the fields of insurance, real estate, and business law.

The academic program of the department is designed to enable its graduates to meet specific career objectives in a variety of fields, viz.: advertising management, commercial banking, consumer behavior, financial management, general management, general marketing, institutional management, insurance management, international marketing, investments, marketing research, personnel and industrial relations, public administration, quantitative marketing, real estate, and retailing and distribution. Faculty advisers play a very significant role in the planning and the design of a program for every individual student enrolled in the department.

In addition to the University and the College of Business Administration requirements, each student who is a candidate for a degree in the Managerial Sciences Department is required to complete the following core courses:

Mgr.S. 404—Problems in Business Finance	3
Mgr.S. 460—Management Theory and Practice	3
Mgr.S. 462—Business and Society	3
Mgr.S. 488—Policy Formulation and Administration	3
Mgr.S. 489—Marketing Management	3
	15

For the remaining number of credits required for graduation from the University, the student is expected to work very closely with the faculty adviser and plan courses and credits that facilitate progression toward specific career goals. This segment of a student's program may include courses offered outside the department and even the College of Business Administration.

It should be noted that for all programs

within the department the freshman-sophomore curriculum essentially is the same for all students. Students must make a decision on their areas of concentration prior to the beginning of their junior years if they are to receive the full benefit of the flexibility inherent in the department's program.

The following program outline presents the requirements that must be met by each major:

Freshman Year

	Credits
Engl. 102—Composition II ¹	3
Math. 265—Calculus for the Social and Biological Sciences	3
P.Sc. 103—Principles of American Constitutional Government ²	3
Social science elective	3
Humanities elective	6
Natural science or mathematics elective	6
Nonbusiness elective	5
	<hr/> 32

Sophomore Year

	Credits
I.S. 250—Introduction to Data Processing	3
Ec. 101-102—Principles of Economics I and II	6
Acc. 201—Introductory Accounting I	3
Acc. 202—Introductory Accounting II	3
Ec. 261-262—Principles of Statistics I and II	6
Social science electives	6
Elective	2
Humanities elective	3
	<hr/> 32

Junior-Senior Years

	Credits
Mgr.S. 310—Marketing Principles	3
Mgr.S. 365—Corporation Finance	3
Mgr.S. 323—Organization and Interpersonal Behavior	3
Mgr.S. 352—Operations Management	3
Mgr.S. 373—Business Law I and Mgr.S. 374—Business Law II or Mgr.S. 325—Legal Environment	3-6
Ec. 300 (or above)—theory course	3
Departmental Core Requirements: Mgr.S. 404, 460, 462, 488, 489	15
Additional courses in managerial sciences or other disciplines in the college or University with your adviser's approval	16-19
Nonbusiness electives	12
	<hr/> 64

Areas of Concentration

The student majoring in managerial sciences, under the guidance of the faculty adviser, *must* choose to develop a specialized set of courses tailored to specific academic interests and/or career needs. Several functional areas in the department are natural areas of concentration in which many stu-

dents direct their studies. These areas of concentration include finance, insurance, management, marketing, and real estate. Faculty advisers maintain in their files lists of courses that are relevant and useful in helping a student build a program of study in these areas.

Finance

In addition to the college and department curriculum requirements, a student specializing in the finance area must complete at least 12 semester credits in advanced finance and related courses. This allows a concentration in such career-oriented areas as commercial bank management, investments, and managerial finance.

Insurance

Students choosing to concentrate in the area of insurance are expected to complete 12 semester credits in insurance courses in addition to the college and the department curriculum requirements. These courses are designed to develop the substantial intellectual and technical competence necessary for insurance management.

Management

A student choosing an area of concentration in management is required to demonstrate competency in the general area of human behavior and decision making within an organizational context. A minimum of 12 semester credits, in addition to the college and department course requirements, should be selected in consultation with the student's adviser.

Marketing

In addition to satisfying the college and departmental course requirements, a student specializing in the marketing area must complete 12 semester credits of advanced marketing and related courses. The marketing program provides the student with opportunities to apply the contributions of the behavioral sciences, quantitative methods, and the principles of management analysis to the study of marketing.

Real Estate

A concentration in the real estate area requires an in-depth study of the legal, economic, and operational aspects of real estate. To develop an understanding in these areas, real estate students are expected to complete 12 semester credits in real estate and related courses in addition to college and department course requirements.

Minor or Related Areas

Students not majoring in the department who would like a minor or related area in managerial sciences to complement their major program can achieve their purpose by completing the five courses in the department's core curriculum:

Mgr.S. 404—Problems in Business Finance	3
Mgr.S. 460—Management Theory and Practice ..	3

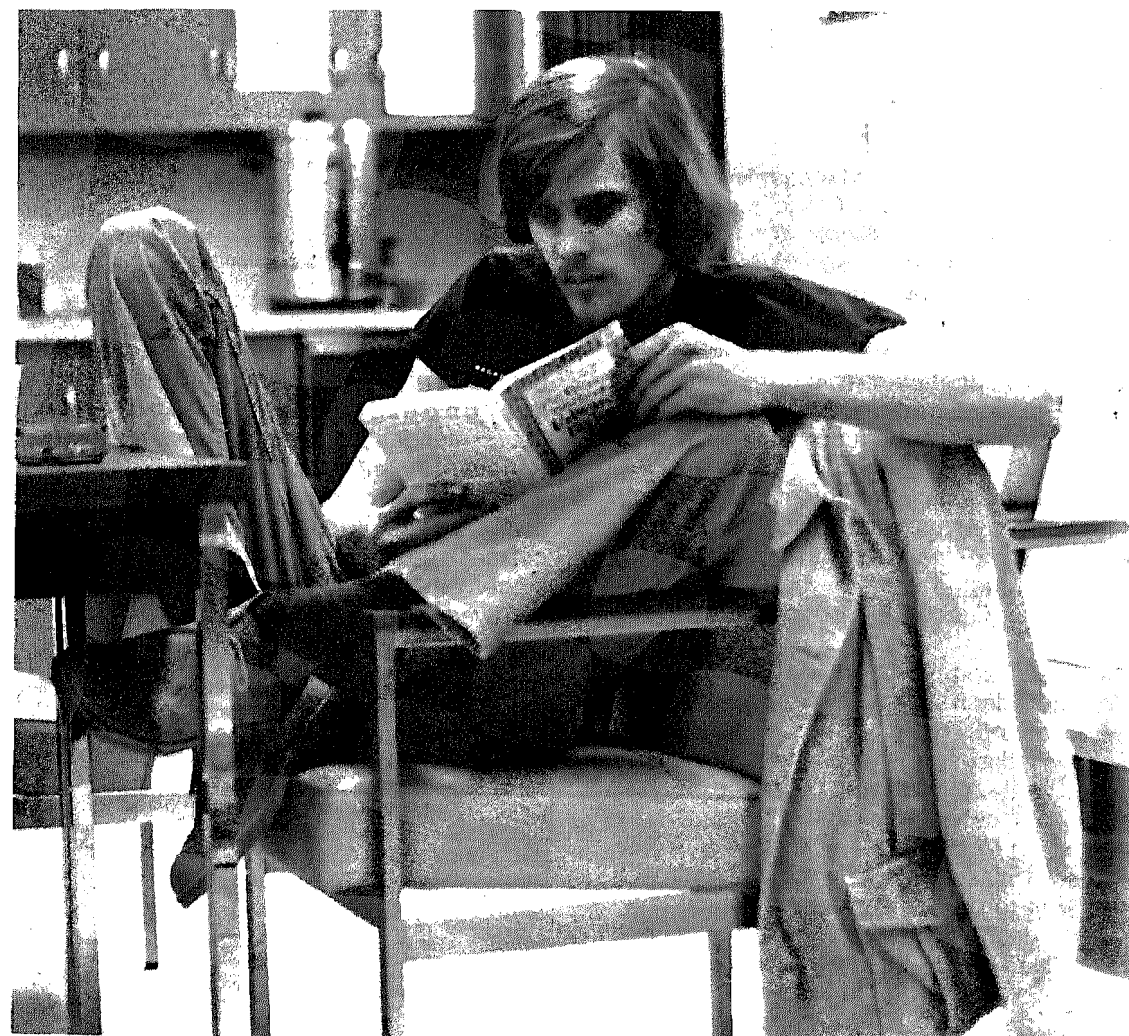
Mgr.S. 462—Business and Society	3
Mgr.S. 488—Policy Formulation and Administration	3
Mgr.S. 489—Marketing Management	3

It should be noted that prerequisites for the above-mentioned courses may increase the total credits for a minor or related area to more than 15.

Graduate Programs

The College of Business Administration grants the following advanced degrees:

1. Master of Business Administration.
 2. Master of Science in business administration (major fields: accounting, finance, management, marketing).
 3. Master of Arts in economics.
 4. Master of Science in economics.
- All Master of Science and Master of Arts



¹ University requirements. (ACT scores may also require a student to take English 101 as a prerequisite for Engl. 102.)

² Both requirements may be satisfied by Hist. 111 or P.S. 103, United States Constitution requirement by P.S. 409, Hist. 101, 401, 402; Nevada Constitution by P.S. 208, Hist. 102, 217.

degrees require the successful completion and defense of a thesis (Plan A). A nonthesis option (designated Plan B) is available to candidates for the Master of Business Administration degree.

Admission to Graduate Standing. The Graduate Standing classification is for those students who wish to pursue a program leading to an advanced degree. Admission to standing permits a student to plan a degree program, to request the formation of an advisory committee, and to select a major adviser or thesis director. Meeting the requirements for admission to Graduate Standing is a prerequisite for enrollment in business administration courses for graduate credit. 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.

For master's degrees in business administration:

A baccalaureate degree from an accredited institution with a satisfactory combination of undergraduate grade-point average and scores on the Graduate Management Admission Test (GMAT). GMAT scores must be submitted prior to admission.

For master's degrees in economics:

1. A baccalaureate degree from an accredited institution with an overall grade-point average of at least 2.5 on a scale of 4.0.
2. A satisfactory score on the Graduate Record Examination (Aptitude and Advanced Economics tests), 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 below.)

The GMAT and the Graduate Record Examination 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.

Admission to Graduate Special. The Graduate Special classification is for students who do not wish to pursue a program leading to an advanced degree; those who wish to pursue a program leading to an advanced degree, but need to complete additional undergraduate

course work in order to meet the admission requirements for Graduate Standing; and those who can demonstrate that they meet the requirements for admission to Graduate Standing but are unable to complete the application for admission prior to registration.

The academic requirement for admission is the filing of official transcripts showing that the applicant has a baccalaureate degree from a fully accredited four-year college or university. With Graduate Special status a student may enroll for undergraduate credit in the College of Business Administration. Special approval from the dean of the College is required to permit Graduate Special students to enroll in courses for graduate credit. Such approval normally is given only when the student can demonstrate that the requirements for admission to Graduate Standing are satisfied.

Course Requirements: The course requirements for master's degrees are:

Prerequisites, required for Master of Business Administration and Master of Science in business administration programs, may be completed after admission. Equivalent courses taken at other schools may satisfy prerequisite requirements.

Ec. 101, 102—Principles of Economics I and II
Ec. 261, 262—Principles of Statistics I and II
Math. 265—Elements of Calculus I

First-year Business Administration Core, required for all graduate business programs, but may be waived for students with appropriate undergraduate preparation. Recommendations concerning waivers of specific courses are to be made by the student's adviser prior to initial registration. Consideration is given to content of undergraduate courses, progress in the disciplines involved since courses were taken, and grades achieved in undergraduate work.

	Credits
Acc. 715—Accounting Concepts and Analysis	3
I.S. 716—Management and the Computer	3
Mgr.S. 714—Legal Environment of Business	3
Mgr.S. 715—Business Finance	3
Mgr.S. 716—Advanced Management	3
Mgr.S. 717—Marketing Analysis and Strategies ...	3
Mgr.S. 758—Business Policy*	3
	21

*Normally taken after completion of other core courses. If the business policy requirement of the first-year core is waived, Mgr.S. 758 must be substituted for an elective in Plan B Master of Business Administration programs, and may be substituted in Plan A programs.

Minor Fields. For a minor in business administration a student should complete at least three of the second-year M.B.A. core courses (described below) as well as any preparatory courses which may be necessary as prerequisites. For a minor in accounting, finance, management, or marketing at least 6 credits of graduate work beyond the first-year core, including the second-year core course in that area, are required.

Probation. Graduate students in the College of Business Administration who do not maintain an overall grade-point average of at least 3.0 in all graduate courses are considered to be on probation. Those on probation are discouraged from further enrollment if they fail to raise their overall grade-point average to at least 3.0 by the end of the first probationary semester.

Master of Business Administration

The Master of Business Administration degree program requires a major in business administration. A minor field or a field of specialization may be chosen from the disciplines of accounting, economics, finance, management, or marketing or from another department of the University. At least 15 semester credits are required in graduate courses outside of the minor field or field of specialization. Minimum requirements are as follows:

Plan A (Thesis Option)

1. Completion of prerequisites and the first-year business administration core, except for courses which may be waived.
2. Completion of the entire second-year M.B.A. core (15 credits):

	Credits
Acc. 701—Accounting for Management Analysis	3
Ec. 708—Public Policy and Business Performance	3
Mgr.S. 732—Financial Management	3
Mgr.S. 742—Advanced Marketing Seminar	3
Mgr.S. 752—Seminar in General Management	3
	15

3. Nine additional graduate credits including at least 3 credits in 700-level courses.
4. Completion of a thesis in business administration (6 credits).

Major Programs. At least 18 graduate cred-

its beyond the first-year core must be in business administration.

Major-Minor Programs. At least 15 graduate credits beyond the first-year core must be in business administration with at least 6 credits in a minor field. Requirements for a minor field are subject to approval by the minor department.

Plan B (Nonthesis Option)

1. Completion of prerequisites and the first-year business administration core, except for courses which may be waived.
2. Completion of the entire second-year M.B.A. core (15 credits).
3. Mgr.S. 741—Seminar in Research Methodology.
4. Fifteen additional graduate credits including at least 6 credits in 700-level courses.

Major Programs. At least 23 graduate credits beyond the first-year core must be in business administration.

Major-Minor Programs. At least 21 credits beyond the first-year core must be in business administration, with at least 8 credits in a minor field. Requirements for a minor field are subject to approval by the minor department.

Comprehensive Examination. A written comprehensive examination is required. The examination covers the second-year M.B.A. core and the minor field, where applicable.

Master of Science in Business Administration

The Master of Science degree in business administration requires a major in accounting, finance, management, or marketing. A thesis is required. A minor field may be chosen from a second business administration discipline or another department of the University. Requirements for the minor field are subject to the approval of the minor department. Minimum requirements are as follows:

1. Completion of prerequisites and the first-year business administration core, except for courses which may be waived.
2. Completion of a major in accounting, finance, management, or marketing (at least 12 credits).
3. Completion of a minor (at least 6 credits).
4. Completion of a thesis in the major field (6 credits).

At least 30 graduate credits must be completed beyond the first-year core. At least 15

of the graduate credits beyond the first-year core (excluding the thesis) must be in 700-level courses.

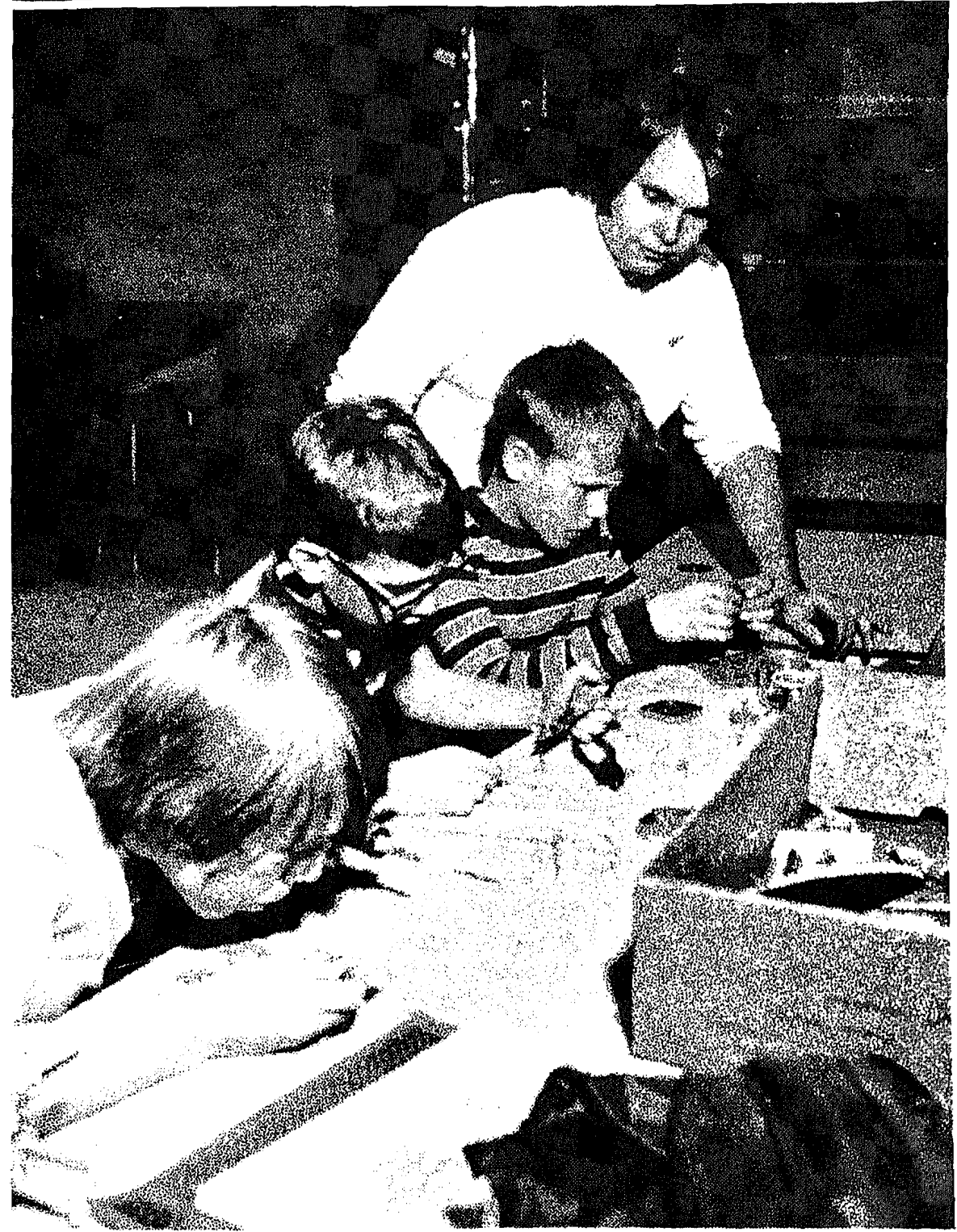
Master of Science and Master of Arts in Economics

Specific course requirements for degrees in economics are recommended by the student's advisory committee. Each student's program must bear the approval of the Dean of the



College of Business Administration and the Dean of the Graduate School. Course requirements may exceed, but must not be less than, the minimum requirements outlined in the Graduate School section of the University catalog. At least 24 credits of graduate-level courses and 6 credits of research for the thesis must be completed beyond the bachelor's degree. At least 15 credits of graduate courses (excluding the thesis) must be in 700-level courses.

College of Education



EDMUND J. CAIN, *Dean*

Departments of Instruction: Counseling and Guidance Personnel Services, Curriculum and Instruction, Educational Administration and Higher Education, and Educational Foundations and Media.

The main goal of the College of Education is to prepare professional personnel to function effectively as teachers and administrators in the challenging and demanding field of education.

A second major goal of the College is to stimulate in the educational 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 Learning and Resource Center, the Reading Center, Simulation-Demonstration Facility, Early Learning Center (1-3), the Special Education Classrooms, and the Research and Educational Planning Center.

Degrees Offered

Four-year curricula, leading to the baccalaureate degree, are offered in both elementary and secondary teaching fields and include courses in the other colleges on the campus. The College also offers specific courses for teachers and other school personnel, and master's and doctoral degrees are granted with majors or minors in the following basic areas: counseling and guidance personnel services, curriculum and instruction (elementary, secondary, and special education), educational administration and higher education, and educational foundations and media. Specialization may be attained in library education, reading, and early childhood education.

Accreditation

The College of Education is fully accredited by the Northwest Association of Secondary and Higher Schools and Colleges for all teacher education, undergraduate, and graduate curricula. It is also fully 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.

Certification

By law all certificates in Nevada are granted by the Nevada State Board of Education. Students in the College of Education enrolled in approved curricula leading to a degree are at the same time meeting the specific requirements of the State Board for certification.

General Requirements

Candidates for the baccalaureate degree in the College of Education must satisfy these requirements:

1. Be admitted to regular standing.
2. Earn 128 credits or more in required and elective courses.
3. Complete at least 40 credits in courses numbered 300 or above.
4. Pass a Language Proficiency Examination before enrolling as a junior in the college. Sophomores are provided an opportunity each semester to take this examination.
5. Earn at least a 2.3 GPA in the major teaching field.
6. All general University requirements, i.e., GPA, resident credit, and United States and Nevada Constitutions.

A maximum of 30 semester credits may be earned with *S/U* grades subject to the approval of the assigned education adviser.

Each candidate for a baccalaureate degree must earn at least a 2.3 GPA in the major teaching field and satisfy all general University requirements.

General Academic Education Required Courses for Elementary Teaching Curricula

(Kindergarten-Primary, Intermediate, Upper Grades)

	Minimum Credits
<i>Communication Skills</i>	15
Engl. 101, 102	6
Sp.Th. 113	3
Engl. 321	3
Art, Music, other English, or Philosophy ...	3
<i>Social Science</i> (preferably distributed as follows)	20

U.S. and Nevada Constitutions requirements	3-6
European or world history or political science	6
History (American)	6
Geography, sociology, economics, anthropology	5-8
<i>Science and Mathematics</i>	15-18
Biological science	4-6
Physical science	5-6
Mathematics (general)	6
<i>Psychology</i> (general)	3
<i>Area of Concentration</i>	16
Student must complete a minimum of 16 in an approved field of concentration.	
Courses required in general academic areas do not count in this requirement.	

General Academic Education Required Courses for Special Education Teaching Curricula

	Minimum Credits
<i>Communication Skills</i>	9
English	6
Speech fundamentals	3
<i>Humanities</i>	7
Music fundamentals	2
Teaching music	2
Teaching art	3
<i>Social Science</i>	9
U.S. and Nevada Constitutions requirements	3-6
History	6
<i>Science</i> (must include one laboratory course)	10
Preferably distributed in biological, human chemistry, and/or anatomical science areas.	
<i>Psychology</i> (general)	3
<i>Area of Concentration</i>	16
Student must complete a minimum of 16 credits in an approved field of concentration. Courses required in general academic areas do not count in this requirement.	

General Academic Education Required Courses for Secondary Teaching Curricula

The principal purpose of the general education requirement, basic to all teacher education curricula, is to provide for the subject matter course experiences necessary for effective citizenship, a satisfactory personal life, and a general culture background, regardless of the vocation or professional specialization of the individual student.

Course work should be distributed in at least four or five broad subject matter areas, inclusive of the major teaching field. A detailed outline of general education

requirements should be obtained from the Department of Curriculum and Instruction.

Approximately 50 credits in general academic education courses are recommended as follows:

	Minimum Credits
<i>Communication Skills and Humanities</i>	15
Engl. 101, 102	6
Sp.Th. 113	3
Engl. 321	3
Art, music, philosophy, or English	3
<i>Social Science</i>	9
Requirement for U.S. and Nevada Constitutions must be met. Remainder of credits may be selected from history, political science, economics, sociology, geography (cultural), and anthropology (cultural).	
<i>Psychology 101</i> (general)	3
<i>For Bachelor of Arts Degree in Education</i>	
Foreign languages (see Arts and Science requirements)	12
Biological and physical science	6
<i>For Bachelor of Science Degree in Education</i>	
Biological and physical sciences	10
Foreign language or cultural requirement. (An approved option)	See adviser

Secondary Teaching Field

Students who wish to prepare to teach in junior and senior 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 field and the 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 Division of Curriculum and Instruction.

Agriculture (vocational) *	Industrial Education
Art	Journalism
Biological Sciences	Mathematics

* Students must enroll in College of Agriculture.

Business Education	Music
Chemistry	Physical Education
Earth Sciences	Physical Sciences
English	Physics
French	Political Science
General Science	Recreation
German	Social Studies
Health Education	Spanish
History	Speech and Theatre
Home Economics (vocational)*	

(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 Division of Curriculum and Instruction.

Agriculture	Italian
Anthropology	Journalism
Art	Latin
Biological Sciences	Mathematics
Business Education	Music
Chemistry	Physical Education
Earth Sciences	Physical Sciences
Economics	Physics
English	Psychology
French	Political Science
General Science	Recreation
Geography	Russian
German	Social Studies
Health Education	Sociology
History	Spanish
Home Economics	Speech and Theatre
Industrial Education	

Professional Education Foundation Areas and Courses

The foundations for teaching provide the framework for the professional education requirements for supervised teaching, certification, and graduation. Enrollment in all foundations for teaching courses must be made with approval of the department chairman. Each student must be accepted for admission to a teacher curriculum before permission to enroll in professional education courses, except for Ed.F.M. 101, is granted. Satisfactory completion of the basic requirements in each prior foundation area is required for admission to supervised teaching. Correspondence credit in methods courses is not accepted toward meeting requirements for degrees.

Professional certification requirements in Nevada and surrounding States are generally met in the following patterns.

* Students must enroll in School of Home Economics.

Foundations for Elementary Teaching

	Minimum Credits
I. <i>The Sociological Bases for Education</i> . Ed.F.M. 101—Educational Experiences I	3
C.I. 250—School Laboratory Experiences	3
II. <i>Psychological Factors—Human Growth and Development</i>	9
C.I. 270—Human Growth and Development (or equivalent)	3
C.I. 409—Handicapped Learners in the Regular Classroom	3
C.A.P.S. 401—Introduction to Elementary School Guidance	3
III. <i>General Principles, Methods, and Materials for Elementary Education</i>	22
C.I. 300—Teaching of Reading in the Elementary School	3
C.I. 402—Reading the lower Elementary Grades or	
C.I. 403—Reading the Upper Elementary Grades	3
C.I. 405—Practicum in the Reading Clinic	3
C.I. 420—Methodology of Multicultural Education	3
C.I. 421a—Teaching of Social Studies—Elementary	3
C.I. 422a—Teaching of Mathematics—Elementary	2
C.I. 423a—Teaching of Language Arts—Elementary	3
C.I. 424a—Teaching of Science—Elementary	2
IV. <i>Supervised Teaching in Elementary Education</i>	10
C.I. 451—Supervised Teaching in the Elementary Grades	10
	47

Recommended Supporting Course Work

C.I. 433—Creative Experiences in Early Childhood Education	3
Ed.F.M. 420—Audiovisual Methods in Teaching	2
Mus. 324—Teaching of Elementary School Music	2
Art 342—Teaching Elementary School Art	3

Foundations for Special Education

	Minimum Credits
Student must complete the College of Education general requirements and also the sequence of courses contained below. At the completion of this program the student is certified to teach the mentally retarded and the educationally handicapped.	
C.I. 110—Introduction to Special Education	3

C.I. 310—Education of the Exceptional Child	3	
C.I. 311—Introduction to Learning Disabilities	3	
C.I. 411—Introduction to Study of Mental Retardation	3	
C.I. 412—Education of the Mentally Retarded	3	
C.I. 413—Advising Exceptional Children	3	
C.I. 414—Problems in Special Education	3	
C.I. 416—Curriculum for Moderately and Severely Retarded Children	3	
C.I. 417—Curriculum for Educable Mentally Retarded Children	3	
C.I. 418—Curriculum Development for the Learning Disabled Child	3	
C.I. 420—Methodology of Multicultural Education	3	
C.I. 453a—Supervised Teaching with Exceptional Children—Mental Retardation	8	
C.I. 453c—Supervised Teaching with Exceptional Children—Educationally Handicapped	8	
C.I. 471a—Diagnosis and Treatment of Learning Difficulties—Reading	3	
C.I. 471b—Diagnosis and Treatment of Learning Difficulties—Mathematics	3	
C.A.P.S. 400—Introduction to Counseling and Guidance <i>OR</i>		
C.A.P.S. 401—Introduction to Elementary School Guidance	3	
S.P.A. 356—Survey of Speech Pathology	3	61

Foundations for Secondary Teaching

	Minimum Credits	
I. <i>The Sociological Bases for Education</i>	3	
Ed.F.M. 101—Educational Experiences I	3	
II. <i>Human Growth and Development</i> ..	6	
C.I. 250—School Laboratory Experiences	3	
C.A.P.S. 330—Educational Psychology	3	
III. <i>Evaluation and Guidance</i>	3	
C.A.P.S. 400—Introduction to Counseling and Guidance	3	
IV. <i>General Principles and Special Methods of Secondary Education</i> ..	11	
C.I. 409, 609—Handicapped Learners in the Regular Classroom	3	
C.I. 428—General Principles of Secondary Education	2	
Special methods (teaching field)	3	
Electives	3	
One of the below must be taken:		
C.I. 404, 604—Reading in the Secondary Schools	3	

C.I. 439, 639—The Junior High/Middle School	3
C.I. Course in Special Methods for Chosen Minor	3
VI. <i>Supervised Teaching in Secondary Education</i>	8
C.I. 457—Supervised Teaching in Secondary School	8
	34

C.I. 420, 428, and 457 and Special Methods are scheduled in block form within one semester. English majors should include C.I. 404 in their programs.

Supervised Teaching

Supervised teaching facilities are provided in the public schools of Reno and Sparks through the courtesy of the school authorities in these two cities. By this arrangement, students meet typical school problems and secure training for teaching under the most favorable conditions. In every instance the student is assigned to one of the regular teachers in the school system, designated as a cooperating teacher.

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

To protect the interests of the public school children, great care is exercised in according the privileges of supervised teaching to students. Only those students who have shown by their previous record a satisfactory ability in scholarship, dependability, and earnestness and a real interest in the problems of education are accepted for teaching. The failure on the part of the student teacher to meet any requirement imposed may result in the immediate forfeiture of teaching privileges.

Admission to supervised teaching is secured through the office of the Director of Laboratory Experiences for either the elementary or secondary teaching field. *Application must be made for supervised teaching by March 1 of the junior year.* Normally a student must have completed a minimum of 12 semester credits at the University prior to admission to student teaching.

Student teachers must submit a completed physical examination form immediately prior to beginning the student teaching. Forms are available from the Director of Laboratory Experiences.

Admission to the six-week summer session of student teaching is limited to students who have completed one year or more of teaching. Exceptions to this regulation are made only by affirmative action through a petition to the department chairman concerned.

Prerequisites for admission to supervised teaching for regular University students are available in the office of the Dean of the College of Education. Each student must obtain this information during the freshman year.

Requirements for Graduate Degrees

Master's Degree

Graduate students may major in counseling and guidance personnel services (elementary, secondary, college, and vocational); curriculum and instruction (elementary, secondary, and special education) which may include specialization in reading, early childhood education, mental retardation, or the educationally handicapped; educational administration and higher education (may include specialization in elementary or secondary principalship, school administration, and supervision); and educational foundations and media.

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 chairman 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 24 credits of approved course work with a major in education and a 6-credit thesis. High standards of research work are

required. Specific programs with emphasis on teaching, counseling, or administration and supervision are available on request. All candidates for these degrees are required to complete Ed.F.M. 700—Introduction to Educational Research—and two other core courses outside their fields of specialization (see adviser).

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 9 credit hours of acceptable core courses.

A nonthesis Master of Arts or Master of Science degree 32-credit option may be selected.

Education Specialist Certificate

The specialist certificate is granted after completion of one year of planned course work beyond the master's degree. A certificate may be attained in the Department of Counseling and Guidance Personnel Services, Department of Curriculum and Instruction (elementary, secondary, and special education), Department of Educational Administration and Higher Education, or Department of Educational Foundations and Media. Any student desiring to pursue a program leading to a certificate should consult the Dean of Education or the department chairman in whose field specialization is expected.

Doctor of Education Degree

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 residency requirement of at least two full-time summer or regular semesters with a minimum of 12 graduate credits must be completed each semester or summer session.

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 (C.A.P.S.)

Faculty: Bailey, Downing, Maples, Meyers, Pierce (Ch)
Cooperating Field Personnel - Spring 1978: Albright, Bowen, Doctor, Elder, Fee, Lambert, Lee, Svare, Wrayl
Fall 1978: Dorf, Elder, Fee, Meuris, Whellams
Summer 1978: Albright, Horning, Oberg.

The department offers graduate work for those desiring to specialize in the personnel functions at all levels of education and the vocational aspects of adult 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.

DIVISION OF CURRICULUM AND INSTRUCTION

Faculty: Davis, Elkins, Gickling, Gilman, Guckes, Haverlape, Hollingsworth, Johns, Kelly, Lee, Linskie, O'Such, Phelps, Tower, Trent (Dir.)
Instructors: Ballew, Carmody, Genasci, Henzl, Herrin, LaMonda, Stumpf

Adjunct Faculty: Bullis, First, Geer, Confiadini, Jackson, Johnson, Kniseley, Krajewski, Lewandowski, Pierce, Quade, Quirk, Schroeder

Cooperating Field Personnel: Elementary and Special Education - Spring 1978: Aaronson, Allen, Assuras, Ayarbe, Beaudette, Birks, Buchanan, Callaghan, Carlson, Cashill, Cassinelli, Clark, Conlon, Conner, Cooper, Corbett, Duncan, First, Folk, Foster, Gavin, Geer, Gehr, Henderson, Hess, Hodgson, Hoppensteadt, Hotchkiss, Hunt, Johnson, Koepf, Kraft, Kwapii, Larson, Lawson, Lewandowski, Macaluso, Manley, Marble, Mason, Maynard, McCollum, Miller, Mitchell, Moss, Mueller, Mulholland, Munn, Myers, Oleson, Papke, Perkins, Pislner, Raffanti, Rai, Schafer, Schneckloth, Smith, Squatrito, Troutner D., Troutner R., Vealey, Wallace, Washington, Walters D., Waters J., Whiddett, Whittenton, Wiggins, Willden, Williams, Willis, Woodbury, Zappettini
Fall 1978: Bell, Clark, Conner, Crawford, Duntion, Fabri, Glanzmann, Gregory, Handy, Heinen, Isola, Jones, Kwapii, Legarza, Linde, Maslach, McGahan, Meyer, Olson, Parigini, Perry, Rose, Segerstrom, Smith, Sumin, Tackett, West
Secondary Education - Spring 1978: Adler, Aiazzi, Albin, Alcorn, Ashton, Baker, Bergmann, Brown, Burkhart, Carpenter, Carver, Cooper, Dondero, Floyd, Freeman, Frey, Fujii, Gubanich, Hernandez, Houk, Hutchings F., Hutchings K., Isernhagen, Keele, Kuhles, Laghans, Lehnars, Lish, Lundergreen, Marsh, Mathewson, Miller, Mittelbach, Moon, Nevin, Nord, Nunn, Olerich, Oliphant, Rishel, Robards, Saibini, Sandberg, Schellin, Schuster, Shade, Stoffel, Swinden, Tucker E., Tucker S., Williamson, Wood, Worthen
Fall 1978: Adler, Buchheister, Burke, Burkett, Burkhardt, Carpenter, Cooney, Copenhaver, Crook, Dav-

ies, Dietrich, George, Hardy, Hayden, Hickman, Higgins, Hoch, Horton, Isernhagen, Istrice, Lommori, Marsh, Mc-Knight, Merryweather, Mitchell, Nord, Oyarbide, Parkhurst, Platt, Pointer, Rasmussen, Rippee, Sill, Zunino

Elementary Education

Undergraduate and graduate majors are offered in elementary education. A minimum of 47 credits of approved work is required for the undergraduate major and a minimum of 16 credits is required for the graduate major.

Secondary Education

A major is offered in secondary education on the graduate 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 division office.

Members of the division will assist graduate students in planning balanced programs suited to their educational objectives.

Special Education

Undergraduate and graduate majors are offered in special education. Completion of the undergraduate program results in certification in both mental retardation and the area of the educationally handicapped. A graduate student may focus on either mental retardation or learning disabilities.

EDUCATIONAL ADMINISTRATION AND HIGHER EDUCATION (E.A.H.E.)

Faculty: Dodson, Loveless, Tucker (Ch.)

The department offers graduate work only, leading to the Master of Arts, Master of Education, and Doctor of Education degrees with a major in educational administration and higher education. Appropriate selection of courses will enable the graduate student to meet certification requirements for an administrative position in the public schools of Nevada. Sixteen credits acceptable to the department constitute a major.

EDUCATIONAL FOUNDATIONS AND MEDIA (Ed.F.M.)

Faculty: Bartl (Ch.), Gilman, Krajewski, Peltier, Reed

The department offers a graduate major and/or minor in educational foundations and media. See department chairman for program

SERVICE DIVISIONS

Learning and Resource Center

Staff: Cowlshaw, Mundt

This Center encompasses a large simulation-demonstration area, graphics room, five micro-teaching rooms, audio room, and a large media center. Within this complex students have a variety of learning experiences, using a wide range of learning resources. They also design and develop instructional materials and then try them out in teaching-learning situations.

Research and Educational Planning Center

Staff: Bride, Davis, Franklin, Huber, Trout (Dir.)
Adjunct Faculty: Dangberg
Associate Researcher: Swinney

This Center houses the Research Coordinating Unit, the School Facility Planning Laboratory, the Vocational Education Professions Development Act Coordinator, the Career and Vocational Education Center, and the Nevada State Drug Abuse Prevention Project, along with a number of short-term research and planning projects of national, State, and local origin.

Reading Center

Paul M. Hollingsworth (Dir.)

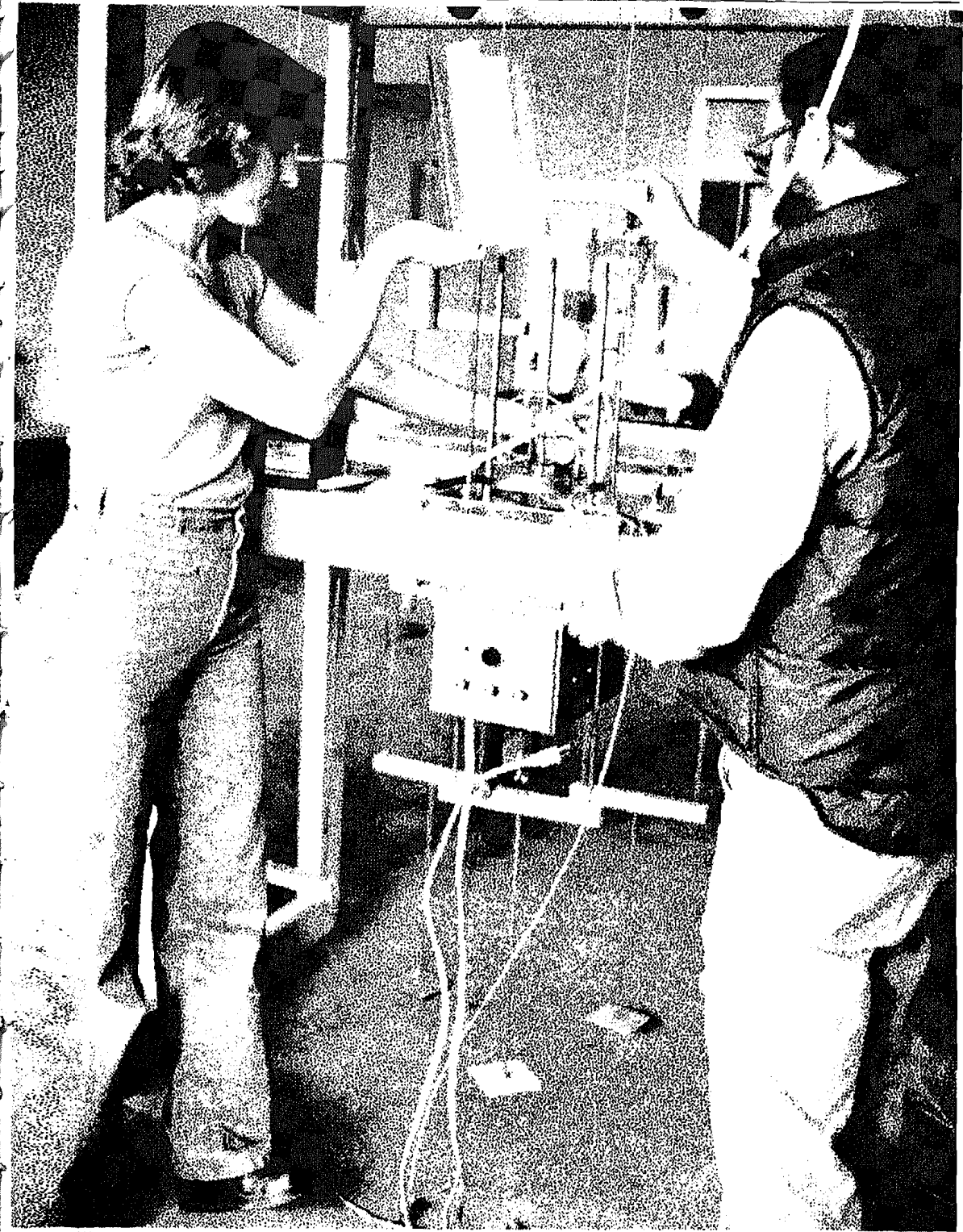
The Reading Center provides reading services to students in the State of Nevada. Fees for these services are dependent upon the types of services rendered. The center is equipped to demonstrate diagnostic and remedial techniques. Programs offered through the center may certify teachers as reading specialists and could lead to an advanced degree (master or doctor). For further information contact the Reading Center in the College of Education.

Office of External Relations

Samuel M. Basta (Dir.)

This office is responsible for working with the various school districts in the State of Nevada in relation to College of Education graduates, in coordination with the University Placement Office. It serves as the major public relations office for the college, provides information as to college functions, and has the responsibility of coordinating College of Education advisory groups.

College of Engineering



CHARLES R. BREESE, *Dean*

The College of Engineering offers undergraduate instruction in the fields of civil, electrical, and mechanical engineering, with a broader undergraduate program provided by the engineering science curriculum. Graduate-level instruction is provided in civil, electrical, and mechanical engineering.

The Engineering Technologies Department offers curricula leading to an Associate of Science in Engineering Design or Electronics Engineering Technology Degree.

Objectives

Engineers apply a knowledge of natural and mathematical sciences 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 curricula prepare the student to meet the technical and ethical demands of the profession and to become an informed citizen in the community.

Accreditation

The civil, electrical, and mechanical engineering programs for the baccalaureate degree and the electronics engineering technology and architectural design option programs in the Engineering Technologies Department are accredited by the Engineers' Council for Professional Development (ECPD). 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 Civil Engineering, Electrical Engineering, and Mechanical Engineering sections.

Degrees Offered

Associate Degrees: Upon satisfactory completion of the prescribed curriculum, the student in the Engineering Technology Department becomes a candidate for the degree of Associate of Science in Electronics Engineering Technology or Associate of Science in Engineering Design Technology.

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, Electrical Engineering, Engineering Science, 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 the fields of potential field phenomena, information theory, system analysis and research, materials science, applied mechanics, energy systems, water resources, structural analysis, and electronic devices, subject to the University, College, and Graduate School requirements.

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 3 units of mathematics (1½ algebra, 1 geometry, and ½ trigonometry) plus 1 unit of science. The unit of science may be in either life or physical science. It is strongly recommended that 2 high school units of science be completed prior to admission—1 each in life science and physical science. In addition, it is helpful if prospective students can take additional mathematics courses while in high school. For admission to the associate degree programs, the College recommends at least one year of high school algebra and science.

Baccalaureate Degree Requirements

In any field of specialization, the degree

requirements consist of the general University requirements, the engineering core, and the departmental requirements. This amounts to 128 to 134 academic semester credits.

Interested students may elect to take the ROTC program offered by the Military Science Department *in addition to* the requirements for the Bachelor of Science degree in the various curricula listed on the following pages. By taking these additional courses, such students receive a commission as a second lieutenant as well as a Bachelor of Science degree at graduation.

Engineering students may register for a maximum of 9 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 128 to 134 semester credits are as follows:

	Credits
General University Requirements	6
Engl. 101, 102	6
U.S. and Nevada Constitutions (credit for these is included in the humanistic-social electives in the Engineering Core listed below.)	
Engineering Core Requirements	59-67
Math. 215, 216, 310, and/or 140 and/or 251 and/or 320 and/or	
M.E. 300	16-17
Phys. 201, 202, 203, 204, 205, 206	8-12
Chem.	4-8
C.E. 372	3
M.E. 241, 342, 371	9
Humanistic-social courses	15-18
Departmental Requirements	57-69
	128-134

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 very little 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 approval 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 all engineering courses offered by the departments of the College (excluding two-year technology courses); all required 100 and 200 courses in the disciplines of mathe-

matics, physics, and chemistry; plus all upper division courses in these disciplines to be counted in computation of the **C** average for engineering courses.

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.

CIVIL ENGINEERING (C.E.)

Faculty: Bird, Blakely, Bonell, Breese, DeAngelis, Douglas (Ch.), Ellis, Fordham, Gupta, Orcutt, Shewan, Shifley.

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, mapping, water resources, transportation, and water disposal. The curriculum is designed to give an introduction to these disciplines.

Attention is directed to the existence of three 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 State Highway Department, the Associated General Contractors of Nevada, and the Nevada State Division of Water Resources. All 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 curriculum for the Bachelor of Science in Civil Engineering degree is as follows:

<i>University Requirements</i>	<i>Credits</i>
Engl. 101, 102	6
Basic Sciences	
Math. 140, 215, 216, 310	15
Chem. 101	4
Phys. 201, 202, 204, 205	8
M.E. 300	2
Science electives*	6
	35

*Lists of acceptable science electives and humanistic-social science electives are available in the office of the chairman of the department. Technical electives are to be selected from nonrequired civil engineering 400 level course offerings.

<i>Humanities and Social Sciences</i>	
P.Sc. 103	3
Electives ¹	15
	18
<i>Communications</i>	
Engr. 201	3
<i>Engineering Sciences, Analysis, and Design</i>	
M.E. 241, 342, 371	9
E.E. 375	3
C.E. 140 ² , 241, 243, 246, 388, 473, 491	18
C.E. 364, 367, 368, 390, 489	12
C.E. 369, 372, 374, 492	8
C.E. 366, 451	6
C.E. 381, 484, 485	10
Technical electives	6
	72

Total credits for B.S. in Civil Engineering degree 134

Students enrolled in civil engineering cooperative programs are required to take a 1-credit seminar course (C.E. 150, 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 persons 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, or water resources 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. A Plan B program, requiring department faculty approval, normally requires a professional paper and is considered appropriate only for those students already having considerable engineering experience.

¹ Lists of acceptable science electives and humanistic-social science electives are available in the office of the chairman of the department. Technical electives are to be selected from nonrequired civil engineering 400-level course offerings.

² Students who have not had mechanical drawing in high school or junior high school are required to take C.E.T. 101 and postpone C.E. 140 until the second semester.

The department is also a major contributor to the interdisciplinary graduate program in hydrology which leads to the M.S. and Ph.D. degrees in that field.

Additional information on graduate programs may be obtained by writing to the chairman of the department.

ELECTRICAL ENGINEERING

(E.E.)

Faculty: Attari, Fronek, Johnson (Ch.), Kleppe, Kosso, Manhart, Schneider
Adjunct Faculty: Nagy

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 electronics, microwaves, information transmission and processing, and energy conversion machines.

The departmental requirements for the Bachelor of Science in Electrical Engineering degree are included in the curriculum following. 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.

<i>Freshman Year</i>	
<i>First Semester</i>	
Engr. 101—Composition I	3
Math. 215—Calculus I	4
M.E. 150—Graphics	3
E.E. 131—Computer Tech. I	2
Humanistic-social elective ³	3
	15
<i>Second Semester</i>	
Chem. 101—General Chemistry	4
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Lab. I	1
Math. 216—Calculus II	4
E.E. 132—Computer Techniques II	1
Humanistic-social elective ¹	3
	16

³ History 111 recommended, to fulfill Constitution requirements.

Sophomore Year

<i>First Semester</i>	
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Lab. II	1
Math. 310—Calculus III	4
M.E. 241—Analytic Mechanics for Engineers I	3
E.E. 231—Computerized Matrix Algebra I	1
E.E. 331—Introduction of Computerized Logic	1
Engr. 201—Engineering Communications	3
	16

Second Semester

<i>Credits</i>	
Engr. 102—Composition II	3
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Lab. III	1
Math. 320—Differential Equations	2
M.E. 342—Analytic Mechanics for Engineers II	3
E.E. 232—Computerized Matrix Algebra II	2
Humanistic-social electives	2
	16

Junior Year

<i>First Semester</i>	
<i>Credits</i>	
Math. 251—Probability and Statistics	3
M.E. 371—Thermodynamics I	3
E.E. 301—Principles of Measurements	2
E.E. 311—Network Theory I	4
E.E. 355—Electric and Magnetic Fields	3
Humanistic-social elective	2
	17

Second Semester

<i>Credits</i>	
C.E. 372—Strength of Materials	3
E.E. 302—Measurement Techniques	2
E.E. 312—Network Theory II	3
E.E. 455—Distributed Systems	3
E.E. 372—Introduction to Electronics	3
E.E. 350—Electric Systems I	3
	17

Senior Year

<i>First Semester</i>	
<i>Credits</i>	
E.E. 401—Systems Measurement Techniques	2
E.E. 481—Advanced Electronics	3
E.E. 451—Electric Systems II	3
E.E. 485—Feedback Systems	3
E.E. 488—Engineering Ethics	1
Technical elective	3
	15

Second Semester

<i>Credits</i>	
E.E. 402—Advanced Measurement Tech.	2
E.E. 462—Engineering Analysis	3
Ec. 101—Principles of Microeconomics	3
Humanistic-social elective	3
Technical elective	5
	16

Total credits for B.S. in Electrical Engineering degree 128

Engineering Science

The program in engineering science, administered by the Electrical Engineering Department, leads to the degree of Bachelor of Science in Engineering Science. The program is designed for the student who wants a

broad background in the engineering sciences as well as chemistry, physics, and mathematics; or who wants to enter the field of nuclear engineering; or who would like to study other areas in addition to engineering; or who does not want to select a major at this point in his academic career. The curriculum allows the student 22 credits for technical electives. These credits permit the student to take introductory courses in several different technical fields of learning or to take a sequence of related courses. The basic program is as follows:

Freshman Year

<i>First Semester</i>	
<i>Credits</i>	
Chem. 103—General Chemistry	4
Engr. 101—Composition I	3
Math. 215—Calculus I	4
E.E. 131—Computer Techniques I	2
	13

Second Semester

<i>Credits</i>	
Chem. 104—General Chemistry	4
Math. 216—Calculus II	4
E.E. 132—Computer Techniques II	1
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Lab. I	1
M.E. 150—Graphics	3
	16

Sophomore Year

<i>First Semester</i>	
<i>Credits</i>	
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Lab. II	1
Math. 310—Calculus III	4
M.E. 241—Analytic Mechanics for Engineers I	3
Engr. 102—Composition II	3
E.E. 231—Computerized Matrix Algebra I	1
Humanistic-social elective ²	2
	17

Second Semester

<i>Credits</i>	
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Lab. III	1
Math. 251—Introduction to Probability and Statistics	3
Math. 320—Differential Equations	2
M.E. 342—Analytic Mechanics for Engineers II	3
E.E. 232—Computerized Matrix Algebra II	2
Technical elective	3
	17

Junior Year

<i>First Semester</i>	
<i>Credits</i>	
E.E. 311—Network Theory I	4
M.E. 371—Thermodynamics I	3
C.E. 372—Strength of Materials	3
Humanistic-social elective ¹	5
Technical elective	2
	17

¹ Lists of acceptable basic science electives, humanistic-social science electives, and technical electives are available in the office of the chairman of the department.

² Hist. III recommended, to fulfill Constitution requirements.

Second Semester

E.E. 312—Network Theory II	Credits	3
M.E. 372—Thermodynamics II		3
E.E. 372—Introduction to Electronics		3
Humanistic-social elective		3
Technical elective		5
		<hr/> 17

Senior Year

First Semester

M.E. 461—Heat Transfer	Credits	3
Ec. 101—Principles of Microeconomics		3
C.E. 367—Elementary Fluid Mechanics		3
Humanistic-social elective		3
Technical elective		4
		<hr/> 16

Second Semester

Met.E. 350—Elements of Materials Science	Credits	4
M.E. 453—Mechanical Vibrations		3
Humanistic-social elective		2
Technical elective		8
		<hr/> 17

Total credits for B.S. in Engineering Science degree 130

Suggested Engineering Science Technical Elective Fields

The following groups of related technical elective courses are suggested as suitable programs to satisfy the technical elective requirements. A student may select, instead, a variety of technical electives if he so desires.

- Biology* (11 credits): Bio. 101, 300, 306.
- Chemical Processing* (13 credits): Chem. 353, 354; Ch.E. 361; Me.E. 332.
- Chemistry* (12 credits): Chem. 243, 244, 353, 354; Met.E. 416.
- Electronics* (15 credits): E.E. 301, 302, 355, 431, 481, 182.
- Geology* (14 credits): Geol. 101, 102, 211, 332.
- Materials* (15 credits): C.E. 246; Met.E. 416, 451; E.E. 445; Ch.E. 361.
- Mathematics* (14 credits): Math. 311, 410, 321, 330, 429.
- Mechanical Design* (16 credits): Math. 140; M.E. 250, 343, 451, 452, 453.
- Physics—Sequence 1* (13 credits): Phys. 351, 352, 361, 421, 473, 474.
- Physics—Sequence 2* (12 credits): Phys. 355, 421, 422, 426, Math 311.
- Power* (15 credits): M.E. 471; E.E. 346, 350, 355, 440.
- Structural Engineering* (10 credits): C.E. 381, 483, 484.
- Transportation* (9 credits): C.E. 246, 366, 451.

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.

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.

MECHANICAL ENGINEERING (M.E.)

Faculty: Anderson (Ch.), Dandini (Consultant to CERDC), Fashbaugh, Gilstrap, Manning, McKee, Rymers, Van Tasel

The mechanical engineering curriculum is broadly based to prepare its graduates for the wide variety of careers open to mechanical engineers. As the name implies, mechanical engineers are basically creators of mechanical systems and machines, but their careers range from air conditioning to aerospace, from basic research through design. The student may take a general program, with a wide choice of both technical and humanistic electives, or may choose an area of concentration such as aerospace, applied mechanics, bioengineering, design engineering, thermal sciences, and general mechanical engineering.

General Requirements

<i>University Requirements</i>	Credits
English 101, 102 (or 102 plus 3 humanistic-social or technical elective credits)	6
U.S. and Nevada Constitutions (included in humanistic-social sciences below)	
<i>Basic Sciences</i>	
Math 140, 215, 216, 310; Chem 101, 102,	

Phys. 201, 202, 204, 205; M.E. 300 plus 3 credits basic science elective	36
<i>Humanistic-Social Sciences:</i>	
Hist. 111 (or equivalent); 15 elective credits	18
<i>Communications:</i>	
Eng. 201	3
<i>Engineering Sciences:</i>	
M.E. 241, 342, 371; C.E. 367, 372; 10 credits electrical engineering including 311, 7 elective credits	32
<i>Analysis and Design:</i>	
M.E. 140, 141, 250, 391, 451, 492, 493 (or 464 lab.), 494; 3 elective credits	22
<i>Area Of Concentration and Technical Elective Credits:</i>	
17 credits	17
	<hr/> 134

Areas of Concentration

Each student may select an area of concentration shown below; however, the specific content of each area may be designed in consultation with the adviser and with the mechanical engineering faculty approval. The credits listed under each area of concentration include the 7 credits of engineering science and the 3 credits of analysis and design listed as electives in the general requirements above.

	Credits
<i>Aerospace:</i>	
M.E. 372, 444, 461, 464, 480, 481 or 482; 3 analysis and design elective credits; 9 technical elective credits	27
<i>Applied Mechanics:</i>	
M.E. 343, 403, 445, 453; 15 technical elective credits; 1 engineering science elective credit	27
<i>Bioengineering:</i>	
Biol. 101, 385, 386; Med.S. 251, 252; 7 engineering science elective credits; 3 analysis and design credits; 1 technical elective credit	29
<i>Design:</i>	
M.E. 242, 343, 430, 452, 461, 464; 10 technical elective credits; Met.F. 350	27
<i>Thermal Sciences:</i>	
M.E. 372, 403, 461, 464, 471, 480; 12 technical elective credits	27
<i>General Mechanical Engineering:</i>	
M.E. 343, 372, 452, 461, 464, 471, 480, Met.E. 350; 7 technical elective credits	27

Lists of acceptable basic science electives, humanistic-social science electives, and technical electives are available in the office of the chairman of the department.

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 tai-

lored 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 or design. 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 beam measurements of vibrations, solar energy collection and systems, high-speed (Mach 3) oblique shock studies, and numerical analysis of heat transfer systems.

For details of the graduate programs, see the Graduate School section.

ENGINEERING TECHNOLOGIES (E.T.)

Faculty: Baker (Ch.), Cude, Macdonald, Reinhardt, Van Woert, Walker, White

The department offers two four-semester curricula leading to an Associate of Science in Engineering Design or Electronics Engineering Technology Degree. Admission requirements are listed under Admission Information.

The two curricula are designed primarily to provide the student with a broad general engineering background and specific job skills for immediate technical employment. In addition, graduates of these programs may prepare for careers in management by continuing study in a curriculum coordinated with the College of Business Administration. Graduates are also eligible for continuing study in engineering technology and architecture at other colleges and universities.

Students who transfer from other programs may be permitted to substitute appropriate course work for a limited number of the courses listed below. Each substitution must be evaluated and approved by the department.

Graduation Requirements

Each student must complete a minimum of 65 credits (68 credits in electronics engineering technology) to graduate with an associate degree. This includes satisfying the University requirements in English and United States and Nevada Constitutions. The general baccalaureate requirement involving catalog, resident

credit, scholarship, and the application for graduation apply to the associate degree program.

In addition to the general university requirement of a **C** average for graduation, engineering technology students must maintain a **C** average in all engineering technology courses and all required mathematics and physics courses.

Electronics Engineering Technology

First Year

First Semester

	Credits
Math 111—Technical Mathematics I	5
E.E.T. 114—AC/DC Circuits	5
P.Sc. 103—Principles of American Constitutional Government	3
Engl. 101—Composition I	3
	16

Second Semester

	Credits
Math 121—Technical Mathematics II	3
E.E.T. 123—Electronics I	5
Phys. 103—Physics for Engineering Technology	4
Engl. 102—Composition II	3
Elective*	2
	17

Second Year

First Semester

	Credits
E.E.T. 253—Electronics II	5
E.E.T. 255—Pulse Circuits	4
E.E.T. 256—Computer Fundamentals	4
Phys. 104—Physics for Engineering Technology	4
	17

Second Semester

	Credits
E.E.T. 261—Ultra-High Frequencies and Microwaves	5
E.E.T. 262—Television Circuits	4
E.E.T. 263—Industrial Electronics	5
Electives*	2
E.E. 131—Computer Techniques I	2
	18

Engineering Design Technology

Architectural Design Option

First Semester

	Credits
A.E.T. 101—Introduction to Architecture	3
A.E.T. 119—Architectural Drafting	3
Math. 111—Technical Mathematics I	5
Engl. 101—Composition I	3
Technical electives*	2
	16

Second Semester

	Credits
A.E.T. 220—Construction and Working Drawings I	3
Phys. 103—Physics for Engineering Technology	4
Math. 121—Technical Mathematics II	3
Engl. 102—Composition II	3
Humanities, business, or technical electives*	3
	16

Third Semester

	Credits
A.E.T. 214—Architectural Design I	3
P.Sc. 103—Principles of American Constitutional Government	3
Phys. 104—Physics for Engineering Technology	4
C.E.T. 224—Statics and Strength of Materials	4
Humanities, business, or technical electives*	3
	17

Fourth Semester

	Credits
A.E.T. 216—Architectural Design II	3
C.E.T. 254—Technical Economics	3
A.E.T. 264—Mechanical and Electrical Equipment for Buildings	4
E.E. 131—Computer Techniques	2
Humanities, business, or technical electives*	4
	16

Mechanical Design and Public Works Options

The mechanical design and public works options of the engineering design technology curriculum are temporarily suspended. Therefore, new admissions are not acceptable in these areas. Certain public works courses are offered as electives in the architectural program to permit students to emphasize the civil engineering aspects of architecture and construction.

*Lists of acceptable technical, science, and humanistic-social science electives are available in the department chairman's office.

Sarah Hamilton Fleischmann School of Home Economics



DONNA BETH DOWNER, *Dean*

Faculty: Essa, Hardy, Horn, Kees, Margerum, Murray, Nissen, Nolin, Otto, Read, Stevenson, Tripple, Williams
Adjunct Faculty: Lubbers, Meeuwig, Michel, Nygren, Peters, Terry

Home Economics as a field of study encompasses several diverse 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 of families in a period of rapid social change, helping individuals and families cope with change in ways which will enrich their lives.

Objectives

The curricular offerings are purposefully designed to 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 three levels: Associate of Arts degree, Bachelor of Science degree, and Master of Science degree.

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.

Student Participation

Students are given an opportunity and are expected to play an active role in the School of Home Economics in decisions relative to their educational programs. They are expected to take the initiative in meeting at least once a semester with their advisers. Upon the completion of 48 credits, students must declare a major and submit a plan for an individualized major program. The plan utilizes a minimum of 30 credits to tailor a program

consistent with desired educational objectives.

Community and Junior College Preparation

Students from community and junior colleges should complete suggested home economics core courses in the humanities, social sciences, and natural sciences. These courses are prerequisites for the required home economics courses and facilitate transition into the baccalaureate program at the University.

Requirements for the Associate Degree

The associate degree programs offered by the School of Home Economics are designed for those students who wish to prepare for technical-level positions in fashion trades and prekindergarten education.

A total of 64 semester credits is required for the associate degree. A supervised work experience is included in each program.

Associate of Arts in Fashion Trades

Fashion trades is a program designed to meet the needs of persons seeking post-secondary training for employment in fashion-related jobs. Students become knowledgeable about many aspects of the fashion business and develop skills necessary to succeed in fashion-related work. Practical experience is provided through cooperation with community retailers. The first year's study enables the student to obtain a job in fashion selling. The second year develops the ability to work at the supervisory level. Career opportunities include salesperson, display assistant, sales demonstrator, department manager, fashion coordinator, personal shopper, and fashion show producer, among others.

Certificate Program

	<i>Credits</i>
H.Ec. 151—Design	3
H.Ec. 152—Display	3
H.Ec. 210—Clothing Construction	3
H.Ec. 211—Pattern Design	3
Engl. 101—Composition	3
Acc. 201—Intro. Accounting I	3
Ec. 101—Principles of Economics	3
Psy. 101—General Psychology	3

Sp.Th. 113—Fundamentals of Speech Communication	3
Electives	5
	32

Associate Degree Program

Requirements in addition to those listed for certificate program:

	<i>Credits</i>
H.Ec. 270—Field Experience	3
H.Ec. 271—Clothing	4
H.Ec. 313—Clothing and the Consumer	3
H.Ec. 315—Historic Costumes	3
H.Ec. 316—Textiles or	3
H.Ec. 318—Creative Textiles	3
Engl. 102—Composition	3
Mgr.S. 310—Marketing Principles	3
U.S. and Nevada Constitutions	3
Electives	7
	32
Grand Total	64

If a course is not available, an appropriate recommended elective may be substituted with the approval of the academic adviser.

Associate of Arts in Prekindergarten Education

The Associate of Arts in Prekindergarten Education prepares students for work in pre-school, day care, and other child-related jobs. The program revolves around specified competencies, which parallel those designated by the national Child Development Associate (CDA) Consortium. Students are encouraged to apply for CDA assessment at the end of their programs of study to be considered for this national preschool teacher certification.

Certificate Program

There are opportunities for employment of certificate graduates of the prekindergarten education programs as assistants in private and cooperative nursery schools, day care centers, Head Start programs, in children's homes and institutions, and in recreational facilities.

	<i>Credits</i>
H.Ec. 131—Child Development: Prenatal to Six	4
H.Ec. 132—Guidance Principles in Early Childhood	3
H.Ec. 232—Preschool Programming	3
H.Ec. 233—Practicum	7
Engl. 101—Composition I	3
Engl. 102—Composition II	3
Psy. 101—General Psychology	3
Recommended electives	3
Electives	3
	32

Associate Degree Program

The associate degree graduate may be employed as a teacher or curriculum consultant in private and cooperative nursery schools, day care centers, Head Start and Home Start programs, and in recreational facilities. Additional opportunities exist in the Peace Corps and VISTA, in United Nations agencies such as UNICEF, and in public schools as an assistant teacher.

Requirements in addition to those listed for certificate:

	<i>Credits</i>
H.Ec. 172—Food and People	4
H.Ec. 233—Practicum	5
H.Ec. 270—Field Experience	3
H.Ec. 274—Individual and the Family	4
Sp.Th. 113—Fundamentals of Speech	3
U.S. and Nevada Constitutions	3
Recommended electives	6
Electives	4
	32
Grand total	64

If a required course is not available, an appropriate course from the list of recommended electives is substituted with the approval of the academic adviser.

Requirements for the Baccalaureate Degree

The Bachelor of Science in Home Economics degree 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, the case is considered on an individual basis.

Students follow a core program of 70 credits and, in addition, define a professional major program of at least 30 credits.

The core program combines 12 credits each of humanities, social sciences, and natural sciences-mathematics with 34 credits of home economics to give a balance of cultural, technical, and professional education. 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.

The program of study for the major is individually designed to provide additional professional education by combining special-

ized courses in home economics with those from related areas. The program is defined by the student and presented for approval during the second semester of the sophomore year to the members of a review committee. The student's academic adviser, a professional in the field, an upperclassperson, the dean, and the student are the members of the review committee. Upon approval by the review committee, the program plan is filed in the office of the dean. If at a later time it is deemed desirable to change the program plan, the student initiates the change in writing and secures the concurrence of the academic adviser and dean.

Core Requirements (70 credits)	Credits
Humanities	12
Courses in English, speech, and design (H.Ec. 151) are required.	
Social Sciences	12
Courses in psychology, economics, and sociology are required, as well as a course or courses covering U.S. and Nevada Constitutions.	
Natural science and mathematics*	12
Must include inorganic and organic chemistry.	
Home economics*	34
H.Ec. 172—Food and People	4
H.Ec. 271—Clothing	4
H.Ec. 274—The Individual and the Family	4
H.Ec. 275—Shelter and Environment	4
H.Ec. 371—Family Economics and Management ..	4
H.Ec. 373—Issues in Consumer Competence	1
H.Ec. 374—Communications in Home Economics ..	3
H.Ec. 470—Field Experience (or 457)	8
H.Ec. 475—Professional Philosophies and Issues ..	2

Child Development and Family Life

The major in child development and family life may focus on one of three areas of study: infant, preschool, or adult development within the family system. Courses in each area provide a variety of practical experiences with theoretical background to prepare students for work with children and families through government and private agencies such as Head Start, child care and developmental centers, and welfare organizations. Career opportunities are also present in advertising or research in industries concerned with child- and family-oriented products. For the student whose main interest lies in teaching elementary school, an individual program may be designed to qualify the graduate for such a certificate. In addition, the major is a stepping-stone to higher education programs.

In addition to the courses required of all

*Demonstrated competency in mathematics is required, either by an ACT score of 19 or above or by electing a mathematics or applied mathematics course deemed appropriate by the student and adviser.

home economics students, child development and family life majors must take the following:

Subject Area Core: H.Ec. 274 (lab), 434, 436, 438 (3 credits), and at least 15 credits related to the selected area of focus (infant, preschool, or adult development within the family system).

Clothing and Textiles

A major in clothing and textiles prepares the student for a variety of professional opportunities, including careers in:

Fashion Merchandising

Specific options in the merchandising field include fashion buyer, market researcher, fashion consultant, consumer problems director, or department manager. Opportunities also exist in fashion display, promotion, and in the fashion communications field.

Pattern, notion and sewing machine companies need persons skilled in clothing construction. Various government, private and social agencies need clothing consultants to work with people who have special clothing needs, such as children, the elderly, or the handicapped. An emerging career is the development of functional clothing for recreational activities or occupational requirements.

Students may also work toward a career as curator of historic costume and textiles collections in museums, or toward careers in textile crafts and design.

Subject Area Core: Majors take H.Ec. 313, 315, 316, 412, plus 6 credits of related home economics courses and 12 credits from support areas of study.

Food and Nutrition

A major in food and nutrition may be oriented to several professional career options. Career selections might include general dietetics; food promotion programs in industry; careers in consumer services with businesses, industry or government; recipe development or food editorships in the mass media. Students may also combine the career option of Home Economics Education and Community Service with an emphasis in foods and/or nutrition.

Academic requirements for membership in the American Dietetic Association under General Dietetics Plan IV may be met by selecting courses as follows:

For Core or General Education Requirements:

Natural sciences and mathematics: Chem. 101 or 171; Chem. 142 or 172; B.Ch. 301 and 303 or 405-406; Biol. 262, 263, and 306; Math. 110.

Social Sciences: Soc. 101; Ec. 101 or 102; Anth. 205 or 392; or H.Ec. 325 or 438, or Soc. 205 or 379, or 391 or 393 or S.Sv.C. 101 or 220.

For the Individualized Program:

Home Economics Courses: H.Ec. 223, 225, 321, 420, 423, 426.

Other Courses Required: Mgr.S. 301 or 323 or 367; C.A.P.S. 330.

Optional Courses: Soc. 327 or I.S. 250; Psy. 210 or Ag. 270.

Academic requirements for careers in food promotion programs include core requirements, plus

Natural science courses: Biol. 306 and 406.

Social science courses: at least one course in cultural anthropology

Home Economics courses: H.Ec. 223, 225, 321, 322, 325, 406, 422 (minimum 3 credits), 423

Other required courses: A.Sc. 203; Phys. 101; at least one course in journalism.

For those students combining Home Economics Education and Community Services with an emphasis in foods and/or nutrition, the academic requirements include those listed under Home Economics Education and Community Services plus H.Ec. 406, and the selection of courses listed for a foods emphasis or nutrition emphasis as follows:

Home Economics courses (foods emphasis): H.Ec. 223, 225, 321, 322, 325, 423

Home Economics courses (nutrition emphasis): H.Ec. 223, 225, 421, 422 (minimum of 3 credits), 426

Home Economics in Business

The major combines home economics courses of major interest with courses in business, advertising, public relations, and consumer behavior to prepare for a career in food production, distribution or processing, equipment, clothing, home interior products, or consumer education.

Home Economics Education and Community Service

Students emphasizing education in home economics qualify for any number of positions where home economics subject matter is taught to youths and adults. Many are employed in schools and certified to teach in vocational programs, and kindergarten through adult education; and others work with children and families in extension, social agencies, and businesses.

The program includes Ed.F.M. 101 and C.A.P.S. 330 and 400, in addition to H.Ec. 347, 438 (3 credits), 449, 457, or 470, and passage of a skill test in clothing construction

and a skill test in food preparation. 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.

A total of 45 credits, including the home economics core course credits, must be taken in five areas of home economics subject matter. Listed below are courses in areas in which competence must be gained.

I. Food and Nutrition: H.Ec. 223, 225, 321, 322, 325, 422 and 423. Pass an examination of food preparation.

II. Clothing and Textiles: H.Ec. 210, 211, 212, 315, 316, and 410. Pass an examination on clothing construction.

III. Housing and Home Furnishings: H.Ec. 251, 353, 355, and 453.

IV. Child Development and Family Life: H.Ec. 131, 231, 233, 294, 430, 431, and 436.

V. Consumer and Family Economics and Management: H.Ec. 341.

Shelter and Environment

The major in shelter and environment may focus on either interior design or housing:

The option in *Interior Design* combines courses in home economics with art, business, architectural engineering technology, landscape design, and renewable natural resources to prepare for a career in residential or commercial interior design, education, or retailing or wholesaling products related to the industry.

Subject Area Core: Majors take H.Ec. 251, 353, and 355, plus 12 credit of related home economics courses and 9 credits from support areas of study.

Careers in *housing* require 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.

Suggested Minors for Non-Home Economics Majors

Home Economics — The number of credits to be taken is 16 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. Remaining credits may be completed by choosing any home economics course(s) listed in the catalog.

Group 1:	Credits
H.Ec. 210—Clothing Construction	3
H.Ec. 271—Clothing	4

Group II:

H.Ec. 121—Human Nutrition	3
H.Ec. 172—Food and People	4
H.Ec. 225—Principles of Food Preparation	3

Group III:

H.Ec. 275—Shelter and Environment	4
H.Ec. 355—Home Furnishings	3

Group IV:

H.Ec. 131—Child Development:	
Prenatal to Six	3 or 4
H. Ec. 231—Child Development:	
Six through Adolescence	3 or 4
H.Ec. 274—The Individual and the Family	4 or 5
H.Ec. 431—Middle and Later Life	2 or 3

Group V:

H.Ec. 341—Personal Finance	3
H.Ec. 371—Family Economics and Management	4

Home Economics Education — A teaching minor in home economics consists of 24 total credits, including H.Ec. 347, Teaching Home Economics, 3 credits. Students must elect at least one course from each of the five groups listed above.

A minor in home economics enables an education major to teach home economics in a non-vocational program.

The Family — The number of credits to be taken is 16 to 24 depending upon the requirements of the college from which the student is receiving the baccalaureate degree. Courses may be selected from any of the following:

	<i>Credits</i>
H.Ec. 121—Human Nutrition	3
H.Ec. 131—Child Development:	
Prenatal to Six	3 or 4
H.Ec. 231—Child Development: Six through Adolescence	3 or 4
H.Ec. 233—Practicum with Children and Families	3 to 5
H. Ec. 274—The Individual and the Family	5
H. Ec. 430—Human Sexuality	3
H. Ec. 431—Middle and Later Life	2 or 3
H. Ec. 432—Preschool for Special Children and Their Families	3 or 4
H.Ec. 434—Parent Education in Family Life	3
H.Ec. 438—Children and Families in a Multiethnic Society	1 to 3
H.Ec. 439—Theoretical Preschool Models	3
H.Ec. 441—Advanced Child Development	3

Shelter and Environment — The number of credits to be taken is 16 to 24 depending upon the requirements of the college from which the student is receiving the baccalau-

reate degree. Courses may be selected from any of the following:

	<i>Credits</i>
H.Ec. 151—Design	2 or 3
H.Ec. 251—Delineation in Housing	3
H.Ec. 275—Shelter and Environment	4
H.Ec. 353—History of Furniture	3
H.Ec. 355—Home Furnishings	3
H.Ec. 453—Economic Aspects of the Housing Environment	3
H.Ec. 454—Interior Design—Materials and Techniques	3
H.Ec. 456—Interior Design Studio	3

Graduate Study

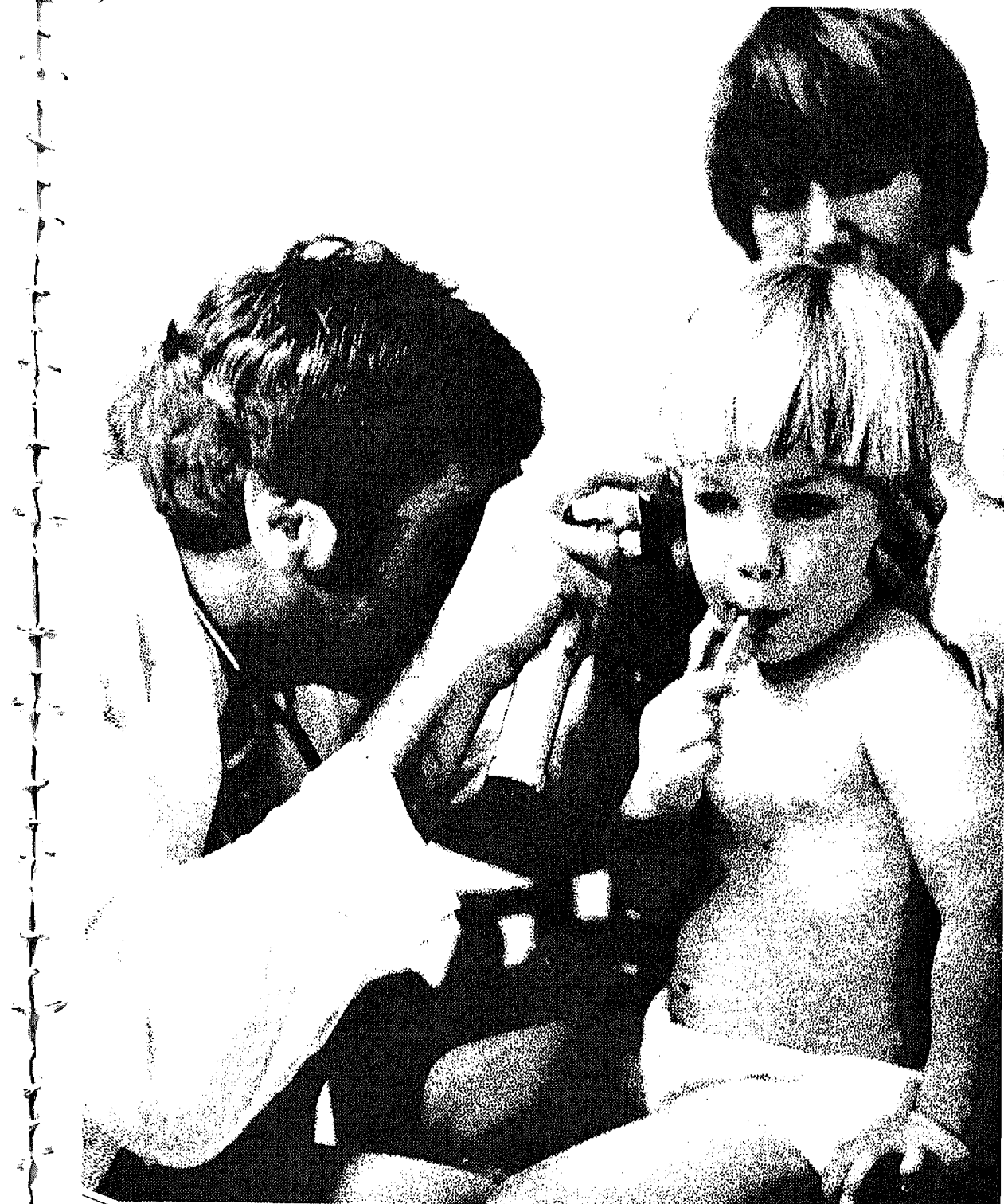
A Master of Science degree is offered with a major in Home Economics. Students may specialize to a limited extent through the area chosen for the thesis or professional paper. Course work must include H.Ec. 790, Graduate Seminar, and H.Ec. 791, Research Methods in Home Economics.

If the candidate selects the thesis plan, 24 credits in graduate course work and 6 credits of research for the thesis are required. The program must include a minimum of 15 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 and must be part of an approved research project. At present, these areas include child development/family life, clothing and textiles, human nutrition, family and consumption economics, and home economics education.

If the candidate selects the nonthesis plan, 32 graduate credits are required, including a minimum of 15 credits in courses numbered 700 or above. As a part of the minimum requirements, a professional problem resulting in a professional paper must be completed. For admission to the nonthesis plan, a candidate must have a minimum of two years of professional experience in home economics or an allied field.

The University cooperates in the interinstitutional Doctoral Program in Home Economics. Students interested in pursuing a doctoral program offered in a participating institution may enroll in a joint interinstitutional degree program.

School of Medical Sciences



THOMAS J. SCULLY, M.D., *Dean*

The School of Medical Sciences provides leadership in the maintenance of health through the education and training of health professionals at all levels in the State.

The School of Medical Sciences has a fully accredited two-year medical school program which provides an effective opportunity for students to prepare for clinical training leading to the Doctor of Medicine degree. The School is currently in the process of converting to a four-year degree-granting program with plans to graduate its first class with the M.D. degree in 1980. The medical sciences curriculum features early introduction to patients and clinical problems in a problem-solving approach in biomedical science and integration of the various biomedical sciences, such as anatomy, physiology, biochemistry, pharmacology, microbiology, and pathology. Close coordination of these areas with behavioral sciences provides further insight into social and personal factors which influence health and disease and the role of the doctor-patient relationship affecting diagnosis and treatment.

Other important programs include health education, medical technology, speech pathology or audiology, prepharmacy, pre-dentistry, premedicine, and prephysical therapy. A common core curriculum is offered by an interdisciplinary faculty for these programs. This faculty works closely with the Orvis School of Nursing in the core curriculum.

Baccalaureate Degree Programs

The School of Medical Sciences offers Bachelor of Science degree programs in six major areas of concentration: health education, medical technology, speech pathology or audiology, premedicine, pre-dentistry, and prephysical therapy. 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 8 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 requirements for English

and United States and Nevada Constitutions.

4. The general University requirements regarding minimum GPA and resident credit.

The number of credits taken on an **S/U** basis may not exceed 30. These courses may not be taken within the required areas.

Premedicine, pre-dentistry, and prephysical therapy are preprofessional programs in which students may elect to enter professional schools prior to receiving their Bachelor of Science degrees. The curricula in these areas and the nondegree option are described in the section headed Preprofessional Programs, Optional Baccalaureate Degree.

Health Education

The health education curriculum prepares individuals to help others understand their health needs and aids in developing methods of meeting these needs. The curriculum emphasizes training in the biological and social sciences which enables the graduate to explain and interpret the latest knowledge and developments in the health sciences and to assist others to utilize such knowledge.

Curriculum

<i>Required General Courses</i>	<i>Credits</i>
Engl. 101—Composition I	3
Engl. 102—Composition II	3
P.Sc. 103—Principles of American Constitutional Government or Hist. 111—Survey of American Constitutional History	3
Behavioral and social sciences	9-12
	18-21

Sciences and Mathematics

Biol. 262, 263—Human Anatomy and Physiology I and II	6
Biol. 101—General Biology	4
Math. 110—College Algebra	3
Electives (chemistry, statistics and measurement, physical sciences)	9
	22

Education and Social Services

Ed.F.M. 101—Education Experience	3
Ed.F.M. 420—Audiovisual Methods in Teaching ...	3
S.S.V.C. 320—Individual in Society	3
	9

Health Sciences Core

Med.S. 101—Introduction to the Health Sciences	4
Med.S. 202—Self-Learning Lab	1
Med.S. 272—Clinical Interviewing and Communication Skills	3

Med.S. 380—Human Values and Ethics in Professional Health Practice	3
Med.S. 381—Consumer and Professional Health Problems	3
Med.S. 451—Health Education Seminar	3
Med.S. 452—Health Sciences Field Work	3
	12

<i>Area of Concentration</i>	28-32
Each student selects an area of concentration by the beginning of the junior year. Specific courses in most areas of concentration are planned individually by the student and the adviser. Examples of possible areas of concentration are school health education, journalism and media, nutrition, patient education and counseling, management and administration.	
<i>Electives</i>	24-35
	Total 128

For further information concerning the health education curriculum, contact the Program Director for Health Education, Room 220, Mackay Science.

Medical Technology

The medical technology curriculum is designed to provide the student with the knowledge and skills required 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 medical technologist in modern health care delivery.

Students who wish to pursue a career in medical technology are classified premajors upon admission to the University. University required courses for graduation, and all prerequisite courses for the major should be taken during the premajor period.

Premajor Curriculum

<i>University Required Courses</i>	<i>Credits</i>
Engl. 101—Composition I	3
Engl. 102—Composition II	3
P.Sc. 103—Principles of American Constitutional Government or Hist. 111—Survey of American Constitutional History	3

<i>Prerequisite Courses</i>	<i>Credits</i>
Math. 110—College Algebra	3
Biol. 101—General Biology	4
Biol. 262, 263—Human Anatomy and Physiology I, II	6
Biol. 306—Microbiology	4
Chem. 101—General Chemistry	4
Chem. 142—Introductory Organic Chemistry	4

B.Ch. 301, 302, 303, 304—Introductory Biochemistry and Laboratories	8
Phys. 151, 152—General Physics	6
Med.S. 202—Self Learning Laboratory	1

<i>Major Curriculum</i>	<i>Credits</i>
Med.S. 303 Hematology (3+6)	5
Med.S. 304 Immunohematology (2+3)	3
Med.S. 305 Urinalysis and Body Fluids (2+3)	3
Med.S. 306 Clinical Microbiology I (3+6)	5
Med.S. 307 Clinical Microbiology II (3+6)	5
Med.S. 309 Medical Laboratory Calculations (2+0)	2
Med.S. 407-607 Immunology (3+0)	3
Med.S. 408-608 Serology Laboratory (0+3)	1
Med.S. 409 Clinical Chemistry (4+6)	6
Med.S. 422 Applied Clinical Microbiology (1+28)	5
Med.S. 423 Applied Clinical Hematology (1+21)	4
Med.S. 424 Applied Clinical Chemistry (1+35)	6
Med.S. 425 Applied Clinical Urinalysis (1+7)	2
Med.S. 426 Applied Immunology and Immunohematology (1+14)	3

Students who achieve an overall GPA of 2.5 or higher, and who complete each prerequisite course with a grade of **C** or better, are eligible to apply for acceptance to the medical technology major. Applications are reviewed by the medical technology faculty and students are accepted on the basis of academic achievement and space available in the program.

Students who do not meet the above criteria for acceptance may appeal to the Medical Technology Advisory Council for provisional consideration. Transfer students are considered by means of interview and transcript evaluation to determine equivalence of prerequisite course content.

Once admitted to the major, students must maintain a GPA of 2.5 or higher and must earn a grade of **C** or better in each major course to satisfy minimum graduation requirements. Any exception to this policy requires the approval of the Medical Technology Advisory Council. Students who do not meet minimal objective articulated standards relating to didactic knowledge, psychomotor skills, and behavioral aptitude, as these relate to professional performance in the clinical laboratory at any time during the major, must petition and receive approval from the Medical Technology Advisory Council to remain in the program.

The program is fully accredited by the Council on Medical Education of the American Medical Association with approval for 30 students per year. Students who satisfactorily complete the program and obtain a baccalaureate degree may be eligible to take the

generalist certification examinations for medical technologists given by various certifying agencies.

For further information concerning the medical technology curriculum, contact the Program Director, Room 300, Mackay Science.

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 practicum with individuals who present a variety of communicative disorders is required. In addition, 20 credits in related areas such as medical sciences, 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.

<i>Required Courses in S.P.A.</i>	<i>Credits</i>
S.P.A. 259—Phonetics	3
S.P.A. 310—Speech and Language Development	3
S.P.A. 356—Survey of Speech Pathology	3
S.P.A. 357—Communication Science	3
S.P.A. 359—Assessment of Communication Disorders	3
S.P.A. 360—Methods of Clinical Management	3
S.P.A. 361—Articulation Disorders	3
S.P.A. 362—Introduction to Audiology	3
S.P.A. 363—Practicum in Speech Pathology	4-8
or	
S.P.A. 463—Internship in Speech Pathology and Audiology	6-8
S.P.A. 466—Aural Rehabilitation	3
S.P.A. 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 Program.

For additional information on the baccalaureate program in speech pathology, contact the Program Director, Room 108, Mackay Science.

Preprofessional Programs Optional Baccalaureate Degree

Students preparing to enter professional schools of medicine, dentistry, and physical therapy may earn Bachelor of Science de-

grees by following the required course of study in residence at the University of Nevada, Reno. However, some students elect the option of entering professional schools prior to completion of baccalaureate degree requirements. Preprofessional students who transfer to approved professional schools under this option and who wish to receive baccalaureate degrees from the University of Nevada, Reno should consult exceptions to residency requirements, Registration and Records section of this catalog. Additional information is available from the Office of Undergraduate Student Advisement, Room 221, Mackay Science.

Premedical and Predental

The objective of the premedical and predental programs is to offer to the student educational experiences in the interdisciplinary approach to solving health care problems while providing a background in those academic areas required for admission to professional schools.

Curriculum

<i>Required General Courses</i>	<i>Credits</i>
Engl. 101—Composition I	3
Engl. 102—Composition II	3
P.Sc. 103—Principles of American Constitutional Government or Hist. 111—Survey of American Constitutional History	3
Math 110—College Algebra (Math. 265—Elements of Calculus I—also strongly advised)	3
Chem. 171—Life Science Chemistry I; Chem. 172—Life Science Chemistry II; B.Ch. 301 and 302—Introductory Biochemistry I and II	14
or	
Chem. 101 and 102—General Chemistry; Chem. 243, 244, 245, and 246—Organic Chemistry and Organic Chemistry Laboratories	16-18
Biol. 101—General Biology, plus 12 hours elective biology	16
Phys. 151, 152, 153, and 154—General Physics and General Physics Laboratories	8
Behavioral Sciences, including one course in developmental psychology selected from Psy. 231—Psychology of Adolescence; Psy. 233—Child Psychology; Soc. 275—Marriage and the Family; H.Ec. 131—Child Development; Prenatal to Six; H.Ec. 274—The Individual and the Family; or H.Ec. 430—Human Sexuality; plus one course in abnormal psychology	9
	59-61

Health Sciences Core

Med.S. 101—Introduction to the Health Sciences	4
Med.S. 202—Self-Learning Laboratory	1
Med.S. 272—Clinical Interviewing and Communication Skills	3
Med.S. 282—Health Care: Assessment and Intervention	3

Med.S. 380—Health Values and Ethics	3
Med.S. 381—Consumer Health Problems	3
	17

Area of Concentration 24
May be in any field. Must be filed in the Office of Undergraduate Student Affairs by the beginning of the junior year.

<i>Electives</i>	28
Courses may be selected from the above. Other suggested electives include:	
Biol. 206—Cellular Biology I; Biol. 300—Principles of Genetics; Biol. 301—Genetics Laboratory; Biol. 306—Microbiology.	
Biol. 366—Comparative Vertebrate Anatomy; Biol. 385, 386—Mammalian Physiology I and II, and Biol. 364—Embryology; Biol. 370—Histological Techniques; Biol. 468—Histology.	
Engl. 321—Expository Writing.	
Psy. 203, 204—Advanced General Psychology.	
H.Ec. 121—Human Nutrition; H.Ec. 223—Principles of Nutrition; H.Ec. 420—Bionutrition; H.Ec. 430—Human Sexuality.	
E.E. 131—Computer Techniques.	
Art Sculpture and Ceramics.	

For further information concerning the premedical and predental programs, contact the Director of Undergraduate Student Advisement, Room 221, Mackay Science.

Prephysical Therapy

The prephysical therapy curriculum is designed to fulfill requirements for admission to accredited schools of physical therapy recommended by the Council on Medical Education and hospitals of the American Medical Association, as well as to satisfy the requirements of the University of Nevada, Reno.

A prephysical therapy student who wishes to earn a baccalaureate degree from the University of Nevada, Reno may elect to complete the 128 required credits in residence or choose the option of completing the prescribed 96 credits of the prephysical therapy curriculum, which includes completion of the last 40 in approved residence at the University, and then earn the remaining 32 credits by satisfactory completion of a 12- to 24-month certification course in an approved school of physical therapy.

Admission to certification programs at other institutions is not automatic. Some students prefer to transfer into professional programs in institutions that offer a degree in physical therapy. A few schools accept transfers at the end of the junior year. The majority require that a person transfer at the beginning of the junior year. Students must complete a professional or certification program outside of

Nevada before they are certified as physical therapists.

Curriculum

<i>Required General Courses</i>	<i>Credits</i>
Engl. 101—Composition I	3
Engl. 102—Composition II	3
P.Sc. 103—Principles of American Constitutional Government or Hist. 111—Survey of American Constitutional History	3
	9

Sciences and Mathematics

Math. 110—College Algebra	3
Chem. 101-102—General Chemistry	8
Chem. 142—Introductory Organic Chemistry	3
Phys. 151-152—General Physics	6
Phys. 153-154—General Physics Laboratory	2
Biol. 101—General Biology	4
Biol. 201—Animal Biology	3
Biol. 262, 263—Human Anatomy and Physiology I and II	6
R.P.Ed. 403—Kinesiology	3
R.P.Ed. 406—Physiology of Exercise	3
	41

Health Sciences Core

A minimum of 14 credits must be selected from the following:

Med.S. 101—Introduction to the Health Sciences	4
Med.S. 202—Self-Learning Laboratory	1
Med.S. 272—Clinical Interviewing and Communication Skills	3
Med.S. 282—Health Care: Assessment and Intervention	3
Med.S. 380—Human Values and Ethics in Professional Health Practice	3
Med.S. 381—Consumer and Professional Health Problems	3
Med.S. 385—Health of the School-age Child	3
	14-20

Social Sciences and Humanities

Psy. 101—General Psychology	3
Psy. 441—Abnormal Psychology	3
Electives	12
	18

Area of Concentration 24-30

Each student must complete an area of concentration in fields such as biology, physical education, health sciences, special education, psychology, or similar fields approved by an adviser. Credits taken under science, mathematics, social science and humanities, and University requirements may be counted in the total 30 credits.

Electives (Six courses must be numbered 300 or above.) 21-43

Recommended electives:

Anth. 102—Introduction to Human Evolution and Prehistory	
B.Ch. 301-302—Introductory Biochemistry	
Biol. 206, 207—Cellular Biology I and II; Biol. 300—Principles of Genetics; Biol. 303—Human Genetics; Biol. 306—Microbiology; Biol. 315—Organic Evolution.	

C.I. 110—Introduction to Special Education; C.I. 270—Human Growth and Development; C.I. 310—Education of the Exceptional Child; C.I. 411—Introduction to Study of Mental Retardation; C.I. 412—Education of the Mentally Retarded.

E.E. 336—Computer Acquaintance.

H.Ec. 121—Human Nutrition; H.Ec. 131—Child Development: Prenatal to Six; H.Ec. 223—Principles of Nutrition; H.Ec. 231—Child Development: Six through Adolescence; H.Ec. 274—The Individual and the Family; H.Ec. 430—Human Sexuality; H.Ec. 431—Middle and Later Life.

R.P.Ed. 270—Disaster First Aid; R.P.Ed. 370—Athletic Injuries; R.P.Ed. 271—Instructor's First Aid; R.P.Ed. 450—Movement Education for Elementary School Children; R.P.Ed. 405—Motor Learning; R.P.Ed. 406—Physiology of Exercise; R.P.Ed. 407—Therapeutic Aspects of Movement.

Psy. 210—Statistical Methods.

S.P.A. 259—Phonetics; S.P.A. 356—Survey of Speech Pathology; S.P.A. 357—Communication Science; S.P.A. 359—Assessment of Communication Disorders; S.P.A. 362—Introduction to Audiology.

Biol. 366—Comparative Vertebrate Anatomy; Biol. 385, 386—Mammalian Physiology I and II; Biol. 364—Embryology; Biol. 460—Comparative Physiology; Biol. 461—Comparative Physiology Laboratory.

For further information concerning the pre-physical therapy curriculum, contact the Director of Undergraduate Student Advisement, Room 221, Mackay Science.

Preprofessional, Nondegree Program

Prepharmacy

The prepharmacy program has a two-year curriculum which satisfies the preprofessional requirements of most pharmacy schools and which prepares the student to transfer to one of these schools and be accepted with advanced standing in his professional program. The curriculum includes courses in chemistry, English, biology, mathematics, physics, and electives, i.e., psychology, sociology, and the humanities.

Suggested Curriculum

First Year

First Semester

	Credits
Chem. 101—General Chemistry	4
Engl. 101—Composition I	3
Biol. 101—General Biology	4
Math. 110—College Algebra	3
Elective	2
	16

Second Semester

	Credits
Chem. 102—General Chemistry	4
Engl. 102—Composition II	3
Biol. 202—Plant Biology (or Biol. 130—Survey of the Plant Kingdom, 2 crs.)	3
Math. 265—Elements of Calculus	3
Ec. 101—Principles of Microeconomics	3
	15-16

Second Year

First Semester

	Credits
Chem. 243—Organic Chemistry	3
Chem. 245—Organic Chemistry Laboratory	1
Phys. 151—General Physics	3
Phys. 153—General Physics Laboratory	1
Biol. 262—Human Anatomy and Physiology I	3
Electives (B.Ch. 305—General Pharmacology, recommended. Also psychology, sociology, humanities, etc.)	5
	16

Second Semester

	Credits
Chem. 244—Organic Chemistry	3
Chem. 246—Organic Chemistry Laboratory	1
Phys. 152—General Physics	3
Phys. 154—General Physics Laboratory	1
Biol. 306—Microbiology	4
Electives	4
	16

Students interested in preparing for a professional career in pharmacy should contact the Office of Undergraduate Student Advisement, Room 221, Mackay Science.

Master of Science Degree Program

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 33 credits must be completed at the graduate level. The thesis program, Option A, requires a minimum of 27 course credits plus 6 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 compre-

hensive 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 should plan to acquire the background and experience necessary to pass the American Speech and Hearing Association national examination to be recognized and certified as a competent speech pathologist or audiologist.

An approved program in speech pathology and audiology is developed by the graduate adviser, supervising committee, and the student, from the following courses:

	Credits
S.P.A. 659—Seminar in Clinical Procedures	2
S.P.A. 660—Aspects of Speech Pathology and Audiology	1
S.P.A. 661—Advanced Speech Pathology	2
S.P.A. 663—Internship in Speech Pathology and audiology	6-8
S.P.A. 664—Practicum in Audiological Testing	2
S.P.A. 665—Medical Audiology	3
S.P.A. 666—Rehabilitation for Hearing Handicapped	3
S.P.A. 667—Language Disorders in Children	3
S.P.A. 720—Introduction to Graduate Study	3
S.P.A. 721—Craniofacial Disorders	3
S.P.A. 751—Dysphasia	3
S.P.A. 752—Stuttering	3
S.P.A. 753—Communication Disorders in the Cerebral Palsied	3

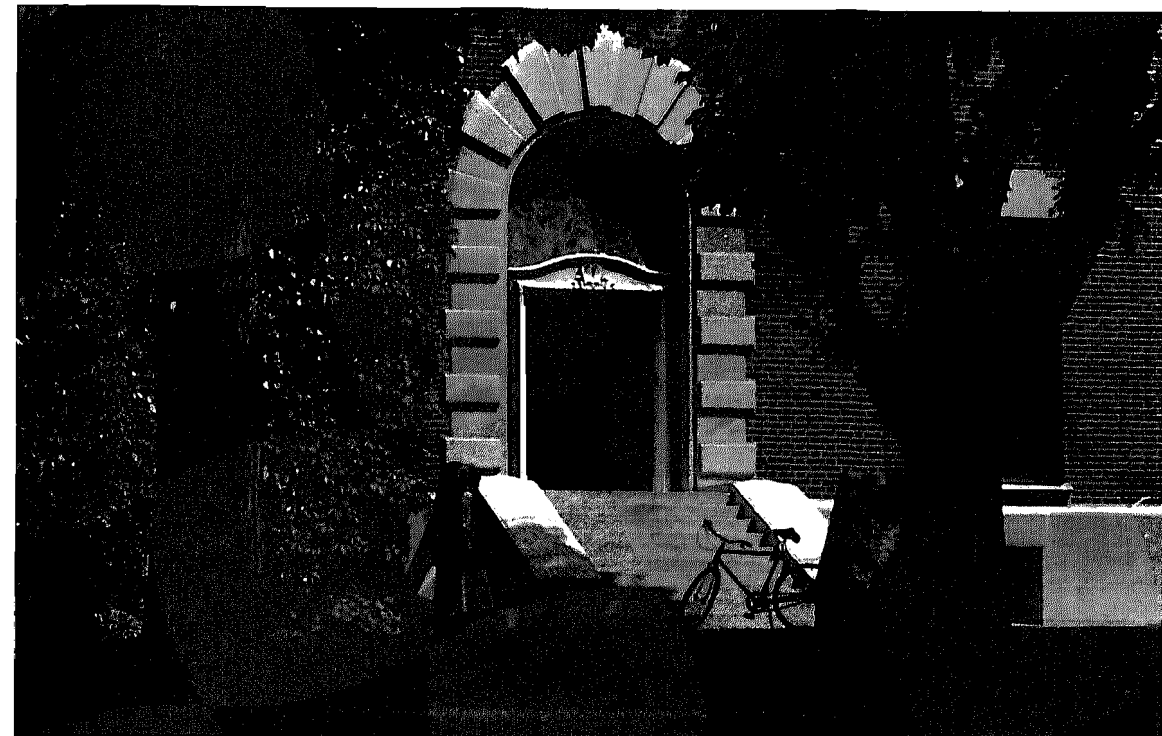
S.P.A. 754—Seminar in Physical Anomalies	2
S.P.A. 757—Experimental Phonetics	3
S.P.A. 759—Seminar in Clinical Procedures	2
S.P.A. 762—Disorders of Voice	3
S.P.A. 765—Advanced audiology	3
S.P.A. 767—Advanced Practicum	2
S.P.A. 768—Seminar in Audiology	3
S.P.A. 769—Seminar in Audiological Measurements	2
S.P.A. 794—Workshops and Institutes	1-3
S.P.A. 780—Independent Study	1-3
S.P.A. 797—Thesis	1-6

All students must have their programs approved by the department graduate adviser.

For additional information on the graduate program in speech pathology and audiology, consult the Program Director, Room 108, Mackay Science.

Graduate Programs in Biochemistry

Advanced degrees are offered at the Master of Science and the Doctor of Philosophy levels and may be pursued under the direction of the graduate faculties in the College of Agriculture, College of Arts and Science, or School of Medical Sciences. Since requirements are determined by the Graduate School and not by the individual colleges, they are identical and are shown under Graduate Offerings from the College of Agriculture.



Four-year Medical School Program

Students are selected for admission to medical school upon formal application to and acceptance by the Admissions Committee. Applicants must have demonstrated competence in required subject matter as well as in the current Medical College Admission Test (MCAT). In addition, at least three years of college work (90 semester credits) are required. Under exceptional circumstances 60 semester credits may be acceptable; however, the student selection committee strongly recommends completion of the baccalaureate degree. Candidates are evaluated on the basis of academic performance, MCAT scores, the nature and depth of previous scholarly and extracurricular activities in college, academic and other letters of evaluation, and personal interviews. Interviews are held at the invitation of the student selection committee and candidates should be aware the committee is particularly interested in those applicants with previous primary health care experience. Since the medical school utilizes the centralized application service of the Association of American Medical Colleges (AAMC), students must submit their applications through their American Medical College Admissions Services (AMCAS). AMCAS applications may be obtained from the AAMC, 1776 Massachusetts Ave., N.W., Washington, D.C. 20036. On completion, the application should be returned directly to AMCAS.

The first two years of the curriculum constitute a clinically oriented, interdisciplinary approach to the learning of the biomedical and behavioral sciences basic to medicine. It is problem-solving in format with effective utilization of stated objectives serving as a foundation for the learning experiences. All testing and evaluation of student learning is based on these objectives. The curriculum is increasingly based upon problem-solving formats and accordingly there are no individual courses in the basic sciences. Individual departments combine appropriately as the various organ systems are studied. Consequently, during these first two years, a series of vertical courses for specific objectives of behavioral sciences, community medicine, physical diagnosis, preceptorships, and similar offerings are provided.

The third- and fourth-year curricula flow directly from the clinically oriented basic

science program of the first two years. The third year consists of 48 weeks of rotating clerkships, of six weeks' duration each in pediatrics, psychiatry, obstetrics and gynecology, and family and community medicine. The rotations in internal medicine and surgery require 12 weeks each. Of major importance is the continuing correlation between the basic sciences and the clinical experiences.

During the fourth year, over a period of 32 weeks, the clinical experiences are elective and selective, with emphasis placed on choosing clinical experiences most suited to the individual student.

Curriculum

	<i>First Year</i>	<i>Credits</i>
Med.S. 411—Cell Biology in Health and Disease		6
Med.S. 412—Pharmacology		2
Med.S. 413—Tissue Biology in Health and Disease		3
Med.S. 415—Hematopoietic System		4
Med.S. 420—Pathobiology		7
Med.S. 436—Cardiovascular System		8
Med.S. 437—Respiratory System		6
Med.S. 460—Introduction to Clinical Medicine		3
Med.S. 461—Human Behavior		6
Med.S. 470—Introduction to Clinical Science		2
Med.S. 390—Independent Study		1
		<hr/> 48

	<i>Second Year</i>	<i>Credits</i>
Med.S. 403—Medical Orientation		0
Med.S. 430—Integumentary System		1
Med.S. 432—Musculoskeletal System		5
Med.S. 439—Gastrointestinal System and Abdomen		7
Med.S. 441—Renal System and Lower Urinary Tract		5
Med.S. 442—Head, Neck, and Special Senses		5
Med.S. 444—Central Nervous System		9
Med.S. 446—Endocrinology		3
Med.S. 448—Reproductive System		4
Med.S. 473—Physical Diagnosis		2
Med.S. 476—Community Health		2
		<hr/> 43

Third Year

Clinical rotations for a period of 6-8 weeks each (except internal medicine and surgery, 12 weeks) will take place throughout the year with groups of 6-8 students for each rotation.

There will be additional seminars, various readings, and hospital work as determined by the department chairmen and the curriculum committee for a total of 48 academic credits. These required clinical clerkships include internal medicine, surgery, obstetrics and gynecology, pediatrics, psychiatry and behavioral sciences, and family and community medicine.

Fourth Year

Building on the three previous years, the curriculum of the fourth year covers 32 required weeks and is made up of selective-elective clinical experiences, as arranged between the individual student, adviser, clinical adviser, and appropriate chairmen of the various clinical departments of the School. Included in the 32 weeks are four weeks of a required rural preceptorship, which offer opportunities of most of the clinical areas in a rural setting, and 24 weeks of strictly clinical electives. The advisory system insures that students are guided to take account of both career choices and to secure additional experiences in areas needing any remediation.

Departments and Faculty

The School of Medical Sciences has 12 teaching departments whose interaction permits the curriculum to be structured for the maximum interdisciplinary approach to health care education.

Anatomy

Faculty: Kendall, Licata, Schneider (Ch.), Stratton, Tibbits, Wakefield

Biochemistry

Faculty: Blomquist, Dreiling, Heisler, Lewis, Pardini (Ch.), Reitz, Welch

Division of Health Sciences

Faculty: D. Baldwin (Actg. Ch.), Dangott, Forsythe, Levin, McFarlane, McGuinness, Morros, Ross, Shipley, Swansick, Thornton, Tsukuda, Vaughan, Zimmerman. (Includes Speech Pathology and Audiology Program, and the Office of Undergraduate Student Advisement).
Clinical Faculty: Irvin

Family and Community Medicine

Faculty: D. Baldwin, M. Baldwin, Bernheimer, Droes, Henning, Martin (Ch.), McCulla, Payton, Rowley, Tsuda, Wood.
Clinical Faculty: Anderson, Althouse, Blake, Davis, Dingacchi, Grundy, Haislip, Hendrick, Hess, Higgs, Kelly, Knutson, Moren, Peters, Phillips, Ravenholt, Roche, Shreck, Stovall, Tueller, Wicker

The Community Health Center, 490 Mill St., managed by this department, provides health care to the community by faculty members while training students.

Health Careers for American Indians Program

Faculty: D. Baldwin (Ch.), Jones

Internal Medicine

Faculty: Appicella, Barnet, Graze, Groshong (Lecturer), Hall, Hyland, Kurtz, Mazzaferri (Ch.), Thompson, Whipple
Clinical Faculty: Adkisson, Atcheson, Baggett, Belcourt, Berndt, Boulware, Browning, Butler, P. Clark, R. Clark, Crist, Dapra, Davis, Day, Edwards, Elliott, Falk, Feld, Forsythe, Fricke, Gagliano, Ganchan, Gardner, Grenn, Hamlin, P. Jacobs, T. Jacobs, D. Johnson, M. Johnson, Jones, Jorna, Kantor, LoCicero, McKinnon, Maber, Marlon, Myles, Nagy, Newmark, Nunez, O'Neill, Peterman, Postman, Quagliana, Read, Reddy, D. Roberts, F. Roberts, Rothstein, Sage, Savran, Shapiro, Soong, Standlee, Stanzler, Stevland, Treanor, Truchard, Weigel, Young, Zebrack, Zucker

Laboratory Medicine

Faculty: Cunningham, Haber (Ch.), Johns, Kennedy, Kiehn, Lindner, Maehara, Manalo-Sears, Merritt, Rojas, Rowe
Clinical Faculty: Anes, Barger, Butler, Callister, Decker, Gauthier, Hall, Laubscher, Manilla, Mulkey, Riley, Salvadorini, Schieve, Schrader, Sewell, Sohn, Stouder, Tenney, Wilkes

Medical Library

Burkett, Content, Francisco, Kersten Siegel, Zenan (Dir.).

Microbiology

Faculty: Dorsett, Hall, Kozel (Ch.), Lupan.
Clinical Faculty: Postman, Tetzlaff

Obstetrics — Gynecology

Faculty: Furman (Actg.Ch.), Murphy, Rojas, Sheld, Stapleton, Wixted.
Clinical Faculty: Avery, D. Bennett, Bodensteiner, Bynam, A. Carlson, Glick, Huneycutt, Martell, Mohler, Mullis, Proctor, Ramos, Rueckl, Sherwood, R. Stewart, Strimling, Tyrer, Wiig.

Office of Medical Education

Faculty: Oppeleman, Tone

This office includes: Curriculum Development, Evaluation, and Biomedical Communications. It takes a major role in the development of curricula, the production of teaching materials, testing, evaluation, and in-service training of faculty. Biomedical Communications operates a television production studio and photography laboratory.

Office of Rural Health

Faculty: D. Baldwin (Asst. Dean), Rowley

Pediatrics

Faculty: Diedrichsen, Dudding (Ch.), Fricke, Missall, Monibi, Pemberton, Peterson, Pickering, Pokroy, Tetzlaff.

Clinical Faculty: Berger, Carr, Carter, Feldman, Madoff, Mousel, Rothstein, Shapiro.

Pharmacology

Faculty: Bjur (Act. Ch.), Ciafolo, Cramer, Van Remoortere.

Physiology

Faculty: Bach, C. Colton, J. Colton (Actg.Ch.), Dale, Standish.

Clinical Faculty: Rothstein, Shapiro.

Psychiatry and Behavioral Sciences

Faculty: Altrochi, M. Baldwin, Chappel, Hopps, Hudspeth, Lynn, May, G. Miller, Pauly (Ch.), Peterson, A. Smith, Terry, Veach.

Clinical Faculty: Alexander, Andrew, Beerman, Blurton, Blusewicz, Cardillo, Carlin, Chatham, Danton, Dillon, Gerow, Gould, Howle, Jankovich, Kelly, Molde, Nims, Rasul,

Sheehan, Young.

Visiting Faculty: D. Smith

Surgery

Faculty: Dales, Edmiston (Actg.Ch.), Fulton, Olson, Rayner.

Clinical Faculty: Anderson, Anagol, Arbonies, Barnes, Batdorf, Boyden, Brophy, Bryant, Cafferatti, Cafferata, Cammack, Cavell, D. Christensen, G. Christensen, M. Christian, P. Clark, Clift, Colgan, Coppola, Cunningham, Curry, Dawson, Desmarteau, Dooley, Dow, Ervin, Feikes, Fleming, Follmer, Gainey, Guisto, Greenberg, Greenwald, Halvorson, Holderness, Iliescu, Kavanagh, Kaiser, Keeler, Knoop, Kremp, Knudson, King, Kraft, Learey, Levy, Lieb, Llewellyn, Mack, Maclean, Mast, McCuskey, Megquier, McClish, Miercort, R. Moore, Morelli, Mousel, Nielsen, Nitz, Pratt, Prentice, Pretto, Prutzman, Reinkeymeyer, Ritchie, Rosenauer, Sande, Sandars, Schonder, Sargent, Shonnard, Schultz, Selsnick, Shearing, L. Smith, Strand, Svare, Tappan, Teipner, N. Thompson, Vowles, J. Walker, West, P. Williams, R. Williams.



Mackay School of Mines



ARTHUR BAKER III, *Dean*
JAMES R. FIRBY, *Assistant Dean*

Departments of Instruction: Chemical and Metallurgical Engineering, Geological Sciences, and Mining Engineering.

Objectives

The Mackay School of Mines offers professional training in the various fields within the earth sciences, chemical engineering, and mineral technologies and prepares the student to compete successfully in related industrial fields. Although professional training is stressed, courses necessary to a well-rounded general education are built into the curricula.

Students who enter the School should possess a serious purpose, willingness to do consistently hard work, and demonstrated ability and interest in scientific subjects. If the above qualifications and aptitudes are lacking, it is not advisable for the student to undertake the study of any of the curricula offered in the School.

Auxiliary Organizations

The Mackay School of Mines provides diversity in fields of instruction, large numbers of part-time and permanent jobs, availability of modern and sophisticated equipment, and extensive study resources in the Mackay School of Mines Library. The Nevada Bureau of Mines and Geology, Nevada Mining Analytical Laboratory, and Seismological Laboratory are the research and public service divisions of the Mackay School of Mines and share facilities in the same building complex. Teaching staff and laboratory facilities are augmented through programs conducted in cooperation with the Water Resources Center and the U. S. Bureau of Mines, both of which have large research centers on or near the campus. Close contact is also maintained with other related State and Federal agencies as well as over 60 geological, 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 he or she is enrolled, 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 available in the office of the Dean.

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 geological engineering, metallurgical engineering, and mining engineering are accredited by the Engineer's Council for Professional Development, which is the agency accrediting engineering curricula throughout the United States.

The School offers study programs which enable students to earn the following degrees:

Bachelor of Science

Chemical Engineering
Earth Science
Geology
Geological Engineering
Geophysics
Metallurgical Engineering
Mining Engineering

Master of Science

Geology
Geological Engineering
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 (Chem.E., Met.E.)

Faculty: Akhtar, Bowdish, Hendrix (Ch.), E. Miller, W. Miller, See, Smith

Adjunct Faculty: Kappes

Baccalaureate Degrees

Chemical Engineering

Freshman Year

First Semester

	Credits
Chem. 103—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. 102—Introduction to Metallurgical and Chemical Processing	2
Chem. 104—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. 330—Analytical Chemistry	4
Math. 310—Calculus III	4
Min.E. 213—Computer Programming (or equivalent)	2
Phys. 202—Engineering Physics II	3
	16

Second Semester

	Credits
Ch.E. 204—Chemical Pollution Abatement	3
Ec. 101—Principles of Microeconomics	3
Math. 320—Differential Equations	2
M.E. 241—Analytic Mechanics for Engineers	3
Phys. 203—Engineering Physics III	3
Social studies or humanities	3
	17

Junior Year

First Semester

	Credits
Ch.E. 301—Chemical or Metallurgical Industry Report	1
Ch.E. 361—Thermodynamics	4
Ch.E. 437—Unit Operations I	4
Chem. 353—Physical Chemistry	3

Social studies or humanities	3
Technical electives*	3
	18

Second Semester

	Credits
Ch.E. 438—Unit Operations II	3
Ch.E. 441—Unit Operations Laboratory I	1
Chem. 434—Instrumental Analysis	3
Chem. 354—Physical Chemistry	3
Chem. 355—Physical Chemistry Laboratory	2
C.E. 372—Strength of Materials	3
Social studies or humanities	3
	18

Senior Year

First Semester

	Credits
Ch.E. 442—Unit Operations Laboratory II	2
Ch.E. 471—Transport Operation	3
Chem. 243—Organic Chemistry	3
M.E. 342—Analytic Mechanics for Engineers	3
Technical electives	6
	17

Second Semester

	Credits
Ch.E. 440—Kinetics and Catalysis	3
Ch.E. 451—Control of Process Systems	3
Ch.E. 482—Chemical Engineering Design	3
Met.E. 350—Elements of Materials Science	4
Social studies or humanities	3
	16

Total credits required, 134. Military science courses numbered below 300 and, recreation and physical education courses do not apply to this total.

Metallurgical Engineering

Opportunity for a limited amount of initial specialization in extractive or chemical metallurgy and mineral dressing is provided for by 16 credits of technical electives in the senior year. These are to be selected in consultation with the student's adviser and approved by the department chairman. A total of 30 credits is required in metallurgical engineering courses or related technical electives.

Freshman Year

First Semester

	Credits
Chem. 103—General Chemistry (or Chem. 101)	4
Engl. 101—Composition I	3
Math. 215—Calculus I	4
Met.E. 101—Industry Orientation Lectures	1
P.Sc. 103—Principles of American Constitutional Government	3
	15

Second Semester

	Credits
Chem. 104—General Chemistry (or Chem. 102)	4
Engl. 102—Composition II	3
Math. 216—Calculus II	4
Met.E. 102—Introduction to Metallurgical and Chemical Processes	2
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Lab I	1
	17

*Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chairman.

Sophomore Year

First Semester

	Credits
Ec. 101—Principles of Microeconomics	3
Geol. 211—Mineralogy	2
Math. 310—Calculus III	4
Met.E. 232—Principles of Metallurgical and Chemical Engineering ..	3
Min. E. 213—Computer Programming (or equivalent)	2
Phys. 202—Engineering Physics II	3
	17

Second Semester

	Credits
Ch.E. 204—Chemical Pollution Abatement	3
Math. 251—Probability and Statistics	3
Math. 320—Differential Equations	2
M.E. 241—Analytic Mechanics for Engineers	3
Phys. 203—Engineering Physics III	3
Social studies or humanities	3
	17

Junior Year

First Semester

	Credits
Ch.E. 361—Thermodynamics	4
Chem. 330—Analytical Chemistry	4
Chem. 353—Physical Chemistry	3
Met.E. 301—Chemical or Metallurgical Industry Report	1
Met.E. 332—Unit Processes of Chemical Metallurgy I	3
Social studies or humanities	3
	18

Second Semester

	Credits
Chem. 354—Physical Chemistry	3
C.E. 372—Strength of Materials	3
Met.E. 322—Mineral Dressing I	4
Met.E. 350—Elements of Materials Science	4
Social studies or humanities	3
	17

Senior Year

First Semester

	Credits
Chem.E. 437—Unit Operations I (or Chem.E. 471—Transport Oper- ations)	3-4
E.E. 311—Network Theory (or E.E. 375—Electrical Circuits and Machines)	3-4
Met.E. 421—Mineral Processing II	3
Met.E. 451—Physical Metallurgy	3
Technical Electives*	4
	16-18

Second Semester

	Credits
Chem. E. 451—Control of Process Systems	3
Met.E. 482—Metallurgical Engineering Design	3
Social studies or humanities	3
Technical electives*	6-8
	15-17

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 metallurgy and in metallurgical engineering in

*Technical electives may be selected in a field of special interest to the student; they must be approved by the adviser and the department chairman.

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 2.5 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 Chairman, 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

Faculty: Baker, Campana, Case, Cochran, Erwin, Fenske, Firby, Hess, Hibbard, Hsu, Jacobson, L. Larson (Ch.), Lintz, Millin, Payne, Peppin, Priestley, Ryall, Slemmons, Van Wormer, Walters

Adjunct Faculty: Melhorn, Silberman

Baccalaureate Degrees

The curricula leading to the degree of Bachelor of Science include earth science, geology, geological engineering, and geophysics.

Earth Science

The earth science curriculum gives an overview of geography, geology, and related earth disciplines for individuals who do not propose to specialize in one of these fields. By choosing designated courses in education, the

student can prepare for a career in secondary education using his earth science background. For students seeking teaching certification, the College of Education should be consulted for prescribed courses.

An emphasis on environment can be achieved by selection of appropriate electives, as suggested below.

Recommended Freshman Year

First Semester

	Credits
Engl. 101—Composition I	3
Foreign language*	4
Geol. 101—Physical Geology	4
Math. 102—Plane Trigonometry	2
Math. 110—College Algebra	3
	16

Second Semester

	Credits
Foreign language*	4
Geog. 103—Physical Geography	4
Geol. 102—History of the Earth	4
Math. 265—Elements of Calculus	3
Elective	1
	16

Recommended Sophomore Year

First Semester

	Credits
Chem. 101—General Chemistry	4
Foreign language*	2-3
Geol. 211—Mineralogy	2
Phys. 151—General Physics	3
Phys. 153—General Physics Laboratory	1
Elective	3
	15-16

Second Semester

	Credits
Chem. 102—General Chemistry	4
Engl. 102—Composition II	3
Foreign language*	2-3
Phys. 152—General Physics	3
Phys. 154—General Physics Laboratory	1
P.Sc. 103—Principles of American Constitutional Government or Hist. 111—Survey of American Constitutional History	3
	16-17

Recommended Junior Year

First Semester

	Credits
Geog. 322—Climatology	3
Geol. 160—General Paleontology (or Geol. 461, 4 credits)	3-4
Geol. 332—Structural Geology	4
Electives	5
	15-16

Second Semester

	Credits
Geog. 331—Landforms (or Geol. 341)	3
Geog. 335—Conservation of Natural Resources	3
Statistics course	2-3
Electives	8
	16-17

Recommended Senior Year

First Semester

	Credits
Electives	16

Second Semester

Electives	Credits 16-17
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Total credits required, 128.

Remaining electives (or total electives in the event teaching certification is not desired) should consist of at least 9 credits in social studies or humanities and 20 credits in technical subjects.

For students interested in environmental studies, the following courses are strongly recommended, with additional technical electives to be selected in consultation with the adviser: Env. 101; Biol. 103 (or 101); Geog. 292 or 335, and 431; Ch.E. 204; P.S.W. 441; Min.E. 454; and Geol. 480.

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.

Freshman Year

First Semester

	Credits
Chem. 101—General Chemistry (or Chem. 103)	4
Engl. 101—Composition I	3
Foreign language*	4
Geol. 101—Physical Geology	4
	15

Second Semester

	Credits
Chem. 102—General Chemistry (or Chem. 104)	4
Engl. 102—Composition II	3
Foreign language*	4
Geol. 102—History of the Earth	4
	15

Sophomore Year

First Semester

	Credits
Foreign language*	2-3
Geol. 211—Crystallography-Mineralogy	2
Geol. 213—Lithology	1
Geol. 215—Elementary Petrology	1
Math. 215—Calculus I	4
Phys. 151—General Physics	3
Phys. 153—General Physics Laboratory	1
Computer course	2-3
	16-18

Second Semester

	Credits
Foreign language*	2-3
Geology 212—Ore Minerals	2
Geology elective	2-3
Math. 216—Calculus II	4
Phys. 152—General Physics	3
Phys. 154—General Physics Laboratory	1
	14-16

*Foreign Language: This requirement may be satisfied by two years in college of English, French, German, Spanish, or Russian in addition to the native language, or one year in college of one of the above plus two years of a foreign language in high school, or demonstrating a satisfactory working knowledge of one of the above languages by passing an examination.

Junior Year

First Semester

	<i>Credits</i>
Geol. 332—Structural Geology	4
Geol. 341—Geomorphology	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

	<i>Credits</i>
Ec. 101—Principles of Microeconomics 1 (or Ec. 102)	3
Geol. 450—Field Methods	1
Geol. 469—Stratigraphy and Sedimentation	3
Statistics course	2-3
Social studies or humanities	3
Electives	3
	15-16

Summer Camp

Geol. 451—Summer Field Geology—(6 credits)

Senior Year

First Semester

	<i>Credits</i>
Geol. 425—Optical Mineralogy	4
Geol. 461—Invertebrate Paleontology	4
Electives	9
	17

Second Semester

	<i>Credits</i>
Economic Geology (Geol. 471, 482, or 484)	3
Geology elective	3-4
Electives	9
	15-16

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.

Freshman Year

First Semester

	<i>Credits</i>
Chem. 101—General Chemistry	4
Engl. 101—Composition I	3
Geol. 101—Physical Geology	4
Math. 215—Calculus I	4
	15

Foreign Language: This requirement may be satisfied by two years in college of English, French, German, Spanish, or Russian in addition to the native language; or one year in college of one of the above plus two years of a foreign language in high school, or demonstrating a satisfactory reading knowledge of one of the above languages by passing an examination.

Second Semester

	<i>Credits</i>
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 Laboratory I	1
	16

Sophomore Year

First Semester

	<i>Credits</i>
C.E. 388—Engineering, Economy, Probability, and Statistics	2
Ec. 101—Principles of Microeconomics (or Ec. 102)	3
Geol. 211—Crystallography-Mineralogy	2
Geol. 213—Lithology	1
Geol. 215—Elementary Petrology	1
Math. 310—Calculus III	4
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Laboratory II	1
	17

Second Semester

	<i>Credits</i>
Engl. 102—Composition II	3
Geol. 212—Ore Minerals	2
M.E. 241—Analytic Mechanics for Engineers	3
M.E. 300—Introduction to Engineering Mathematics	2
Min.E. 342—Mine Surveying	1
P.Sc. 103—Principles of American Constitutional Government	3
Social studies or humanities	3
	17

Junior Year

First Semester

	<i>Credits</i>
C.E. 372—Strength of Materials	3
Geol. 332—Structural Geology	4
Geol. 483—Geological Engineering I	4
M.E. 371—Thermodynamics I (or equivalent)	3
Min.E. 213—Computer Programming	2
Social studies or humanities	3
	19

Second Semester

	<i>Credits</i>
C.E. 367—Elementary Fluid Mechanics	3
C.E. 492—Soil Mechanics	3
Geol. 341—Geomorphology	3
Geol. 450—Field Methods	1
Geol. 469—Stratigraphy and Sedimentation	3
Technical electives*	3
	16

Summer Camp

Geol. 451—Summer Field Geology—(6 credits)

Senior Year

(Geotechnical Option)

First Semester

	<i>Credits</i>
Geol. 479—Earthquake Engineering	3
Geol. 481—Tectogenesis and Geotechnology	4
Geol. 484—Groundwater Hydrology	3
Social studies or humanities	3
Technical electives*	3
	16

Second Semester

	<i>Credits</i>
Engr. 201—Engineering Communications	3
Geol. 485—Geological Engineering II	4
Geol. 492—Geophysical Exploration	3
Social studies or humanities	3
Technical electives	3
	16

*Technical electives may be selected in a field of special interest to the student, they must be approved by the adviser and the department chairman.

Senior Year

(Resources & Environment Option)

First Semester

	<i>Credits</i>
Geol. 425—Optical Mineralogy	4
Geol. 480—Environmental Geology	3
Social Studies or humanities	3
Technical electives*	6
	16

Second Semester

	<i>Credits</i>
Engr. 201—Engineering Communications	3
Geol. 471—Ore Deposits	3
Geol. 485—Geological Engineering II	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 theoretical geophysics, exploration geophysics, and seismology. 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

	<i>Credits</i>
Chem. 101—General Chemistry (or Chem. 103)	4
Engl. 101—Composition I	3
Geol. 101—Physical Geology	4
Math. 215—Calculus I	4
	15

Second Semester

	<i>Credits</i>
Chem. 102—General Chemistry (or Chem. 104)	4
Geol. 102—History of the Earth	4
Math. 216—Calculus II	4
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Laboratory I	1
	16

Sophomore Year

First Semester

	<i>Credits</i>
Engl. 102—Composition II	3
Geol. 211—Mineralogy	2
Geol. 213—Lithology	1
Math. 310—Calculus III	4
Min.E. 213—Computer Programming	2
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Laboratory II	1
	16

*Technical electives common to both options:
C.E. 493, Geol. 446, 493, Min. E. 241, 246, 301, 448
Additional technical electives for Geotechnical Option:
Geol. 471, 480
Additional technical electives for Resources and Environment Option:
Geol. 479, 481, 484

Second Semester

	<i>Credits</i>
Ec. 101—Principles of Microeconomics (or Math. 251)	3
Geol. 212—Ore Minerals	2
Geol. 290—Elementary Geophysics and Geodynamics	3
Math. 320—Differential Equations	2
Phys. 203—Engineering Physics III	3
Phys. 206—Engineering Physics Laboratory III	1
P.Sc. 103—Principles of American Constitutional Government	3
	17

Junior Year

First Semester

	<i>Credits</i>
Geol. 332—Structural Geology	4
Phys. 351—Mechanics	3
Phys. 355—Physical Electronics	3
Social studies or humanities	3
Technical electives*	3
	16

Second Semester

	<i>Credits</i>
Geol. 450—Field Methods	1
Geol. 492—Geophysical Exploration	3
M.E. 403—Partial Differential Equations in Engineering (or Math. 311)	3
Phys. 352—Mechanics	3
Phys. 356—Electrical Measurements	3
Social studies or humanities	3
	16

Summer Camp

Geol. 451—Summer Field Geology—(3 or 6 credits)

Senior Year

First Semester

	<i>Credits</i>
Geology elective (469, 471 or 482)	3
Geol. 455—Physics of the Earth	3
Geol. 493—Elementary Seismology	3
Phys. 473—Electricity and Magnetism	3
Social studies or humanities	3
	15

Second Semester

	<i>Credits</i>
Geology electives (469, 471 or 482)	3
Geol. 456—Physics of the Earth	3
Geol. 494—Geophysics and Potential Theory	3
Social studies or humanities	3
Technical electives*	4
	16

Total credits required, 130. Military science courses numbered below 300 and recreation and physical education courses do not apply to this total.

Advanced Degrees

The department offers Master of Science and Doctor of Philosophy degrees in geology and related earth sciences, geophysics, and hydrology and Master of Science in Geologi-

*Technical electives. Suggested technical electives are indicated below. Specific courses are to be chosen by the student in consultation with the adviser.

Geol. 485, 486, 495
C.E. 372, 492
M.E. 371
Math. 321, 330
Phys. 421, 422, 474

cal 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 basic language requirements for the Ph.D. degree are given in the Graduate School section. In addition, the department requires that the student demonstrate proficiency in translating the technical literature in the field in the language selected.

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.

For admission into the master's program, 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) adequate scores on the verbal, quantitative, and advanced parts of the Graduate Record Examination with letters of recommendation from former instructors indicating capability for advanced course work and research.

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. 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 to the Chairman of the Department of Geological Sciences. Prospective students are encouraged to write directly to the chairman, and submit an out-

*Technical electives: Suggested technical electives are indicated below. Specific courses are to be chosen by the student in consultation with the adviser. Geol. 485, 486, 495; C.E. 372, 492; M.E. 371; Math. 321, 330; Phys. 421, 422, 474.

line 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.

To assure well-balanced training and experience, all graduate students are required to participate in teaching and research.

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.

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, and instruments for gravity, magnetic, resistivity, and self-potential studies. 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

The degrees of Master of Science and Doctor of Philosophy may be earned in hydrology in an interdisciplinary program centered in the Geology Department. Advanced degrees in hydrogeology are offered in geology. Entering students should have a Bachelor of Science degree in agricultural engineering, biology, botany, chemistry, civil engineering, forestry, geography, geology, geological engineering, geophysics, mathematics, renewable natural resources, physics, soil science, zoology, or a related field.

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 (Min.E.)

Faculty: Fine (Ch.), Kim, Mousset-Jones, Scheid

Baccalaureate Degrees

The department offers 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.

Freshman Year

First Semester

Chem. 101—General Chemistry

Credits
4

Engl. 101—Composition I	3
Geol. 101—Physical Geology	4
Math. 215—Calculus I	4
Min. E. 101—Industry Orientation Lectures	1
<hr/>	
	16

Second Semester

	<i>Credits</i>
Chem. 102—General Chemistry (or Chem. 104)	4
Engl. 102—Composition II	3
Math. 216—Calculus II	4
Min. E. 102—Mineral Map Making	2
Phys. 201—Engineering Physics I	3
Phys. 204—Engineering Physics Laboratory I	1
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	17

Summer

Min. E. A—Mineral Industry Employment—(no credit)

Sophomore Year

First Semester

	<i>Credits</i>
Ag. 270—Introduction to Statistics	3
Geol. 211—Crystallography—Mineralogy	2
Geol. 213—Lithology	1
Math. 310—Calculus III	4
M. E. 241—Analytic Mechanics for Engineers	3
Min. E. 213—Computer Programming	2
Min. E. 241—Underground Mining	3
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	18

Second Semester

	<i>Credits</i>
C. E. 241—Engineering Measurements	3
M. E. 300—Introduction to Engineering Mathematics	2
M. E. 342—Analytic Mechanics for Engineers II	3
Min. E. 246—Surface Mining	3
Phys. 202—Engineering Physics II	3
Phys. 205—Engineering Physics Lab II	1
P. Sc. 103—Principles of American Constitutional Government	3
<hr/>	
	18

Summer

Min. E. 343—Applied Mine Surveying—(2 credits)

Junior Year

First Semester

	<i>Credits</i>
Ch. E. 361—Thermodynamics	3
C. E. 367—Elementary Fluid Mechanics	3
Ec. 101—Principles of Microeconomics	3
E. E. 375—Principles of Electric Circuits and Machines	4
Min. E. 301—Coal Mining	2
Min. E. 361—Operations Research Method	3
<hr/>	
	18

Second Semester

	<i>Credits</i>
C. E. 372—Strength of Materials	3
Met. E. 322—Mineral Processing I	4
Min. E. 344—Mine Environmental Control	3
Social studies or humanities	6
<hr/>	
	16

Senior Year

First Semester

	<i>Credits</i>
Geol. 471—Ore Deposits	3
Geol. 481—Tectogenesis and Geotechnology	4
Min. E. 411—Mine Economics	3
Min. E. 426—Mine Plant Engineering	4
Min. E. 472—World Mineral Economics	3
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	17

Second Semester

	Credits
Mine E. 400—Mining Communication	1
Min.E. 418—Mine Feasibility	3
Min.E. 445—Drilling and Boring	3
Min.E. 448—Rock Mechanics	4
Social studies or humanities	3
	14

Total credits required, 136. 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 fol-



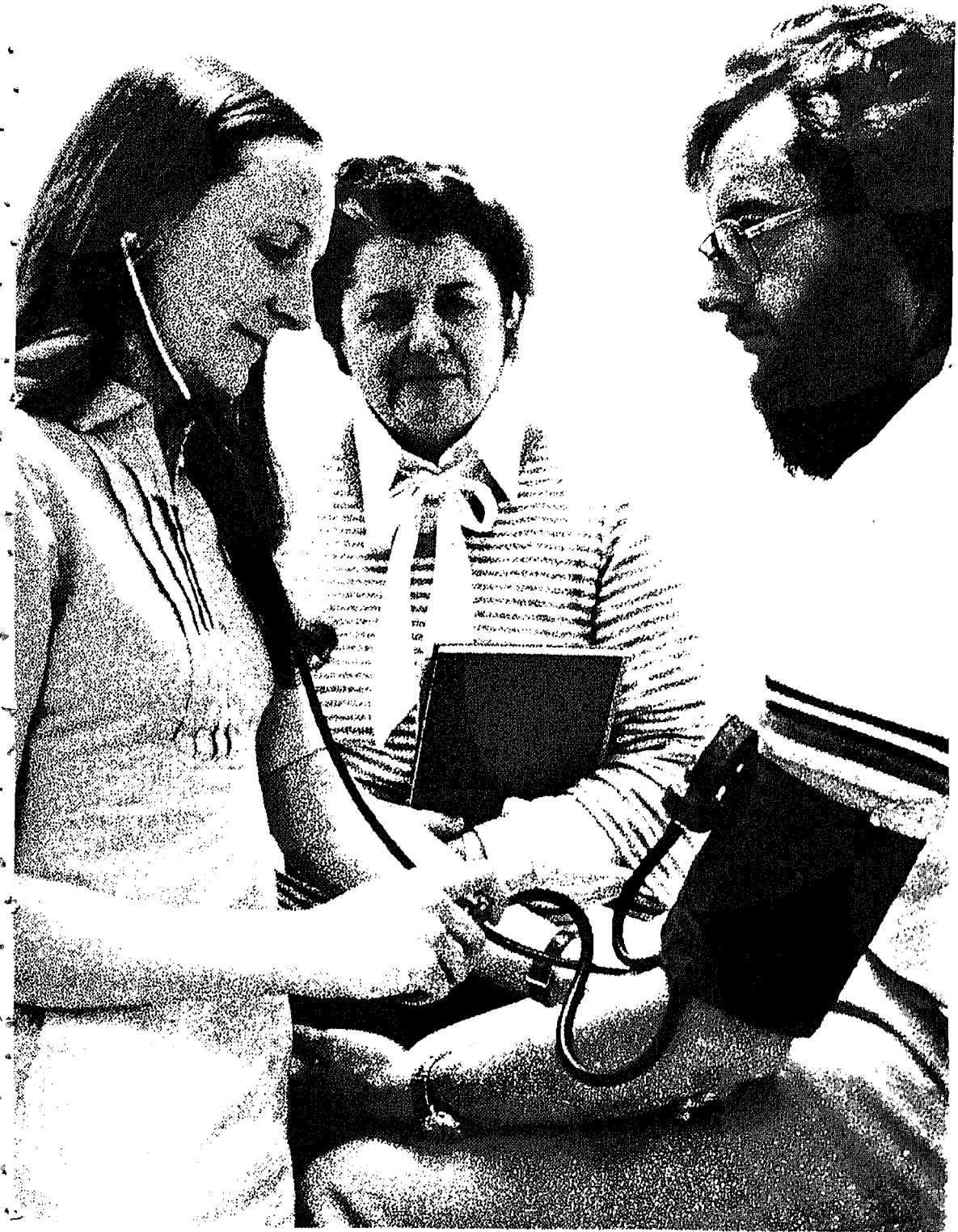
lowing requirements: (1) GPA of 2.5 in the four years of undergraduate work, (2) GPA of 3.0 for the last two years of undergraduate work, or (3) acceptable scores on the verbal and quantitative parts of the Graduate Record Examination aptitude test, with letters of recommendation from former instructors indicating capability for advanced course work and research.

Prospective students are advised to write directly to the Chairman, 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



VERA R. BRAND, *Dean*

Faculty: Anderson, Burgess, Dolen, Earl, Evans, Harmon, Hinds, House, Howard, Justice, Kenny, Leon, Little, McCormick, Norton, Svetich, Taylor.

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.

Program in Nursing

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 towards 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 for Nursing.

Admission to the undergraduate nursing

major is limited to legal residents of Nevada.

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

Inorganic and Organic Chemistry: Chem. 101, 142	8
Anatomy and Physiology: Biol. 262, 263	6
Microbiology: Biol. 306	4
Nutrition: H.E. 223	3
	21

Behavioral Science

Soc. 101	3
Psy. 101	3
Growth and Development: H.E. 274	5
*Cultural Ethnicity course	3
	14

Communication Skills

Engl. 101, 102	6
Med.S. 272—Interpersonal and Inter-professional Communication Skills	3
	9

Humanities: Hist. 111, or P.S. 103

If U.S. Constitution requirement met, may take Hist. 217—Nevada History, or P.S. 100—Nevada Constitution, through correspondence (1-credit course)	1-3
	1-3

Health Core

M.S. 282: Health Care Assessment	3
*Health Core elective	3
	6

Electives	7-13
	60-64

- III. Upper-division requirements for nursing majors.

A. Nursing science, self-learning skills laboratories, and clinical practice: Nurs. 301, 302, 314, 315, 324, 325, 326, 401, 402, 414, 415, 416, 424, 425 ...	52
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*Select from a variety of identified courses

B. Basic research methodology and statistics: Ed.F.M. 413, or Psy. 210	3-4
Nursing Research: Nurs. 444	3
C. Natural Science to include Pharmacology: B.Ch. 305	3
D. Electives	2-7
	63-69

IV. Progression Policies.

- A. Progression to the Junior Nursing Sequence requires:

1. Formal application due Friday of spring registration week in January.
2. 2.5 cumulative grade-point average (GPA) (2.5 grand total GPA if transfer student) on completion of all lower-division course requirements.
3. Transfer students may elect to have their most recent 60 credits prior to entering the prenursing major computed in their cumulative GPA's.
4. Completion of all lower-division course requirements by the end of spring semester of sophomore year in the prenursing major.
5. Junior standing at UNR by the end of spring semester of sophomore year in prenursing major (60-89 credits).
6. Students who complete the requirements during the summer session may petition the OSN Admissions and Progression Committee for admission at the beginning of the fall semester and will be considered on a space available basis. This process is instituted with the selection of those students meeting requirements identified in items 1 through 5.
7. Established Nevada residency status.

NOTE: Fulfillment of all the above criteria does not imply automatic progression to the nursing major. Limitations of clinical facilities require that selection of students for progression to the nursing major must occur. Students are selected on the basis of academic achievement and therefore are ranked according to the cumulative GPA. From the rank-ordered list of students and their cumulative GPA's, the predetermined number of student positions is filled. This procedure is used each year.

B. Progression within the nursing sequence:

1. Maintenance of a 2.0 cumulative GPA and achieving a minimum grade of **C** or satisfactory 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. Students who withdraw passing or who fail a nursing course (below **C**) must petition the Admissions and Progressions Committee for consideration to repeat the same course at the same level the next time it is offered.

4. Consideration for repeating a given nursing course is extended to one time only.
5. If a student has completed Nursing I sequence successfully, a 2.0 CGPA is required to petition for repeating a course(s), rather than reapplying for progression.
6. Students who petition to repeat a nursing course the next time it is offered must maintain UNR registration by enrolling in a minimum of 3 credits of coursework per semester.
7. 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.

- C. Students, after consultation with their advisers, may petition for course substitutions or other considerations relevant to OSN curriculum requirements. All petitions are to be submitted to the Chairman of the Admissions and Progressions Committee. Designated courses taken more than five years ago must be petitioned and are evaluated especially on relevancy of content.

D. Satisfactory/Unsatisfactory Grading:

1. A baccalaureate student may earn a minimum of 30 semester credits in courses graded on an **S/U** basis.
2. Students majoring in nursing may not take any required courses in their major on an **S/U** basis except Nursing 301, 302, 401, and 402.
3. Any transfer student who has taken a course in nursing on an **S/U** basis must have the course evaluated for 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 are provided the opportunity to earn up to 23 credits by means of special examinations. As of fall semester, 1979, four ACT/PEP examinations in Nursing will be used in place of 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.

Master of Science Program

The purpose of the master's program in

nursing is to: prepare nurses to function in collaboration with a health team as family nurse clinicians in primary and tertiary care; provide opportunity for choice of role preparation as a practitioner, or teacher of primary and tertiary care, or administrator in primary and tertiary care settings; provide opportunity to develop competence in using the research process in investigative aspects of nursing practice.

Primary care is oriented toward the active promotion and maintenance of health prevention of disease, and management of individuals with common and recurrent health problems. Utilizing the nursing process, health promotion activities are provided on a family

basis with emphasis on health teaching and guidance in the use of health resources and referral to other levels of the health care system.

Tertiary care is oriented toward the care of individuals or families with complex or complicated alterations of health needs. Individuals enter this component of the system by referral from primary or secondary levels of the health care delivery system.

Implementation of the nursing process is directed toward the promotion and maintenance of the maximum health status and prevention of a further progression of illness. In the event the illness state is irreversible, the nurse implements a nursing process that supports the patient and the family through the terminal illness and death.

The program requires a minimum of 34 semester credits with an option for thesis or professional paper.

The academic requirements to be considered for admission are:

1. Graduate Record Examination (GRE) Scores: Verbal and Quantitative.

2. An undergraduate overall GPA of 2.5 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 to include specific courses:

- a. Statistics, 3-4 credits
- b. Growth and Development (must cover life span), 5 credits
- c. Basic research, 3 credits
- d. Physical-Psycho-Social Assessment, 2 credits

4. Photocopy of current registration to practice nursing in the United States. Evidence of registration in Nevada is required prior to actual registration in the program for those selected.

Applicants must apply for admission through the University Office of Admissions and Records.



Curriculum Requirements

	CREDITS Plan A		CREDITS Plan B		COURSE NO. (Nursing)	COURSE TITLE
	Clinician	Other Roles	Clinician	Other Roles		
Fall Semester	3	3	3	3	700	Health Care Delivery System
	5	5	5	5	710	Advanced Nursing Practice I
	3	3	3	3	720	Nursing Research
	3	3	3	3	790	Advanced Special Problems and Practice in Nursing
	14	14	14	14		
Spring Semester	-	3	-	3	701	Role of the Nurse Administrator or Teaching of Nursing
	-	(3)	-	(3)	703	Advanced Nursing Practice II
	5	5	5	5	711	Clinical Cognate*
	3	3	3	3	797	Thesis
	3	3	-	-		Elective
	-	-	3	3		
	11	14	11	14		
Fall Semester	-	3	-	3	702	Practicum-Nursing Leadership or Practicum-Teaching of Nursing or Independent Study (for clinician role only)
	-	(3)	-	(3)	704	Professional Paper
	3	-	3	-	791	Thesis
	-	-	2	2	796	Clinical Cognate*
	3	3	-	-	797	Elective
	3	-	3	-		
	-	2	1	3		
	9	8	9	8		
Program Totals:	34	36	34	36		

Summary of Credit Allocations

PLAN A		PLAN B	
Clinician	Other Role	Clinician	Other Role
9	9	5	5
16	13	16	13
-	6	-	6
6	3	6	3
-	2	4	6
3	3	3	3
34	36	34	36

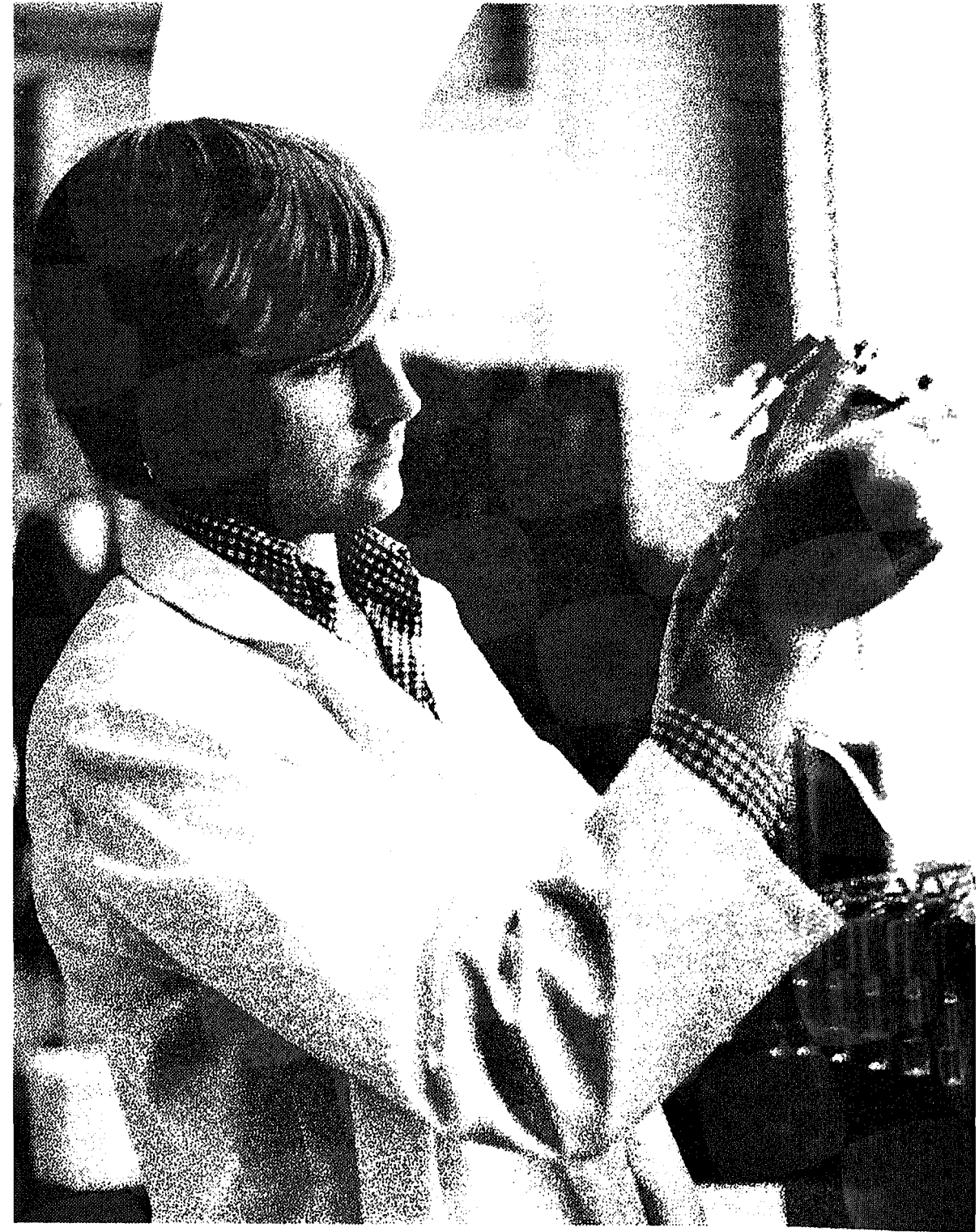
Allocation Category

- Research
- Advanced Nursing Practice
- Administration or Teaching Role
- Clinical Cognate*
- Electives
- Health Care Systems

*Clinical cognates will be recommended courses offered in physiology, biochemistry, home economics, medical sciences, psychology, sociology for which agreement to accept nursing students has been obtained.



Graduate School



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 1977, graduate faculty bylaws were approved defining the procedures for election of members to 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.

Student Responsibilities for 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 fellows.
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 may apply for readmission to Graduate Standing in the initial department or other departments through regular admission procedures in competition with other applicants.

The Following Academic Standards Apply to All Advanced Degree Students at UNR:

1. Course Work Performance

- a. UNR Overall Graduate Credit GPA of 3.0 or Better Good Standing
- b. UNR Overall Graduate Credit GPA Balance of one to six Grade Points Below 3.0 Probation
- c. UNR Overall Graduate Credit GPA Balance of seven or more Grade Points Below 3.0 Dropped from Graduate Standing

2. Program of Study

Students admitted to Graduate Standing must have their initial course work approved by the faculty adviser identified on the Admission Evaluation Form. The Advisory-Examining Committee must be established and an approved program of study submitted to the Graduate School no later than the completion of 12 graduate credits at the master's level and 24 graduate credits at the doctoral level.

3. Time Limitation for Completion of Advanced Degrees

- a. All requirements for the master's degree

must be satisfied within the period of six calendar years immediately preceding the granting of the degree. All requirements for the doctoral program excluding prerequisite graduate course work or master's degrees, must be completed within eight years from the time of admission. The prerequisites required are explicitly defined by the departments concerned, and approved by the Graduate Council.

- b. 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.

4. Foreign Language Requirements

Foreign language requirements for the doctoral programs must be completed 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.

5. Comprehensive Examinations

Ordinarily, comprehensive examinations are given by the department after completion of the required course work in the master's **B** plan and by the advisory-examining committee after completion of 75 percent of the course work in doctoral programs.

Departments may or may not require a separate comprehensive examination on the **A** plan. If one is not required, the final oral examination should contain a comprehensive examination component as well as defense of the thesis. For all advanced degree candidates, the department concerned must be satisfied that the student adequately comprehends the subject matter requirements of the area before advancement to candidacy.

Comprehensive examinations are assigned a graduate course number for zero credit on an **S/U** basis. Students must register for the comprehensive examination

course at the beginning of the semester in which it is to be taken. 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.

6. Candidacy

Advancement to candidacy implies that students have successfully completed departmental course requirements, University residency, and GRE/GMAT requirements. Students usually file for candidacy shortly after completion of the comprehensive examination on the master's **B** plan, or not later than eight months prior to graduation on doctoral programs.

7. Progress of Thesis or Dissertation

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 advisory-examining committee.

8. 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.

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.

Advanced Degree Programming

Supported by a variety of research centers and institutes, research services and library holdings the University offers graduate work leading to the advanced degrees of Master of Arts, Master of Arts for the Teaching of English, Master of Business Administration, 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 and resource economics; animal science; anthropology; atmospheric physics; biochemistry; biology; botany; business administration; chemistry; civil engineering; counseling and guidance personnel services; economics; educational administration and higher education; educational foundations and media; electrical engineering; elementary education; English; foreign languages (French, German, Spanish); geochemistry; geological engineering; geology; geophysics; history; home economics; hydrology and hydrogeology; journalism; land use planning; mathematics; mechanical engineering; metallurgical engineering; mining engineering; music; nursing; pest control; philosophy; physical education; physics; plant, soil, and water science; political science; psychology; public administration and policy; renewable natural resources; secondary education; sociology; special education; speech communication; speech pathology and audiology; theatre; and zoology.

The Doctor of Education program is offered in counseling and guidance personnel services, curriculum and instruction, educational administration and higher education, and educational foundations and media.

The Doctor of Philosophy degree is offered in biochemistry, biology, chemistry, engineering, English, geochemistry, geology and related earth sciences, geophysics, history,

hydrology and hydrogeology, physics, political science, psychology, social psychology, and sociology.

Admission to Graduate School

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 determine departmental requirements.

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.

GRE or GMAT Examinations. Scores on the Graduate Records Examination (the aptitude tests and the advanced test where offered) or on the Graduate Management Admission Test must be filed with the Graduate School by all students prior to application for admission to Graduate Standing.

Master's Programs. The student who wishes to be considered for admission to work toward a master's degree must meet the following minimal academic requirements.

1. An undergraduate overall GPA of 2.5 or higher on a scale of 4.0, or an average of 3.0 based on the last half of the undergraduate program.

2. Completion of such undergraduate work as the department concerned may require, subject to the approval of the dean of the college and the Dean of the Graduate School. The minimum prerequisite for admission to Graduate Standing is 18 credits in the under-

graduate 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.

Admission by Examination. Applicants who do not meet the above grade-point requirements or have completed their work at nonaccredited institutions may be reconsidered if they present satisfactory scores, as determined by the colleges, the department concerned, and the Graduate School on the Graduate Record Examination (the aptitude tests and the advanced test where offered) or on the Graduate Management Admission Test (GMAT).

Doctoral Programs. Upon recommendation from the major department and academic dean, college graduates may be admitted to work toward a Ph.D. or Ed.D. 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.

Provisional Standing. 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. 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. A student may not remain on provisional standing for more than two semesters.

Graduate Special Opportunities

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 selecting Graduate Special classification are not applying for

admission to the Graduate School and 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 fully accredited four-year college or university. With Graduate Special classification a student may enroll for undergraduate or graduate credit and may satisfy the teacher certification requirements; however, complete transcripts should be available since admission to the Graduate Special classification does not imply that a student may take every course chosen. Departmental approval must be secured for each course desired, as long before registration day as possible, and each student must be able to demonstrate that the prerequisites are satisfied for each course in which enrollment is sought.

A Nevada resident applicant who is denied admission to Graduate Standing due to an inadequate undergraduate GPA or unsatisfactory GRE test scores, may be admitted and enroll in the Graduate Special classification with an opportunity to qualify for admission through an approved Trial Semester Program. Trial Semester candidates may not exceed 10 percent of the total graduate enrollment in any one department. To qualify for Graduate Standing, Trial Semester students are required to complete successfully one semester or summer session of full-time study in a minimum of 9 graduate credits in courses previously approved by the departmental chairman, dean of the college, and the Graduate Council, with a grade of **B** or better in each course comprising the 9 credits. An applicant is allowed only *one* attempt to qualify by this procedure and all approvals must be obtained *before* registration. The GRE must be taken prior to, or concurrently with, the Trial Semester.

A student with Graduate Special classification may apply for regular Graduate Standing by meeting the minimal requirements of the Graduate School or by satisfactory completion of the Trial Semester. Foreign students are not eligible for admission to the Graduate Special classification.

Only 9 credits completed as a Graduate Special, excepting those taken during the semester the student applies and is admitted to Graduate Standing, may be applied to an advanced degree. Since the Trial Semester is a Graduate Special classification, only 9 credits of the Trial Semester, and only those 9

credits, may be applied toward an advanced degree.

General Information

Application

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 chairman of the major department, 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 the Office of Admissions at least three weeks before registration day of any session to insure processing by registration day. For all entering students who register for 7 credits or more, a medical examination is required as specified on the admission form.

Applications from foreign students are evaluated on an individual basis.

All newly admitted international students are required to contact the Director of Counseling and Testing for English proficiency testing and placement recommendations prior to initial enrollment. Initial placement is within the sequence Engl. 111, 112, 101 or 102 as determined through testing. Withdrawals from English during any semester are not permitted without prior written approval of the Director of Admissions and Records. During each regular semester, international graduate students who have not passed the proficiency test must register in at least nine semester credits, including an appropriate English course. Registration in each subsequent semester must include an English course until the Director of Counseling and Testing certifies college level English competency has been achieved in all skills.

International students being considered for fellowships involving classroom teaching must be certified as competent by the Director of Testing prior to undertaking teaching duties.

For additional information on admissions procedures see the Admission Information section.

Registration

Each student who plans to register for graduate courses must be admitted to graduate study at the University *prior* to registration, except certain University seniors as authorized

by policy.

Seniors Qualified for Graduate Study. An undergraduate at the University of Nevada who needs 14 credits or fewer to complete the requirements for the bachelor's degree may enroll in approved courses for graduate credit, provided that such credit is requested by the student and approved by the instructor and Graduate Dean at the time of enrollment and provided that the senior is scholastically eligible 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.

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 can be awarded to graduate assistants, trainees and fellows, provided such conditions are specified in their contracts.

Inquiries about Graduate Study and Financial Aids

Applicants should write the department or college in which they are interested for information about academic programs or about financial aids, fellowships, and graduate assistantships.

Graduate Regulations

The following regulations apply to all graduate programs at the University.

Graduate Courses

Courses numbered 500 and above are for graduate credit (see Numbering System) and are open to only those who have been offi-

cially admitted to graduate study. Certain 500-level courses are not applicable toward satisfying major requirements as noted in the Course Offerings section. No course is acceptable for graduate credit for which the student has received undergraduate credit.

Course and Credit Regulations

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.

S/U Grading. A maximum of 3 graduate credits for a master's degree (or 9 graduate credits for a doctorate degree) of **S/U** grading, including transfer, is acceptable.

Correspondence Study. Graduate credit is not allowed for correspondence study completed at the University or elsewhere.

Extension Courses. Graduate credit earned through extension courses is not accepted for transfer credit.

Workshop Courses. A maximum of 6 credits of a workshop or institute type, whether in residence or not, may be included in the total for the degree.

Off-Campus Courses. A maximum of 9 credits earned in off-campus courses may be applied toward any advanced degree.

Professional Paper. A maximum of 3 credits may be used towards an advanced degree under Plan B.

Graduate Special Courses. A maximum of 9 credits for which the student registers while classified as a Graduate Special student may be used in satisfying requirements for any advanced degree.

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.

Second Master's Degree. A maximum of 9 graduate credits earned in a Master's degree program may later be applied toward a second master's degree.

Limitations on Student Credit Loads

A full-time graduate student may not register for more than 16 graduate credits in any semester, nor for more than 6 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 3 undergraduate credits being equivalent to 2 graduate credits.

Residence

Residence 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.

Full-Time Study

Registration in 9 graduate credits or more in a semester is considered as full-time. For half-time graduate assistants, or others assigned equivalent duties, a minimum of 6 graduate credits constitutes full-time study.

Application for an Advanced Degree

During the first ten days of either the final semester or the beginning of Summer Session, 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 November 1, March 1, or July 1 in the respective final period in which graduation is sought.

If, for any reason, the applicant does not complete the degree requirements by the specified deadlines, another application must be filed at the appropriate time.

Advisory and Examining Committee

An approved application for graduate standing identifies a temporary advisor. As soon as practical, the student selects a permanent adviser who then arranges for the appointment of the advisory and examining committee, which with the adviser and department chairman, supervises the student's courses of study and examinations. Committees are appointed by the Graduate Dean after recommendations from the adviser.

For candidates for 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 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 Ph.D. candidates, the advisory examining committee should be appointed as soon as a field of specialization is chosen and a member of the faculty is selected under whom the research is to be done who will serve as chairman of the committee and as a permanent adviser. The committee consists of the adviser as chairman, 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.

The committee is responsible for approval of the student's program and thesis or dissertation topics and for conducting the examinations. Changes in the program or topic may be made only with the approval of the committee. When necessary, substitute members of the committee may be appointed by the Graduate Dean.

Master's Degrees

The University offers the degrees of Master of Arts, Master of Arts for the Teaching of English, Master of Business Administration, Master of Education, Master of Music, Master of Public Administration, and Master of Science. Some departments offer only a Plan A, in which a 6-credit thesis is required, and other departments offer in addition to Plan A a Plan B with no thesis required.

Residence and Credit Requirements

Credits. A candidate for the M.A., M.S. or M.B.A. degree (Plan A) is required to complete a minimum of 24 credits of graduate course work and to complete 6 credits of research for the thesis. Plan B requires a minimum of 32 credits of graduate course work.

700 Courses. A minimum of 18 credits, including thesis credits, in courses numbered 700 or above is required for master's degrees, Plan A. A minimum of 15 credits in courses numbered 700 or above is required in Plan B, including a maximum of 3 credits for professional paper.

Residence. A minimum of 21 credits for the master's degree must be earned in residence under Plan A. A minimum of 23 credits is required under Plan B.

Transfer Credits. A maximum of 9 credits applicable to the approved program of studies for the candidate may be transferred from another accredited institution.

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.

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 6 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 8 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 8 credits in a subject-matter department in a college outside the College of Education, while in Plan B 10 credits are required.

Foreign Language Requirement. The major department may require a reading knowledge of a foreign language.

Procedures Towards Master's Degree

Approval of Program. 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 approval of the program of study. Soon after its appointment the advisory committee meets with the student, who, after consultation with the major professor or thesis director, presents the proposed program of study. The program of study documents by name and number all the courses to be presented in fulfilling requirements for the graduate degree and a short description of the research to be undertaken. The committee then approves the program as presented or recommends additions or substitutions which, in its judgment, will strengthen the program. 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. Sufficient copies of the approved program are required to supply the student, committee members, department head, and the graduate office.

A student should not enroll in any course for graduate credit without first securing the approval of the chairman 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.

Admission to Candidacy. Advancement to candidacy implies that students have successfully completed departmental course requirements, University residency, and GRE/GMAT requirements. Students usually file for candidacy shortly after completion of the comprehensive examination on the master's B Plan. Forms are available in the Graduate Office which require approval of the adviser, chairman 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.

Any 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 6 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.

Comprehensive Examination (See Academic Standards). 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 chairmen of the departments concerned are responsible for administration and evaluation of the examina-

tion. All committee members are permitted to review the examination. Results of the examination are forwarded to the Dean of the Graduate School for official records at least two weeks prior to the final oral examination.

Final Examination. A final oral examination is conducted by the advisory and 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, with the date subject to the approval of the Dean of the Graduate School. The candidate should arrange the examination well in advance; normally an examination is held during regular University sessions. The date, time and place of final examinations are published by the Graduate School.

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 director upon successful completion of the final examination. 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 8 credits is required in the area of specialization in the College of Education and must be approved by the chairman of the department of specialization.
4. A minimum of 8 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 chairman.
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 for subject-matter teachers majoring in secondary education. The chairmen 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.

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

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 postbaccalaureate 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.

700 Courses. A minimum of 12 credits beyond requirements for the master's degree is required in courses numbered 700 or above, exclusive of dissertation credits or a minimum of 30 credits at the 700 level; exclusive of dissertation credits if the candidate has not previously been conferred a master's degree.

Major-Minor and Area Requirements

The following types of Ph.D. programs may be arranged:

Major-Minor Programs: At least two-thirds of the work, including thesis research, must be taken in the major field. The minor field is determined by the major department.

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.

Approval of Ph.D. Program

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 is determined when the student files application for admission to candidacy. Application for admission to candidacy must be filed not less than eight calendar months before award of the degree, and may not be filed until after completion of the comprehensive examination. The student's advisory committee may accept or reject any course or other work a student has taken or proposes to take toward the Ph.D. degree, and may require the student to complete any course or other work the committee deems appropriate to the student's program.

Foreign Languages

A knowledge of one foreign language (excluding English) other than the student's

native language is required and is determined by the major department. It must select a language which has extensive literature in the student's field. The language requirement may be satisfied by: (1) presentation of an official undergraduate transcript showing completion with a grade of **C** or better of a fourth-semester college language course of at least 3 credits, (2) presentation of an official transcript from an accredited institution showing satisfactory completion of the graduate foreign language requirement, (3) passing a fourth-semester language course with a grade of **C** or better, or (4) presentation of a satisfactory score on the Graduate School Foreign Language Test of the Educational Testing Service.

Admission to Candidacy

Students apply to candidacy upon passing the comprehensive examination. Application for admission to candidacy must be made no later than eight calendar months before the date of graduation.

Time Limitation

All graduate course credit earned that is applied toward the doctoral degree requirements must be completed within eight calendar years. Exceptions may be made in departments where a master's degree is required before entering the doctoral program.

Examinations

Qualifying Examinations: To determine the student's progress and ability, each department gives a qualifying examination (written, oral, or both) to each student planning to earn the doctoral degree. The examination will be given not later than the end of the student's first year of graduate study. Following this examination, the student will be informed of any additional requirements by the adviser or advisory committee.

Comprehensive Examination: Before admission to candidacy for the Ph.D. degree, the student must pass a comprehensive examination in the major and related fields. 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 oral examination is conducted and evaluated by the student's advisory and 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.

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 is wholly or partly oral, the oral part being open to anyone interested.

If more than one negative committee vote is cast, the examination is failed. (See Academic Standards for rules in re-examination.)

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. The dissertation must represent original and independent investigation which is a contribution to knowledge. It should reflect not only a mastery of research techniques, but also the ability to select an important problem for investigation, study it competently, and express the findings in an acceptable manner.

Thesis and Dissertation Regulations

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 director of the thesis may specify and the Graduate Dean approve.

Registration for Thesis or Dissertation

A master's candidate must register for at least 6 credits of thesis and a Ph.D. candidate for at least 24 credits of dissertation. Each master's and doctoral candidate must register in at least one credit of thesis or dissertation when working on the thesis or dissertation in residence. The department directing this work will determine in each case what constitutes *working on the thesis or dissertation*. The number of thesis credits taken in any one semester should be determined in consultation with the director of the thesis.

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 is either accepted or rejected at the time of the final oral examination for the degree.

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.

Format

The thesis or dissertation is to be prepared according to specific directions available at the Graduate 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 chairman of the major department and the thesis director, must be submitted unbound to the Graduate Office.

Publication of Dissertation 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 600 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 binding all copies, except for the one paid for by the library, must be paid by the candidate.

Doctor of Education (Ed.D.) Degree

The Colleges of Education at University of Nevada, Reno and University of Nevada, Las Vegas offer a cooperative doctoral degree in education designed primarily as a professional degree for practitioners.

The University of Nevada, Reno 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:

Resident Credit: 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. The resident credit 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 beyond the master's degree awarded by an accredited postmaster's or certification program (UNR or elsewhere), 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

A special fee of \$75 per credit is applicable

for 44 credits in the approved cooperative Doctor of Education program. All other credits are assessed at the regular fee in effect at the time of registration.

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.
- 1-49 are first-year courses for associate degrees.*
- 100-199 are freshman courses.
- 200-299 are sophomore courses.
- 300-399 are junior courses.
- 400-499 are senior courses.
- 500-599 are 300-level courses approved for graduate credit.
- 600-699 are 400-level courses approved for graduate credit.
- 700-799 are graduate courses.

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

- Acc.—Accounting
- A.I.M.—Agricultural and Industrial Mechanics
- A.R.Ec.—Agricultural and Resource Economics
- Ag.—Agriculture, General
- A.Sc.—Animal Science
- Anth.—Anthropology
- A.E.T.—Architectural Engineering Technology

- Art—Art
- B.A.—Business Administration
- Basq.—Basque
- B.Ch.—Biochemistry
- Biol.—Biology
- Ch.E.—Chemical Engineering
- Chem.—Chemistry
- C.E.—Civil Engineering
- C.E.T.—Civil Engineering Technology
- C.A.P.S.—Counseling and Guidance Personnel Services
- C.J.—Criminal Justice
- C.I.—Curriculum and Instruction
- Ec.—Economics
- E.A.H.E.—Educational Administration and Higher Education
- Ed.F.M.—Education Foundations and Media
- E.E.—Electrical Engineering
- E.E.T.—Electronics Engineering Technology
- Engr.—Engineering
- Engl.—English
- Ent.—Entomology
- Env.—Environment
- F.C.M.—Family and Community Medicine
- F.L.L.—Foreign Languages and Literatures
- Fr.—French
- Geog.—Geography
- Geol.—Geology
- Ger.—German
- Hist.—History
- H.Ec.—Home Economics
- Hon.—Honors Study
- I.S.—Information Systems
- Ital.—Italian
- Jour.—Journalism
- L.Sc.—Library Science
- Mgr. S.—Managerial Sciences
- Math.—Mathematics
- M.T.—Mathematics (Technical)
- M.E.—Mechanical Engineering
- M.E.T.—Mechanical Engineering Technology
- Med.S.—Medical Sciences
- Med.—Medicine
- Med. T.—Medical Technology
- Met.E.—Metallurgical Engineering
- Mil.—Military Science
- Min.E.—Mining Engineering
- Mus.—Music
- Nurs.—Nursing
- Ob. Gy.—Obstetrics and Gynecology
- O.A.—Office Administration
- Pedi.—Pediatrics
- Phil.—Philosophy
- P.I.—Philosophy of Inquiry
- Phys.—Physics
- P.S.W.—Plant, Soil, and Water Science
- P.Sc.—Political Science
- Pchy.—Psychiatry and Behavioral Sciences
- Psy.—Psychology
- R.P.Ed.—Recreation and Physical Education
- R.N.R.—Renewable Natural Resources
- Russ.—Russian
- S.Sv.C.—Social Services and Corrections
- Soc.—Sociology
- Span.—Spanish
- Sp.Th.—Speech and Theatre
- S.P.A.—Speech Pathology and Audiology
- Surg.—Surgery
- V.M.—Veterinary Medicine
- W.S.—Women's Studies

*Associate degree courses numbered 1-49 are not applicable toward baccalaureate or advanced degrees.

COURSE OFFERINGS

Prerequisites

The prerequisites listed for each course must be satisfied prior to registration, or the advance 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 chairman 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.

261 HOTEL AND CASINO ACCOUNTING (2+0) 2 credits
Accounting principles and practices and the related uniform system of accounts of the American Hotel and Motel Association and application of cost accounting methods and principles to hotel and food establishments. Prerequisite: Acc. 201.

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: Acc. 201, 202.

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, 507 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: Acc. 201.

309 COST 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: Acc. 201, 202.

310 COST 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, 513 FEDERAL TAX ACCOUNTING I (3+0) 3 credits
Income, expenses, exclusions, deductions, and credits. **Emphasis** on individual returns. Prerequisite: Acc. 201.

314, 514 FEDERAL TAX ACCOUNTING II (3+0) 3 credits
Partnerships, corporations, estates, trusts, social security, and administration. 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. First semester seniors only.

405, 805 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
Audits and their uses; verifying balance sheet and profit and loss accounts, audit reports, and certificates; duties and responsibilities of the auditor. Prerequisite or corequisite: Acc. 304, 309, 310.

412, 612 AUDITING II (3+0) 3 credits
Special auditing problems related to procedures in auditing plant and equipment, liabilities, and capital accounts. Preparation of auditing programs, internal control questionnaires, and financial reporting given considerable emphasis. Prerequisite: Acc. 411.

470, 670 ADVANCED TAX PROBLEMS AND PLANNING (3+0) 3 credits
Federal, State, and local taxation in relation to long-range planning of business and personal affairs. Prerequisite: Acc. 313 or equivalent.

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

491, 691 CPA PROBLEMS I (3+0) 3 credits
Comprehensive study of certified public accountants' problems in the practice area preparatory for the CPA examination. Prerequisite or corequisite: Acc. 405.

493, 693 ACCOUNTING THEORY (3+0) 3 credits
Review of accounting literature and contemporary accounting problems. Emphasis is placed on the development of basic accounting concepts. Prerequisite: Acc. 304.

701 ACCOUNTING FOR MANAGERIAL ANALYSIS (3+0) 3 credits
Use of accounting by management in its planning and controlling functions. Budgets, standard costs, analysis of cost variations, profit planning, and operations research. Controllership as a function in the business enterprise.

715 ACCOUNTING CONCEPTS AND ANALYSIS (3+0) 3 credits
Basic accounting ideas, statement preparation, utilization, and interpretation; partnership, corporation, and manufacturing accounts; funds flow and ratio analysis. (Satisfies requirement for MBA first-year core.)

720 SEMINAR IN ACCOUNTING (3+0) 3 credits
Contemporary accounting literature and problems.

790 INDEPENDENT STUDY 1 to 3 credits
Advanced study in selected topics. Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

354, 554 INDUSTRIAL ACCOUNTING (3+0) 3 credits
492, 692 CPA PROBLEMS II (3+0) 3 credits
494, 694 SEMINAR IN ACCOUNTING (3+0) 3 credits
735 THEORY OF FINANCIAL ACCOUNTING (3+0) 3 credits

AGRICULTURAL AND INDUSTRIAL MECHANICS (A.I.M.)

All students taking laboratory courses are required to furnish their own safety glasses to meet O.S.H.A. requirements.

General

100 BASIC MECHANICS (3+0) 3 credits
Historical and philosophical involvement of agricultural machines and the use of power as they relate to the development of modern agricultural technology. Principles of operation, selection, and care of agricultural and industrial equipment along with their relationship to our ecology.

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. (Offered in odd numbered years.)

111 FUNDAMENTALS OF NONMETALLIC FABRICATION (2+3) 3 credits
Use and application of plastics, fibre-glass, translucent materials, and bonding agents used in building construction. (Offered in even numbered years.)

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. (Offered in even numbered years.)

121 FUNDAMENTALS OF METAL WORK (2+3) 3 credits
Care and use of metal-working hand and power tools. Special projects in bench work, sheet metal, and plumbing.

122 POWER TRAINS (2+3) 3 credits
Introduction to power units and transmission mechanisms. (Offered in odd numbered years.)

124 HYDRAULIC SYSTEMS (2+3) 3 credits
Principles and practices of the operation and maintenance of hydraulic systems employed in agricultural equipment. (Offered in odd numbered years.)

142 IRRIGATION EQUIPMENT AND STRUCTURES (2+3) 3 credits
Design, layout, and construction of irrigation systems and structures encompassing modern irrigation methods. (Offered in even numbered years.)

153 FUNDAMENTALS OF GASOLINE ENGINES (2+3) 3 credits
Design and function of water cooled gasoline engine, its parts, their operation and preventative maintenance. The understanding of what, how, and why in the proper operation and care of the engine. Operator knowledge to obtain the desired term of operation.

180 SHOP MANAGEMENT (3+0) 3 credits
Organization and operation of service areas for agricultural and industrial equipment, including inventory control and shop safety. (Offered in even numbered years.)

212 WELDING (2+3) 3 credits
Study and practice of AC and DC welding, acetylene welding, cutting, and brazing. Identification of metals and special welding rods.

253 GAS ENGINES AND TRACTORS (2+3) 3 credits
Principles and operation, care and repair of farm gas engines and tractors with emphasis on efficiency of operation and use of special testing equipment. Student must furnish gas engine and pay for parts used in overhauling. The expense varies from engine to engine. Prerequisite: A.I.M. 153.

256 RURAL ELECTRIFICATION (2+3) 3 credits
Planning and wiring the farmstead, electric motors, electrical equipment, and appliances. Materials, code regulation, electrical measurements, and rates applicable to various farm uses.

274 AUTOMATIC TRANSMISSIONS (2+3) 3 credits
Servicing, repairing, and overhauling automatic transmissions. Prerequisite: A.I.M. 124. (Offered in even numbered years.)

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) agricultural education (b) industrial mechanics.

311 DESIGN AND CONSTRUCTION OF FURNITURE AND CABINETS (2+3) 3 credits
Design includes characteristics of media and adaptability of the design to mass manufacturing. Construction techniques emphasize machinery modification, jig construction, and sequence planning and controls necessary for industrial production. Prerequisite: A.I.M. 110.

316, 416 INTERNSHIP IN AGRICULTURAL AND INDUSTRIAL MECHANICS (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.

321 ADVANCED METAL WORK (2+3) 3 credits
Designed to provide advanced training in the use of specialized techniques and equipment used in metal fabrication. Prerequisite: A.I.M. 121 and 212. (Offered in even numbered years.)

332 FARM MACHINERY (2+3) 3 credits
Basic principles of machines; adjustment, maintenance, and repair of farm machinery for efficient field operation. Field trips optional. (Offered in even numbered years.)

333 MACHINE DESIGN AND CONSTRUCTION (2+3) 3 credits
Functional design and principles in the creation of equipment to incorporate fundamental drawing and the use of available materials in the construction of machines. Prerequisite: A.I.M. 212. (Offered in odd numbered years.)

341 FARM STRUCTURES (2+3) 3 credits
Building materials, their use and location, concrete forms, brick and block work, finishing, and painting. (Offered in even numbered years.)

352 GAS ENGINE TUNE-UP AND DIAGNOSIS (2+3) 3 credits
Specialized training in the area of gasoline engine tune-up and diagnosis of engine malfunction. Intensive work with service and repair of individual gasoline engine systems is included in the course. Prerequisite: A.I.M. 253. (Offered in odd numbered years.)

357 DIESEL POWER (2+3) 3 credits
Overhauling and repairing diesel farm tractors and engines; field servicing and repairing auxiliary power plants. Prerequisite: A.I.M. 253. (Offered in odd numbered years.)

381 MACHINE TOOL OPERATION (2+3) 3 credits
Use of metal working tools and machines as applied to agricultural and other heavy equipment. Prerequisites: A.I.M. 121 and Math. 110 or equivalent. (Offered in even numbered years.)

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. The theories of welding and metallurgy stressed as well as the proper weldment materials used with specialized metals and alloys. Prerequisite: A.I.M. 212. (Offered in odd numbered years.)

417 PUMPS (2+3) 3 credits
Operation and testing of centrifugal, deep well, turbines, and other types of pumps to determine efficiency, installation, and protective devices. (Offered in even numbered years.)

480 INDEPENDENT STUDY 1 to 3 credits

Intensive study of a special problem in (a) agricultural education, and (b) industrial mechanics.

485, 685 SPECIAL TOPICS IN AGRICULTURAL AND INDUSTRIAL MECHANICS

(1 to 3+0) 1 to 3 credits

Presentation and review of recent research, innovations, and developments in agricultural and industrial mechanics. Areas may include new machines and equipment, as well as innovations or improvements of present equipment to improve its production or ecological efficiency. Maximum of 6 credits.

780 INDIVIDUAL STUDY 1 to 3 credits

Intensive study of a special problem in (a) agricultural education, and (b) industrial mechanics. Prerequisite: Graduate Standing. Maximum of 6 credits.

Agricultural Education**144 INTRODUCTION TO AGRICULTURAL AND INDUSTRIAL EDUCATION** (2+0) 2 credits

Operation, history, and philosophy of the vocational agricultural and industrial mechanics programs.

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.

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.

444 METHODS AND MATERIALS OF TEACHING AGRICULTURAL AND INDUSTRIAL MECHANICS

(2+0) 2 credits

Organization and administration of industrial and farm mechanics program, including objectives, course content, lesson planning, and teaching methods.

46, 646 PROGRAM DEVELOPMENT IN AGRICULTURAL AND INDUSTRIAL EDUCATION (2+0) 2 credits

Youth groups, leadership training, supervised farming and cooperative work experience programs, advisory councils, and community surveys for program development.

447 METHODS IN TEACHING VOCATIONAL AGRICULTURE

(3+0) 3 credits

Course construction for all day, young farmer, and adult farmer classes; preparation of teaching plans, reports, organization, and evaluation of a vocational agriculture department. (Same as S.Ed. 447.)

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: Foundations for Secondary Teaching I, II, III completed or in progress, or equivalent. Arrangements are made by teacher-trainer in agricultural education.

460, 660 ADULT EDUCATION (1+0 per credit) 1 to 6 credits

Programs authorized under the vocational education program; additional credit for field work in promoting, organizing and observing, and teaching adult classes. (a) Promotion practices. (b) organization. (c) instructional observation. (d) programmed instruction. (e) curriculum. (f) administration.

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.)

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-industrial mechanics. Maximum of 6 credits. Prerequisite: Ed.F.M. 700. (Same as C.I. 728.)

750 WORKSHOP IN AGRICULTURAL AND INDUSTRIAL MECHANICS (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.

763 INTERNSHIP IN CURRICULUM AND INSTRUCTION

(0+2 per credit) 3 to 6 credits

(See C.I. 750 for description.)

784 SEMINAR IN INDUSTRIAL EDUCATION

(3+0) 3 credits

(See C.I. 784 for description.)

Inactive Course

400 SEMINAR (1+0) 1 credit

AGRICULTURAL AND RESOURCE ECONOMICS (A.R.Ec.)**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.

260 COMMUNITY RESOURCE MANAGEMENT

(2+2) 3 credits

Introduction to processes of local public policy in the nonmetropolitan community. Goal formulation as influenced by socioeconomic characteristics of community, revenue management, and public planning. (Offered in even numbered years.)

280 INDEPENDENT STUDY 1 to 3 credits

Intensive study of a special problem in agricultural and resource economics.

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: A.R.Ec. 202 or Ec. 101. (Offered in even numbered years.)

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.

332 AGRICULTURAL ECONOMICS POLICY (3+0) 3 credits

Study of agricultural economic policy in the United States. Review of past and present policies and evaluation of these policies. Prerequisite: A.R.Ec. 202 or Ec. 101.

364, 564 ECONOMICS OF OUTDOOR RECREATION

(2+2) 3 credits

Application of economic principles to outdoor recreation problems and policies. Prerequisite: A.R.Ec. 202 or Ec. 101. (Offered in even numbered years.)

368 ENVIRONMENTAL ECONOMICS (3+0) 3 credits

Economic concepts applied to solutions relating to man's environmental problems. Economic growth, pollution, controls, externalities, and social options will be included. Emphasis on trade-off between pollution and production included. Prerequisite: A.R.Ec. 202 or equivalent.

386 AGRIBUSINESS FIELD TRIP 1-2 credits. *S/U only*

Tours of agribusiness enterprises in Nevada or California. A one-week field trip during spring or interim 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: A.R.Ec. 202 or Ec. 101.

400 UNDERGRADUATE SEMINAR (1+0) 1 credit

Research work and reports on topics of interest in agricultural and resource economics. Prerequisite: senior standing.

411, 611 FARM AND RANCH MANAGEMENT

(2+3) 3 credits

Principles and problems involved in the organization and management of farms and ranches. Prerequisite: A.R.Ec. 202 or 211 or Ec. 101. (Offered in odd numbered years.)

421, 621 MARKETING AND PRICES FOR FOOD AND FIBER PRODUCTS (3+0) 3 credits

Principles of economic theory and quantitative methods applied to the marketing and price movements of food and fiber products. Prerequisite: A.R.Ec. 202 or Ec. 101.

460, 660 ECONOMICS OF COMMUNITY RESOURCE DEVELOPMENT (3+0) 3 credits

Basic community resource development principles, practices, and applied procedures. Classification of physical, economic, and social resources, and their relationship to development. Prerequisite: Ec. 101 or Soc. 101. (Same as Geog. 440.)

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 the special problems of land and water use in the West. Prerequisite: A.R.Ec. 202 or Ec. 101.

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.

700 GRADUATE SEMINAR (1 to 3+0) 1-3 credits

Research work and reports on topics of interest in agricultural and resource economics.

710 ADVANCED AGRICULTURAL PRODUCTION ECONOMICS

(3+0) 3 credits

Production principles applied to allocation of land, labor, capital, and management in agriculture. Prerequisite: A.R.Ec. 411. (Offered in odd numbered years.)

716 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.

720 THEORY OF MARKETS (3+0) 3 credits

Theory and description of competitive market relationships prevailing in our economy today. Emphasis placed on farm and industry in imperfect competition. Prerequisite: A.R.Ec. 321 or equivalent. (Offered in even numbered years.)

730 ADVANCED AGRICULTURAL ECONOMIC POLICY

(3+0) 3 credits

Analysis of welfare economic theory related to internal and external problems of agriculture and agricultural policy. Prerequisite: A.R.Ec. 332; Ec. 321 or 322. (Offered in even numbered years.)

740 RESEARCH METHODOLOGY (3+0) 3 credits

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 or corequisite: Ec. 321 or 322. (Offered in even numbered years.) (Same as Ec. 740.)

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.

760 ECONOMICS OF RENEWABLE NATURAL RESOURCES

(3+0) 3 credits

Advanced application of economic principles to renewable natural resource development, use, conservation, and policy issues. Prerequisite: A.R.Ec. 362 or 466. (Offered in odd numbered years.)

780 INDIVIDUAL STUDY 1 to 3 credits

Intensive study of a special problem in agricultural and resource economics. Prerequisite: Graduate Standing. May be repeated to a maximum of 6 credits.

785 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**AGRICULTURE — GENERAL (Ag.)***Associate Degree Course****20 AGRICULTURAL CAREERS AND INTRODUCTION TO THE WORK-STUDY PROGRAM** (2+0) 2 credits

Exploring the areas of jobs in agriculture and preparing students for on-the-job work experience by the use of aptitude tests, resumes, letters of application, and oral interviews.

*Baccalaureate and Advanced Degree Courses***150 AGRICULTURAL MATHEMATICS**

(2+3) 3 credits

Mathematics used for solving practical problems in agriculture, business, and mechanics. Prerequisite: 2 units of high school mathematics or satisfactory score in qualifying examinations.

200 FOOD IN TODAY'S ECONOMY (3+0) 3 credits

Survey of the interrelationships between people and food in the past, now, and in the future. Emphasizes what people can eat, modern agriculture, food economics, and politics and the challenge of meeting future food requirements.

216, 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.

*Not applicable to baccalaureate and advanced degree programs.

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 general agriculture.

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 the extension service. Prerequisite: junior standing in agriculture or home economics.

370 COMPUTER PROGRAMMING 1 credit
Techniques of computer programming for analysis of problems in agricultural and related sciences. To be offered as a one-week course during the January interim period or the special sessions. Prerequisite: at least one course in statistics.

409, 609 UNITED STATES AGRICULTURAL HISTORY (3+0) 3 credits
(See Hist. 409 for description.) Prerequisite: junior, senior, or graduate agriculture students.

461, 661 THE AMERICAN WEST: RESOURCES AND ECONOMY (3+0) 3 credits
(See Geog. 461 for description.)

470 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 the statistical analyses. Prerequisite: one course in statistics.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in general agriculture.

485 SPECIAL TOPICS (1 to 3+0) 1 to 3 credits
Presentation and review of research, innovations, and developments in agriculture, food resources, technical systems, and international relationships.

700 STATISTICAL METHODS (2+2) 3 credits
Techniques of statistical inference and their application. Prerequisite: Ag. 270.

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: Ag. 700 or equivalent.

710 EXPERIMENTAL DESIGN (1+2) 2 credits
Advanced techniques of statistical inference. Design and analysis of experiments in agriculture and related fields and the use of computer programming in statistical analysis. Prerequisite: Ag. 700 or equivalent.

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 economics.

780 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in general agriculture. Prerequisite: Graduate Standing. Maximum of 6 credits.

ANIMAL SCIENCE (A.Sc.)

100 ANIMALS IN MAN'S ECOSYSTEM (3+0) 3 credits
Historical and philosophical involvement of man and animals in the development of civilization and the impact of animals on society today.

102 BEEF CATTLE PRODUCTION 3 credits
Problems and opportunities in the beef cattle industry and the principles and practices applied to them. Both scientific production methods and economics problems are included. (Offered by Independent Study Division only.)

106 EQUITATION (1+3) 2 credits
Principles and methods of western and English equitation. Elementary horse nutrition, health, and management.

111 POULTRY PRODUCTION (1+0) 1 credit
Development and functions of the poultry industry and its relationship to other industries. Various types of poultry operations and the breeding, feeding, and management factors involved. (Offered by EPCE, Independent Study Department only.)

112 DAIRY PRODUCTION (1+0) 1 credit
Management factors and problems of the dairy industry and inherent breeding and feeding requirements. Basic and economic factors in milk marketing and process. (Offered by EPCE, Independent Study Department only.)

203 MEAT TECHNOLOGY (2+3) 3 credits
Status and functions of the meat industry. Slaughtering of farm animals, wholesale and retail cuts of meat, carcass grading.

204 WESTERN LIVESTOCK PRODUCTION (3+3) 4 credits
Science and principles basic to livestock production in the intermountain region. Beef and dairy cattle, sheep, and swine are considered.

206 HORSE HUSBANDRY (2+3) 3 credits
Care and management of horses including breeding, disease, nutrition, and selection. Prerequisite: A.Sc. 204 or Biol. 201.

208 COMPETITIVE EQUITATION (1+3) 2 credits
Techniques in contemporary styles and skills of standard rodeo events and associated judging and supportive roles for each event. May be repeated to a maximum of 4 credits.

209 HORSE MANAGEMENT (2+3) 3 credits
Management and handling of horses, including shoeing, training, packing, and restraint. Field trip required.

211 FEED AND FEEDING (2+3) 3 credits
Basic principles of feeding farm animals; feeding standards; composition and nutritive value of feeds; compilation and preparation of rations. Prerequisite: A.Sc. 204, Chem. 101 or 171.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in animal science.

301 LIVESTOCK SELECTION (1+3) 2 credits
Principles and practices of livestock evaluation. Prerequisite: A.Sc. 204.

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.

400 UNDERGRADUATE SEMINAR (1+0) 1 credit
Research work and reports on topics of interest in animal science. Prerequisite: senior standing.

404, 604 WATER METABOLISM (3+0) 3 credits
Functions of water as related to various homeostatic mechanisms in animals such as body temperature regulation, absorption, and excretion. Prerequisite: A.Sc. 407 or Biol. 263 or 460. (Offered in even numbered years.)

405, 605 ANIMAL GENETICS (3+3) 4 credits
Mechanisms of heredity, variation, methods of selection, systems of mating, with special reference to livestock. Prerequisite: Biol. 101 and 201 or equivalent.

406, 606 ANIMAL NUTRITION (3+0) 3 credits
Principles of nutrition including maintenance, growth, reproduction, and lactation; functions of protein, fat, carbohydrates, minerals, vitamins, and water. Prerequisite: A.Sc. 211, B.Ch. 301 or equivalent.

407, 607 PHYSIOLOGY OF THE DOMESTIC ANIMAL (4+3) 5 credits
Physiology of the neuromuscular, central nervous, circulatory, respiratory, digestive, endocrine, reproductive, and excretory systems with special reference to domestic animals. Prerequisite: Biol. 366 or V.M. 413.

409, 609 PHYSIOLOGY OF REPRODUCTION AND LACTATION (4+0) 4 credits
Reproductive and mammary organs and their functions, neural and endocrine interrelationships and responses to environmental influences. Prerequisite: Chem. 142 or 172, A.Sc. 407 or Biol. 263 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. 409.

414, 614 ENDOCRINOLOGY (3+0) 3 credits
Study of endocrines and their hormonal secretions with special reference to their effects on growth, development, and reproduction of domestic animals. Prerequisite: A.Sc. 407 or Biol. 263 or 460. (Offered in odd numbered years.)

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in animal science.

485, 685 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 GRADUATE SEMINAR (1+0) 1 credit
Research work and reports on topics of interest in animal science.

707 ARID LAND ANIMAL NUTRITION (2+0) 2 credits
Composition, selection, digestibility, and utilization of nutritionally important range plants by domestic animals and wildlife. Prerequisite: A.Sc. 406 and R.N.R. 341 or P.S.W. 355. (Offered in odd numbered years.)

710 GRADUATE TOPICS (2+0) 2 credits
Recent research in various areas in animal science including nutrition, physiology, breeding, meats, or animal health is discussed and evaluated. May be repeated for additional credit.

780 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in animal science. Prerequisite: Graduate Standing. 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

Inactive Courses

20 MEAT IDENTIFICATION (1+3) 2 credits
50 ANIMAL FEEDS (2+3) 3 credits
207 NONINFECTIOUS DISEASES AND PARASITES OF DOMESTIC ANIMALS (2+3) 3 credits
313, 513 FEEDS AND FEEDING LABORATORY (0+3) 1 credit

ANTHROPOLOGY (Anth.)

101 INTRODUCTION TO ANTHROPOLOGY (3+0) 3 credits
Survey of the field of anthropology, emphasizing the comparative study of human society and culture; includes the contributions of physical anthropology, archaeology, and linguistics.

102 INTRODUCTION TO HUMAN EVOLUTION AND PREHISTORY (3+0) 3 credits
The emergence of man and the development of prehistoric culture, examination of human evolution, fossil hominids, and the biological variability of modern man.

103 HUMAN EVOLUTION AND PREHISTORY LABORATORY (0+3) 1 credit
Optional course to accompany Anth. 102; directed laboratory projects in human evolution, geochronology, human biology, and comparative primatology.

201 PEOPLES AND CULTURES OF THE WORLD (3+0) 3 credits
Comparative world-wide survey of selected cultures. Prerequisite: Anth. 101.

202 INTRODUCTION TO ARCHAEOLOGY (3+0) 3 credits
Survey of world prehistory and discussion of methods used by archaeologists to explain past cultures.

205 ETHNIC GROUPS IN CONTEMPORARY SOCIETIES (3+0) 3 credits
Ethnic relations in the United States 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.)

212 SEX ROLES AND FAMILY ORGANIZATION IN COMPARATIVE PERSPECTIVE (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.

230 MATERIAL CULTURE (3+0) 3 credits
Comparative study of material culture and techniques of manufacture in societies of different scale and complexity; emphasis on practical applications. Prerequisite: Anth. 101 or 102.

240 ANTHROPOLOGY OF FABLED PEOPLES, PLACES, AND EVENTS (3+0) 3 credits
Modern western beliefs and popular accounts about lost civilizations and continents, ancient long distance sea voyages, manlike monsters, and outer-space visits. Prerequisite: Anth. 101.

265 PEOPLES AND CULTURES OF AFRICA (3+0) 3 credits
Introduction to the prehistory, ethnology, and ethnography of Africa based upon a general survey of the region plus consideration of specific representative cultures. Prerequisite: Anth. 101.

287 PEOPLES AND CULTURES OF ASIA (3+0) 3 credits
Introduction to the prehistory, ethnology, and ethnography of Asia based upon a general survey of the region plus consideration of specific representative cultures. Prerequisite: Anth. 101.

288 PEOPLES AND CULTURES OF THE PACIFIC (3+0) 3 credits
Introduction to the prehistory, ethnology, and ethnography of Oceania based upon a general survey of the region plus consideration of specific representative cultures. Prerequisite: Anth. 101.

305, 505 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.

309 MUSEOLOGY (3+0) 3 credits
History, 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, Hist. 309, H.Ec. 309)

310, 510 ARCHAEOLOGY OF THE OLD WORLD (3+0) 3 credits
Evidences for the development and distribution of prehistoric culture in Europe, Africa, and Asia. Prerequisite: Anth. 101 or 102.

311, 511 APPLIED LINGUISTICS (3+0) 3 credits
(See Engl. 311 for description.)

312, 512 COMPARATIVE SOCIAL ORGANIZATION (3+0) 3 credits
Basic institutions of human society; examination of the variability of structure in social systems and culture. Prerequisite: Anth. 101.

316, 516 LANGUAGE AND CULTURE (3+0) 3 credits
Nature of language in light of anthropological research, the diversity of the world's languages, the relation of language to social organization and world view. Prerequisite: Anth. 101. (Same as Engl. 316.)

322, 522 COMPARATIVE RELIGIOUS SYSTEMS (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.

335, 535 PHYSICAL ANTHROPOLOGY (3+0) 3 credits
Variation, adaptation, and evolution of human populations. Relevant topics include processes of evolution, taxonomy and classification, human genetics, adaptation and acclimatization, mating systems and population dynamics, and paleo-anthropology. Prerequisite: Anth. 102.

339 MYTHOLOGY AND FOLKLORE (3+0) 3 credits
(See Engl. 339 for description.)

352, 552 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 revolution.

360, 560 INDIANS OF THE GREAT BASIN (3+0) 3 credits
Intensive study of the indigenous cultures of the intermontane region of western North America; tribal distribution, problems in culture areas, social organization and change. Prerequisite: Anth. 101.

382, 582 INDIANS OF NORTH AMERICA (3+0) 3 credits
Culture areas of North America and related areas of Meso-America. Comparative cultural institutions and material from representative groups; review of theoretical problems in North American ethnology. Prerequisite: Anth. 101.

363, 563 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.

366, 566 OLD WORLD BASQUE CULTURE (3+0) 3 credits
(See Basque 366 for description.)

388, 588 CULTURAL AND LINGUISTIC PATTERNS IN THE NEAR EAST (3+0) 3 credits
Survey of the ethnic, religious, and linguistic groups of the Near East with attention to historical development. Prerequisite: an introductory course in anthropology or geography. (Same as Geog. 388.)

392, 592 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.

400, 600 ARCHAEOLOGICAL FIELD METHODS 6 credits
Summer field course in archaeological method. Instruction in archaeological field techniques through the survey and excavation of selected site. Prerequisite: special advance application.

401, 601 THEORY AND METHOD IN ARCHAEOLOGY (2+4) 4 credits
Lecture and laboratory. Analysis of archaeological data; problems in sequence, classification and statistical presentation; techniques of preservation, restoration, and illustration.

411, 611 LINGUISTICS (3+0) 3 credits
(See Engl. 411 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
Lecture and laboratory. Procedures in eliciting, recording, and analyzing language. Students work with informants. Prerequisite: Anth. 305 or 411 or 415. (Same as Engl. 416, 616.)

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, 310.

425, 625 ARCHAEOLOGY OF MEXICO AND PERU (3+0) 3 credits
Comparative studies of the development of civilization in North and South America prior to the Spanish conquest.

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.

440, 640 HISTORY OF ANTHROPOLOGY (3+0) 3 credits
Historical approach to the development of anthropology as a discipline and its relationship to other fields. Required of majors in the senior year.

450, 650 PEASANT SOCIETY (3+0) 3 credits
Evaluation of the concept of "peasantry" as social type in light of cross-cultural comparison of the world peasantries (including materials from Europe, Latin America, Asia, and Africa); emphasis upon the economic, political, and religious relationships between the peasant and urban sectors of national cultures; examination of the role of the peasantry in the modernization of developing nations. Prerequisite: 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.

470, 670 ANTHROPOLOGY AND ECOLOGY (3+0) 3 credits
Introduction to the 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.

475, 675 ANTHROPOLOGY AND EDUCATION (3+0) 3 credits
(See Ed.F.M. 475 for description.)

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.

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 in, and discussion of, topics in human biological evolution.

705 GRADUATE SEMINAR IN ARCHAEOLOGY AND PREHISTORY (3+0) 3 credits
Selected reading in, and discussion of, topics in archeological 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
An examination of the methods used to collect and analyze data in social and cultural anthropology.

713 PROBLEMS IN LANGUAGE (3+0) 3 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 in anthropology focusing upon a particular region of the world. Maximum of 6 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 Arts degree under Plan B.

797 THESIS 1 to 6 credits

Inactive Courses

342, 542 COMPARATIVE ART (3+0) 3 credits
350, 550 ECONOMIC ANTHROPOLOGY (3+0) 3 credits
355, 555 CONTEMPORARY LATIN AMERICAN SOCIETY (3+0) 3 credits
369, 569 PEOPLES AND CULTURES OF EUROPE (3+0) 3 credits
370, 570 AFRO-AMERICAN PEOPLES AND CULTURES (3+0) 3 credits
410, 610 ETHNOGRAPHIC FIELD METHODS (2+4) 4 credits
430, 630 PROBLEMS IN PHYSICAL ANTHROPOLOGY (3+0) 3 credits
465, 665 CULTURE AND PERSONALITY (3+0) 3 credits

ARCHITECTURAL ENGINEERING TECHNOLOGY (A.E.T.)

101 INTRODUCTION TO ARCHITECTURE (3+0) 3 credits
Architectural history, logic, development of the design process, use planning, and their relationship to the natural and built environments today.

119 ARCHITECTURAL DRAFTING (1+6) 3 credits
Basic techniques of architectural drafting, use of drafting room equipment. Emphasizes residential buildings and leads to completion of a full set of professional-level working drawings.

214 ARCHITECTURAL DESIGN I (1+6) 3 credits
Advanced work in architectural design. Development of architectural logic, planning, and aesthetics with relation to structures. Prerequisite: A.E.T. 119

216 ARCHITECTURAL DESIGN II (1+6) 3 credits
Continuation of A.E.T. 214. One designated field trip may be required during the semester. Prerequisite: A.E.T. 214.

220 CONSTRUCTION AND WORKING DRAWINGS I (1+6) 3 credits
Construction and detailed working drawings of elementary wood and steel structures. Application of building codes. Prerequisite: A.E.T. 119.

221 CONSTRUCTION AND WORKING DRAWINGS II (1+6) 3 credits
Continuation of A.E.T. 220 covering more advanced topics. Prerequisite: A.E.T. 220.

225 ARCHITECTURAL DELINEATION (0+6) 2 credits
Three-dimensional representation of structures with various drawing media which enable the student to express his architectural ideas. Prerequisite A.E.T. 119. Maximum of 4 credits.

264 MECHANICAL AND ELECTRICAL EQUIPMENT FOR BUILDINGS (3+3) 4 credits
Basic design computations and drafting concepts used in selection and layout of mechanical and electrical systems for buildings.

266 STRUCTURAL DRAFTING-DESIGN (1+6) 3 credits
Basic structural design techniques in both steel and reinforced concrete. Implementation of lectures with actual drafting of design projects. Individual development of a design to its final plans is required.

ART (Art)

The Department of Art reserves the right to keep student drawings, paintings, and art work for the permanent collection of the University. Many courses require special expenses for materials and equipment in addition to regular registration fees. Consult with the department prior to registration.

History of the Visual Arts

116 SURVEY OF THE ART OF WESTERN CIVILIZATION I (2+0) 2 credits
Art of the western world from prehistoric times through the Gothic period.

117 SURVEY OF THE ART OF WESTERN CIVILIZATION II (2+0) 2 credits
Art of the western world from the Renaissance to the present.

210 SURVEY OF MEXICAN ART (2+0) 2 credits
Mexican art and architecture from the pre-Columbian period to modern time.

212 THE PORTRAIT IN WESTERN ART (2+0) 2 credits
Portrait painting and portraiture in sculpture from the Egyptian period through modern time.

214 SURVEY OF AMERICAN ART (0+6) 3 credits
General survey of the art and architecture of America from the colonial period to the present.

315 RENAISSANCE ART (3+0) 3 credits
History of Western European Art in the Fifteenth and Sixteenth Centuries.

316 BAROQUE ART (3+0) 3 credits
History of Western European Art from 1600-1750.

319 FIELD STUDY 1 to 3 credits
Student-faculty seminar including group travel to art centers within the United States and abroad for field study experience. Maximum of 6 credits.

417, 617 NINETEENTH CENTURY ART (3+0) 3 credits
Detailed study of the Neo-Classical, Romantic, Realist, and Impressionist movements in Western art, including aspects of the architectural evolution. Prerequisite: Art 116, 117.

418, 618 TWENTIETH CENTURY ART (3+0) 3 credits
Detailed study of the visual arts from 1880 to present time discussing the major movements of the period. Attention also given to twentieth century architecture. Prerequisite: Art 116, 117

419, 619* SENIOR/GRADUATE PROBLEMS IN THE HISTORY OF ART 3 credits

Tutorial on independent basis arranged with departmental tutor/adviser. Prerequisite: 419—senior standing; 619—Graduate Standing.

Drawing**121 DRAWING** (0+6) 3 credits each

Introduction to concepts of drawing based on visual observation.

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.

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.

428, 628* SENIOR/GRADUATE 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: 428—12 credits in drawing and senior standing; 628—Graduate Standing.

Painting**135 PAINTING** (0+6) 3 credits

Introduction to concepts of painting including color, form, and composition.

235 PAINTING (0+6) 3 credits

Intermediate course in painting, emphasizing various materials and methods. Prerequisite: Art 135.

335-336 PAINTING (0+6) 3 credits each

Continuation of Art 235. Prerequisite: Art 121 and 235.

337-338 WATERCOLOR (0+6) 3 credits each

Intermediate course involving comprehensive problems in painting with transparent and opaque watercolors. Prerequisite: Art 121 and 135.

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 SENIOR/GRADUATE PROBLEMS IN PAINTING 3 credits

Tutorial on independent basis arranged with departmental tutor/adviser. Student will exhibit work as part of the course requirement. May be repeated to a maximum of 6 credits. Prerequisite: 438—18 credits in painting and senior standing; 638—Graduate Standing.

Visual Arts Education**100 VISUAL FOUNDATIONS** (1+4) 3 credits

Explores visual forms and contemporary concepts through a variety of media, presentations, and discussions.

140 INTRODUCTION TO THE VISUAL ARTS 1 to 3 credits

Basic studio course for the nonart major, exploring visual forms through a variety of media. Scheduled sections deal with special areas. May be repeated for additional credit. (Meets Arts and Science humanities requirement. May not be used to satisfy Department of Art major requirement.)

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 presudent teaching experience. Prerequisite: senior standing and completion of art department major requirements. (Same as C.I. 346.)

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.

408, 608* INDIVIDUAL STUDIES 1 to 3 credits

Individual studies in the areas of two- or three-dimensional work and art history. May be repeated to a maximum of 6 credits.

Visual Arts Communication**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.

250-251 PHOTOGRAPHY (1+4) 3 credits each

Lecture study with emphasis on improving basic technical skills and exploration of alternative photographic processes. Prerequisite: 100, 150.

253 MOTION PICTURE PHOTOGRAPHY (1+4) 3 credits

Supervised exercises in motion picture photography and editing with experience provided through individual and group production and critical analysis.

256 CINEMA I/THE SILENT ERA (3+0) 3 credits

History of the film from beginning to introduction of sound, emphasizing the 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.

309 MUSEOLOGY (3+0) 3 credits

(See Anth. 309 for description.)

350-351 PHOTOGRAPHY (1+4) 3 credits each

Refinement of technical and visual skills. Lecture/study of historical and contemporary photographic processes and their creative possibilities. Prerequisite: Art 251.

353 SEMINAR IN PHOTOGRAPHY 1 to 3 credits

Scheduled sections deal with in-depth investigation of a specific aspect of photography. Maximum of 6 credits. Prerequisite: Art 250 and 350.

355 EVOLUTION OF THE PHOTOGRAPH (2+0) 2 credits

Survey of the historical, technical, and social foundations of photography and its relationship to the other visual arts.

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.

403 POSTGRADUATE ORIENTATION (2+0) 2 credits

Orientation to career possibilities in the field of art. Required of all art majors.

450-451 ADVANCED PHOTOGRAPHY (1+4) 3 credits each

Development of individual photographic expression. Exploration of a variety of manipulative photographic materials through lecture and experimentation. Prerequisite: Art 351.

458, 658 PROBLEMS IN PHOTOGRAPHY 3 credits

Tutorial on an independent basis arranged with tutor/adviser. Student will exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite for Art 458: 21 units in photography and senior standing; for Art 658: graduate standing.

*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.

Sculpture**163 SCULPTURE** (0+6) 3 credits

Introduction to the concepts of three dimensional composition.

263-264 SCULPTURE (0+6) 3 credits each

Intermediate emphasis on processes, concepts, and materials. Prerequisite: Art 100, 163.

363-364 SCULPTURE (0+6) 3 credits each

Individual concepts of sculptural form with emphasis on personal development. Prerequisite: Art 264.

463-464 ADVANCED SCULPTURE (0+6) 3 credits each

Advanced concepts of sculptural form and individual problem solving. Prerequisite: Art 363-364.

468, 668* SENIOR/GRADUATE PROBLEMS IN SCULPTURE 3 credits

Tutorial on independent basis arranged with departmental tutor/adviser. Students exhibit work as part of the course requirement. Maximum of 6 credits. Prerequisite: 468—18 credits in sculpture and senior standing; 668—Graduate Standing.

Ceramics**175 CERAMICS** (1+4) 3 credits

Introduction to ceramics emphasizing characteristics of various clay bodies.

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.

375-376 CERAMICS (0+6) 3 credits each

Continuation of Art 275-276 with emphasis on sculpture, pottery, and independent investigation of the materials. Study of advanced technical and aesthetic aspects of clay, clay bodies, and glazes. Prerequisite: Art 276.

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* SENIOR/GRADUATE PROBLEMS IN CERAMICS 3 credits

Tutorial on independent basis arranged with departmental tutor/adviser. Students exhibit work as part of course requirement. Maximum of 6 credits. Prerequisite: 478—18 credits in ceramics and senior standing; 678—Graduate Standing.

Printmaking**185 PRINTMAKING** (0+6) 3 credits

Introduction to printmaking emphasizing basic techniques and processes.

285-286 PRINTMAKING (0+6) 3 credits each

Studio instruction concerned with professional printmaking processes: intaglio, relief, lithography, and serigraphy. Prerequisite: Art 100, 185.

314 EVOLUTION OF THE PRINT (2+0) 2 credits

Historical, technical, and curatorial foundations of printmaking. Field trips to regional print collections are scheduled.

381 THE PRACTICE AND HISTORY OF PRINTING

(0+6) 3 credits

(See L.Sc. 381 for description.)

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.

483-484, 683-684 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 383-384.

488, 688* SENIOR/GRADUATE PROBLEMS IN PRINTMAKING 3 credits

Tutorial on independent basis arranged with departmental tutor/adviser. Students exhibit work as part of the course requirement. Maximum of 6 credits. Prerequisite: 488—18 credit hours in printmaking and senior standing; 688—Graduate Standing.

Inactive Courses

105 DESIGN (0+4) 2 credits

115 ART APPRECIATION (2+0) 2 credits

191 CRAFTS (1+4) 3 credits

215 SURVEY OF PRIMITIVE ART (2+0) 2 credits

218 SURVEY OF ORIENTAL ART (2+0) 2 credits

258-259 COMMERCIAL ART (0+6) 3 credits each

293 JEWELRY (0+6) 3 credits

294 CREATIVE DESIGN WITH FABRIC (0+6) 3 credits

298 CREATIVE DESIGN ON TEXTILE-RESIST DYING

(0+6) 3 credits

299 CREATIVE DESIGN ON TEXTILE-SCREEN PRINTING

(0+6) 3 credits

303-304 ART STRUCTURE AND PICTORIAL COMPOSITION

(0+4) 2 credits

358-359 ADVANCED COMMERCIAL ART (0+6) 3 credits each

393 JEWELRY (0+6) 3 credits

394 ADVANCED CREATIVE DESIGN WITH FABRIC

(0+6) 3 credits

396-397 ADVANCED CREATIVE DESIGN ON TEXTILE

(0+6) 3 credits each

416-616 HISTORY OF AMERICAN ART (3+0) 3 credits

BIOCHEMISTRY (B.Ch.)**120 AGRICULTURAL CHEMICALS** (3+3) 4 credits

Principles of chemistry applied to agricultural products and practices with emphasis placed on agricultural chemicals. May not be used as a substitute for other required chemistry courses in the School of Agriculture.

280 INDEPENDENT STUDY 1 to 3 credits

Intensive study of a special problem in (a) biochemistry; (b) entomology.

301, 501 INTRODUCTORY BIOCHEMISTRY I (3+0) 3 credits

Major metabolic pathways and control mechanisms for carbohydrates, lipids, and amino acids. Includes energetics, photosynthesis, vitamins, and cell organization. Meets requirement for a single semester survey of metabolism. Prerequisite: Chem. 142 or 172 or 244 for B.Ch. 301; Chem. 244 for B.Ch. 501.

302, 502 INTRODUCTORY BIOCHEMISTRY II (3+0) 3 credits

Carbohydrate and lipid structure, protein and nucleic acid structure and biosynthesis, enzyme kinetics and regulation of gene function using organic and physical chemistry principles. Prerequisite: Chem. 142 or 172 or 244 for B.Ch. 302; Chem. 244 for B.Ch. 502.

303, 503 INTRODUCTORY BIOCHEMISTRY LABORATORY I

(0+3) 1 credit

Selected experiments illustrating methodology used in investigating the chemistry of living systems. If laboratory is needed, 303(503) must be taken concurrently with 301(501). Prerequisite: Chem. 142 with lab or 172 or 244 and 246 for B.Ch. 303; Chem. 244 and 246 for B.Ch. 503.

304, 504 INTRODUCTORY BIOCHEMISTRY LABORATORY II

(0+3) 1 credit

Selected experiments illustrating methodology used in investigating the chemistry of living systems. If a laboratory is needed 304(504) must be taken concurrently with 302(502). Prerequisite: Chem. 142 with lab or 172 or 244 and 246 for B.Ch. 304; Chem. 244 and 246 for B.Ch. 504.

*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.

305 GENERAL PHARMACOLOGY (3+0) 3 credits
Introduction to the study and science of pharmacology. Biological effects on living systems of chemical substances. Includes terminology, metabolism, effects, and side effects. Prerequisite: Chem. 101 and a beginning biology course.

405-406, 605-606 ADVANCED BIOCHEMISTRY I AND II (3+0) 3 credits
In-depth examination of structure, function, metabolism, and regulation of carbohydrates, lipids, proteins, enzymes, nucleic acids, relationship of metabolism to the life processes of the whole organism. Prerequisite: B.Ch. 301-304, Chem 244 and 354 or 357.

407-408, 607-608 ADVANCED BIOCHEMISTRY LABORATORIES I AND II (0+9) 3 credits
Laboratory work which accompanies B.Ch. 405-406, 605-606. Prerequisite or corequisite: B.Ch. 405-406, 605-606.

409-410 BIOLOGICAL CHEMISTRY (3+3) 4 credits each
Chemistry of the living material, including biosynthesis, metabolic role and degradation of proteins, carbohydrates, lipids, nucleic acids, vitamins, hormones, and other compounds related to the life process. Prerequisite: Chem. 244 or 334; 354-355; and a course in biology.

412, 612 PLANT BIOCHEMISTRY (3+0) 3 credits
Study of plant metabolism with emphasis on reactions unique to plants such as photosynthesis, alkaloid biosynthesis, nitrogen fixation. Prerequisite: B.Ch. 301 or equivalent.

450 RADIOTRACER TECHNIQUES (1+3) 2 credits
Introduction to the use of radioactive materials as tracers with special reference to agricultural application. Prerequisite: Chem. 333.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) biochemistry; (b) entomology.

700 GRADUATE SEMINAR (1+0) 1 credit
Reports on topics of interest in (a) biochemistry, (b) entomology.

710 RADIOTRACER METHODOLOGY (1+3) 2 credits
Use of radioactive materials as tracers. Prerequisite: Chem. 333. Recommended: B.Ch. 406 or 410 and Math. 181. (Not available for students having completed B.Ch. 450.)

711-712 BIOCHEMICAL TECHNIQUES (0+3 or 6) 1 or 2 credits each
Introduction in depth to details of biochemical techniques and equipment. Prerequisite: B.Ch. 406 or 410.

722 METABOLISM (3+0) 3 credits
Consideration at the molecular level of selected anabolic and catabolic processes. Prerequisite: B.Ch. 406 or 410.

731 PHYSICAL BIOCHEMISTRY (3+0) 3 credits
Physical chemistry of biochemical systems. Prerequisite: B.Ch. 406 or 410, Chem. 354.

740 ENZYMOLOGY (3+0) 3 credits
Enzyme kinetics, specificity, mechanisms, inhibition, structure, formation, and control. Prerequisite: B.Ch. 406 or 410. Recommended: a course in physical chemistry.

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. 406 or 410.

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. 406 or 410.

760 MINERAL METABOLISM (3+0) 3 credits
Biochemistry of the macro- and micronutrient trace elements with some reference to toxic and nonmetabolic elements. Prerequisite: B.Ch. 406 or 410.

780 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in (a) biochemistry, (b) entomology. Prerequisite: graduate standing. Maximum of 6 credits in any area.

795 COMPREHENSIVE EXAMINATION 0 credit. *S/U only.*

797 THESIS 1 to 6 credits
Thesis may be written in area of (a) biochemistry, (b) entomology.

799 DISSERTATION 1 to 24 credits

Inactive Courses

721 STRUCTURAL BIOCHEMISTRY (3+0) 3 credits
770 STEROIDS (3+0) 3 credits

BIOLOGY (Biol.)

Biology

100 BIOLOGY AND THE FUTURE OF MAN (3+3) 4 credits
Designed primarily for nonbiological science majors. Introduction to basic biological principles and the application of such principles to the future existence of man as a biological organism. Cannot be used as credit toward any field of concentration in the Biology Department.

101 GENERAL BIOLOGY (3+3) 4 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.

103 GENERAL BIOLOGY (3+0) 3 credits
Introduction to the principles of botany and zoology. Cannot be used as a prerequisite for other botany and zoology courses. Primarily a correspondence course.

201 ANIMAL BIOLOGY (2+3) 3 credits
Introduction to embryology, behavior, and diversity of the major groups including evolutionary relationships. Prior knowledge of general biological principles is strongly recommended.

202 PLANT BIOLOGY (2+3) 3 credits
Introduction to development, physiology, and diversity of the major groups including evolutionary relationships. Prior knowledge of general biological principles is strongly recommended.

204 HEREDITY, MAN, AND ENVIRONMENT (3+0) 3 credits
Similarities and variations among humans compared with other organisms. Genetic basis of differences and influence of natural and man-made factors in modifying these. Primarily for non-biology majors. Prerequisite: one course in biology.

206 CELLULAR BIOLOGY I (2+0) 2 credits
Cellular phenomena which provide the foundations of life. Cell chemistry and physiology, cell organization, membrane systems, and organelles. Prerequisite: Biol. 101 and one semester of chemistry.

207 CELLULAR BIOLOGY II (2+0) 2 credits
Structure and function of the nucleus, cytogenetics, cellular immunology, cell interactions, cell differentiation. Prerequisite: Biol. 206.

210 BIOLOGICAL PRINCIPLES OF CONSERVATION (2+0) 2 credits
Biological principles related to the conservation of animal and plant resources.

212 GENERAL ECOLOGY (3+3) 4 credits
Basic ecological principles; the effects of environmental factors on plants and animals with their interactions considered in detail. Prerequisite: Biol. 101, 201 or 202.

300, 500 PRINCIPLES OF GENETICS (3+0) 3 credits
Introduction to features of heredity and variation among plants and animals. Prerequisite: Biol. 101, 201 or 202.

301, 501 GENETICS LABORATORY (0+3) 1 credit
Optional course to accompany Biol. 300.

302, 502 DISCUSSION IN GENETICS (1+0) 1 credit
Small group discussions of principles of genetics to accompany Biol. 300.

303, 503 HUMAN GENETICS (2+3) 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. 101, 201, some training in chemistry and mathematics.

306, 506 MICROBIOLOGY (2+6) 4 credits
Bacteria and related microorganisms. Morphology, physiology, classification, economic, and medical importance considered. Prerequisite: Biol. 101.

309 MUSEOLOGY (3+0) 3 credits
(See Anth. 309 for description.)

310, 510 MUSEUM TRAINING FOR BIOLOGISTS (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, 512 MUSEUM FIELD AND LABORATORY TECHNIQUES (0+4) 2 credits
Collecting, preparing, identifying, and cataloging specimens for museum collections. Prerequisite: basic background in biology.

315, 515 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.

346, 546 DESERT ECOSYSTEMS 1 credit
Extended field trip to acquaint students with the biota of selected desert areas. Prerequisite: Biol. 101, 212.

400, 600 BIOLOGICAL SURVEY TECHNIQUES 2 credits
Two weeks during the summer each year. Transportation provided. May be repeated to a maximum of 8 credits. Prerequisite: certification by biology staff of ability to handle a botanical or zoological specialty in the field.

401, 601 BIOLOGY JOURNAL SEMINAR (1+0) 1 credit
Survey of the periodical literature of biology. Oral and written reports by the student will give experience in searching and interpreting the literature. Maximum of 6 credits.

402, 602 ELECTRON MICROSCOPY (2+0) 2 credits
Electron microscope physics and operation and the techniques of biological specimen preparation. Prerequisite: Biol. 206.

403, 603 ELECTRON MICROSCOPY LABORATORY (0+6) 2 credits
Laboratory exercises in biological techniques of electron microscopy. Prerequisite: Biol. 206.

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.

406, 606 MICROBIOLOGY OF FOODS AND RELATED INDUSTRIAL PROCESSES (2+3) 3 credits
Principles of food production, preservation, and spoilage. Microorganisms related to water, drugs, and some commercial processes. Prerequisite: Biol. 306 or equivalent.

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. 300 or 303.

410, 610 ECOLOGY OF POLLUTION (3+0) 3 credits
Emphasis on the biological aspects of current national pollution problems, especially air pollutants. Sources of major pollutants and the effects of each on man, lower animals, and plants. Prerequisite: inorganic chemistry and Biol. 101 or 210.

415, 615 MICROBIAL PHYSIOLOGY (2+6) 4 credits
Biosynthetic and degradative metabolism in microorganisms with emphasis on the bacteria. Parameters of growth, cell composition, cell wall permeability, chemotaxis, bacteriophages mutagenesis, and microbial genetics. Prerequisite: Biol. 306 and B.Ch. 301.

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: Chem. 101, 102; Biol. 360, 374, and a course in qualitative chemical analysis.

700 STUDY IN ELECTRON MICROSCOPY (0+9) 3 credits
Original research problems involving the use of the electron microscope in biological investigations.

702 SUPERVISED TEACHING IN COLLEGE BIOLOGY (1+0) 1 credit
Methods and creative approaches for improving the quality of undergraduate teaching of biological science.

704 GENETICS OF MICROORGANISMS (3+0) 3 credits
Recent developments in genetics as elucidated through the study of bacteria, viruses, and fungi. The nature of the hereditary material and its relationship to physiological and developmental processes. Prerequisite: Biol. 300, Chem 244 or 271.

706 ADVANCED MICROBIOLOGY (1+6) 3 credits
Advanced study of bacteria, fungi, and related microorganisms. Modern techniques and laboratory tests in the fields of economic and medical microbiology stressed. Prerequisite: Biol. 306.

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. Prerequisite: Graduate Standing.

710 CELLULAR PHYSIOLOGY (3+0) 3 credits
Includes consideration of the structure and function of cellular membranes and associated transport systems, the properties of intracellular physical and chemical systems, and the cellular environment. Prerequisite: Biol. 355 or 385 or 460.

712 SYSTEMS MODELING IN ECOLOGY (2+0) 2 credits
Structure and functions of natural ecosystems are simulated by models in a systems analysis approach to ecological problems.

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.

715-716 TOPICS IN POLLUTION ECOLOGY (3+0) 3 credits each
Examination in depth of selected areas of pollution ecology, i.e., energy and power, mineral cycles, or air pollutants. Maximum of 6 credits each.

717 ECOLOGY OF DECOMPOSITION (2+3) 3 credits
Organic detritus turnover, mineral cycling as controlled by decomposition rates, and factors influencing these rates. Prerequisite: Biol. 212.

785 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 the equivalent.

Botany

130 SURVEY OF THE PLANT KINGDOM (2+0) 2 credits
Structure and life cycles of representative types of algae, fungi, mosses, ferns, gymnosperms, and angiosperms.

131 SURVEY OF THE PLANT KINGDOM LABORATORY

(0+6) 2 credits
Optional course to accompany Biol. 130.

230 ECONOMIC BOTANY (2+0) 2 credits

Principal plants used for drugs, fibers, oil, foods, and industrial uses. Importance of exploration for new plant sources. Prerequisite: Biol. 101 or 202.

231 FUNGI AND HUMAN AFFAIRS (2+0) 2 credits

Facts and myths of fungi and their effect on humans and other forms of life. Biol. 101 background desirable.

331, 531 PLANT ANATOMY (3+3) 4 credits

Origin, growth, and structure of plant cells, tissues, and organs; comparative anatomy of roots, stems, leaves, and flowers. Prerequisite: Biol. 101 and 202.

333, 533 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, 534 SYSTEMATIC BOTANY OF FLOWERING PLANTS LABORATORY (0+6) 2 credits

Optional laboratory to accompany Biol. 333, 533.

335 THE STUDY OF ALGAE (2+0) 2 credits

Systematics, biology, and ecology of fresh water algae. Prerequisite: Biol. 101 or 130.

336 THE STUDY OF ALGAE LABORATORY (0+3) 1 credit

Optional laboratory course to accompany Biol. 335. Prerequisite: Biol. 101 and 131 or 335.

337, 537 INTRODUCTORY MYCOLOGY I (2+0) 2 credits

The fungal organism: structure, growth, reproduction, and classification. Prerequisite: Biol. 101. Biology majors must take Biol. 339, 539 concurrently.

338, 538 INTRODUCTORY MYCOLOGY II (2+0) 2 credits

The fungal organism: nutrition, metabolism, genetics, and phylogeny. Prerequisite: Biol. 101. Biology majors must take Biol. 340, 540 concurrently.

339, 539 INTRODUCTORY MYCOLOGY I LABORATORY

(0+6) 2 credits
Optional laboratory to accompany Biol. 337, 537.

340, 540 INTRODUCTORY MYCOLOGY II LABORATORY

(0+6) 2 credits
Optional laboratory to accompany Biol. 338, 538.

345, 545 ECOLOGY OF XEROPHYTES (2+3) 3 credits

Ecology of desert plant species and communities; including physiologic and morphologic adaptations and functional relationships. Prerequisite: Biol. 101 and 202.

347, 547 PLANT ECOLOGY (3+0) 3 credits

Plant environment interactions at the individual, population, community, and ecosystem levels. Analytic and synthetic approaches to studies at the autecological and synecological levels considered. Prerequisite: Biol. 202, 212.

348, 548 PLANT ECOLOGY LABORATORY (0+3) 1 credit

Methods used to determine and measure environmental variables and to delimit and describe plant communities. Prerequisite or corequisite: Biol. 347.

355, 555 PLANT PHYSIOLOGY (3+0) 3 credits

Introduction to the basic physiological processes in plants, nutrition, metabolism, growth, and development. Prerequisite: Biol. 101 and 202 or Chem. 142.

356, 556 PLANT PHYSIOLOGY LABORATORY (0+3) 1 credit

Optional laboratory to accompany Biol. 355, 555.

430, 630 CRYPTOGAMIC PLANTS (3+0) 3 credits

Study of the morphology, taxonomy, and evolution of the principal orders and families of mosses, liverworts, and ferns. Emphasis on morphological and evolutionary adaptations. Prerequisite: Biol. 202 or equivalent.

431, 631 CRYPTOGAMIC PLANT LABORATORY

(0+6) 2 credits
Optional laboratory to accompany Biol. 430, 630.

432, 632 SYSTEMATICS OF FUNGI

(1+6) 3 credits
Field and laboratory oriented course dealing with the collection, isolation, and identification of fungi. Requires a mycological collection. Prerequisite: Biol. 337.

731 VEGETATION ANALYSIS (2+3) 3 credits

Methods and approaches of vegetation analysis. Prerequisite: Biol. 212, 333.

733 ADVANCED SYSTEMATIC BOTANY (2+6) 4 credits

Review of the recent developments in experimental plant taxonomy including a cytogenetic analysis, growth in varied and uniform environments; the role of comparative anatomy and morphogenesis in determining phylogenetic relationships; the rationale of various plant nomenclatorial systems.

738 ECOLOGY OF FUNGI (2+0) 2 credits

Fungi and their environments: Emphasizes their role as saprobes, symbionts, and parasites of plants, vertebrate and invertebrate animals, and other fungi.

Zoology**160 GENERAL ZOOLOGY (3+0) 3 credits**

Introductory course dealing with the general principles of animal biology. Offered for 3 credits (which does not include laboratory) through Independent Study only. This course does not meet the requirements for majors in the Department of Biology.

260 VERTEBRATE ZOOLOGY (3+0) 3 credits

Biology of the vertebrates. Main emphasis on the land vertebrates—amphibians, reptiles, birds, and mammals. Prerequisite: Biol. 101 or 201.

262 HUMAN ANATOMY AND PHYSIOLOGY I

(2+3) 3 credits
The body as a whole. Skeletal, muscular, nervous, sensory, and endocrine systems of man. Primarily for nursing, physical education, and home economics students. Prerequisite: Biol. 101.

263 HUMAN ANATOMY AND PHYSIOLOGY II

(2+3) 3 credits
Circulatory, respiratory, digestive, urogenital, and integumentary systems of man. Primarily for nursing, physical education, and home economics students. Prerequisite: Biol. 262.

360, 560 GENERAL ENTOMOLOGY (2+3) 3 credits

Introduction to the principles of insect biology. Prerequisite: Biol. 101 or 201.

362, 562 GENERAL ENTOMOLOGY COLLECTION

(0+3) 1 credit
Special studies for the advanced entomology student. Prerequisite: Biol. 360.

363, 563 GENERAL ENDOCRINOLOGY (3+3) 4 credits

Structure and function of endocrine glands and how their secretions regulate chemical reactions, integrate tissue and organ systems, and control behavior. Prerequisite: Biol. 365 or 386.

384, 584 EMBRYOLOGY (3+0) 3 credits

Major concepts of animal development from gametogenesis through metamorphosis. Prerequisite: three semesters of biology and one year of chemistry.

366, 566 COMPARATIVE VERTEBRATE ANATOMY

(3+6) 5 credits
Anatomy and evolution of structural systems in vertebrates. Complete dissection of dog-fish, salamander, and cat. Microscopic and gross demonstrations. Prerequisite: Biol. 101 or 201.

368, 568 PARASITOLOGY (3+3) 4 credits

Introductory study of parasitic animals of medical, veterinary, and wildlife importance.

370, 570 HISTOLOGICAL TECHNIQUES (1+6) 3 credits

Preparation of zoological specimens for microscopic study. Emphasis is placed upon paraffin and frozen section techniques, special cytological and histochemical procedures, and photomicrography. Prerequisite: Biol. 201.

372, 572 ICHTHYOLOGY (2+0) 2 credits

Systematics, ecology, and biology of fishes. Prerequisite: Biol. 101 and 201.

373, 573 ICHTHYOLOGY LABORATORY (0+3) 1 credit

Optional laboratory to accompany Biol. 372. Prerequisite: Biol. 101, 201.

374, 574 HERPETOLOGY (2+0) 2 credits

Systematics, ecology, and biology of amphibians and reptiles. Prerequisite: Biol. 101 and 201.

375, 575 HERPETOLOGY LABORATORY (0+3) 1 credit

Optional course to accompany Biol. 374. Prerequisite: Biol. 101, 201.

376, 576 ORNITHOLOGY (3+0) 3 credits

Principles of avian biology. Prerequisite: Biol. 101.

377, 577 FIELD ORNITHOLOGY (0+4) 1 credit

Optional course to accompany Biol. 376, 576. The study of bird identification, behavior, and ecology in the field. Corequisite: Biol. 376, 576.

378, 578 MAMMALOLOGY (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, and upper-division or graduate standing.

380, 580 ADAPTATIONS FOR DESERT AND MONTANE LIFE

(3+0) 3 credits
Morphologic, physiologic, ecologic, and ethologic adaptations of animals living in deserts and mountains. Prerequisite: Biol. 101 and 201.

381, 581 ANIMAL ECOLOGY (2+0) 2 credits

Fundamentals of autecology, synecology, and ecosystem ecology. Prerequisite: Biol. 101 or 201.

383, 583 INVERTEBRATE ZOOLOGY I (2+3) 3 credits

Extensive survey of the physiology, morphology, taxonomy, phylogeny, ecology, and behavior of the "lower" invertebrates. Prerequisite: Biol. 101 or 201.

384, 584 INVERTEBRATE ZOOLOGY II (2+3) 3 credits

Extensive survey of the physiology, morphology, taxonomy, phylogeny, ecology, and behavior of the "higher" invertebrates. Prerequisite: Biol. 101 or 201.

385, 585 MAMMALIAN PHYSIOLOGY I (3+3) 4 credits

Physiology of the cell, nerve, muscle, blood, the heart, circulation, and the kidney. Designed for advanced students in the biological sciences. Prerequisite: Chem. 142 or 244, Biol. 366

386, 586 MAMMALIAN PHYSIOLOGY II (3+3) 4 credits

To follow Biol. 385. Physiology of respiration, the central nervous system, vision, hearing, digestion, metabolism, endocrinology, and reproduction. Prerequisite: Biol. 385.

460, 660 COMPARATIVE PHYSIOLOGY (3+0) 3 credits

Comparative examination of the function of animal systems. Prerequisite: Chem. 142 or 244, Biol. 366.

461, 661 COMPARATIVE PHYSIOLOGY LABORATORY

(0+3) 1 credit
Optional laboratory course to accompany Biol. 460.

464, 664 EMBRYOLOGY LABORATORY (0+3) 1 credit

Laboratory experiments relating to the basic concepts of embryological development, utilizing embryos of various organisms such as the chick, the amphibian, and the mouse. Prerequisite or corequisite: Biol. 364, 564.

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.

470, 670 FISH HATCHERY MANAGEMENT (0+6) 3 credits

Familiarizes the wildlife management student with the plan and operation of the Verdi State Hatchery of the Nevada Fish and Game Commission.

475, 675 NEUROBIOLOGY (3+3) 4 credits

Introduction to the basic neurosciences: characteristics of excitable tissues, central nervous mechanisms in sensation, neural control of movement, functional neuroanatomy. Prerequisite: Biol. 262, or 385, or A.Sc. 407.

481, 681 PRINCIPLES OF ANIMAL BEHAVIOR

(3+0) 3 credits
(See Psy. 481 for description.)

482, 682 ANIMAL BEHAVIOR LABORATORY (0+3) 1 credit

(See Psy. 482 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 behavior of animal populations. Prerequisite: Biol. 212.

760 VERTEBRATE REPRODUCTIVE BIOLOGY (3+3) 4 credits

Current research on the 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 the experimental analysis of problems in developmental biology. Prerequisite: Graduate Standing.

765 TOPICS IN INVERTEBRATE PHYSIOLOGY

(3+0) 3 credits
Critical analysis of selected topics concerned with the physiology of various invertebrate groups. Subjects considered depend upon student interest. Maximum of 6 credits. Prerequisite: Biol. 383, 384.

766 UTERUS, PLACENTA, AND FETUS (3+0) 3 credits

Fetal-maternal association which exists during the intrauterine development of viviparous vertebrates. Prerequisite: Graduate Standing.

767 SPECIAL TOPICS IN ENDOCRINOLOGY (2+0) 2 credits

Subjects considered depend upon student interest. Requires extensive review of recent literature, lecture presentation of review, and the design of a related research proposal. Maximum of 6 credits. Prerequisite: Biol. 363.

768 EXPERIMENTAL ENDOCRINOLOGY (0+9) 3 credits

Student-designed laboratory experiments based on proposals developed in Biol. 767. Surgical procedures, gland histology, hormone extraction and purification, assay techniques, and hormone actions at the molecular level. Prerequisite: Biol. 767.

776, 777 ADVANCED ORNITHOLOGY (2+3) 3 credits each
Recent developments in avian biology as described by the current ornithological literature. The laboratory consists of an original research problem by each individual. Prerequisite: Graduate Standing, an introductory course in ornithology, or its 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 and 381, or the 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 the equivalent. Credit hours determined by department.

785 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 the equivalent.

786 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. May be repeated to a maximum of 6 credits. Prerequisite: Biol. 385 and 386.

General

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.

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.

790 BIOLOGY COLLOQUIUM (1+0) 1 credit
Results of research and independent investigation by a variety of lecturers drawn from this campus, from the numerous visitors of this department, and from other science departments at the University and Desert Research Institute. Maximum of 2 credits.

791 GRADUATE PROBLEMS 1 to 3 credits
Special problems for graduate investigation and report in (a) biology, (b) botany, or (c) zoology. May be repeated to a maximum of 6 credits. Prerequisite: Graduate Standing.

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

412, 612 TROPICAL ECOLOGY (3+0) 3 credits
413, 613 TROPICAL ECOLOGY LABORATORY (0+6) 2 credits
730 PHYSIOLOGICAL ECOLOGY (2+0) 2 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. Prerequisite: senior standing.

795 COMPREHENSIVE EXAMINATION 0 credit. *S/U only.*

CHEMICAL ENGINEERING (Ch.E.)

101 INDUSTRY ORIENTATION LECTURES (1+0) 1 credit
(See Min.E. 101 for description.)

102 INTRODUCTION TO METALLURGICAL AND CHEMICAL PROCESSES (2+0) 2 credits
Introductory survey of integrated industrial processes of the chemical and metallurgical industries. (Same as Met.E. 102.)

204 CHEMICAL POLLUTION ABATEMENT (2+2) 3 credits
Chemical pollution problems arising from an industrial society. Solutions to these problems are considered through chemical engineering approaches. Prerequisite: Chem. 102.

232 PRINCIPLES OF METALLURGICAL AND CHEMICAL ENGINEERING (3+0) 3 credits
(See Met.E. 232 for description.)

301 CHEMICAL OR METALLURGICAL INDUSTRY SEMINAR
1 credit
Written and oral engineering reports covering work during sophomore or junior vacation, or equivalent library research, in chemical or metallurgical industry. Library research or computer use may be required to supplement work experience. Seminar may include professors and guest speakers. (Same as Met.E. 301).

332, 532 UNIT PROCESSES OF CHEMICAL METALLURGY I
(3+0) 3 credits
(See Met.E. 332 for description.)

361, 561 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 281, Phys. 210.

423 SURFACE CHEMISTRY (3+0) 3 credits
(See Met.E. 423 for description.)

437, 637 UNIT OPERATIONS I (4+0) 4 credits
Analytical study of unit operations commonly employed in chemical industries. The major emphasis is on fluid flow and heat exchange. Field trip. Prerequisite: Ch.E. 232. Corequisite: Math 320.

438, 638 UNIT OPERATION II (3+0) 3 credits
Continuation of Ch.E. 437. The major emphasis is on equilibrium stage and mass transport operations. Prerequisite: Ch.E. 232. Corequisite: Math 320.

440, 640 KINETICS AND CATALYSIS (3+0) 3 credits
Reaction rates and the factors controlling them. The design of reactors for chemical processing is emphasized. Prerequisite: Ch.E. 232, Math. 320, Chem. 353.

441 UNIT OPERATIONS LABORATORY I (0+3) 1 credit
Experiments to demonstrate equipment and operations of chemical engineering and to provide practice in technical report writing. Corequisite: Ch.E. 437.

442, 642 UNIT OPERATIONS LABORATORY II
(0+6) 2 credits
Quantitative experiments to illustrate unit operations commonly employed in chemical industries. Corequisite: Ch.E. 438.

451, 651 CONTROL OF PROCESS SYSTEMS (3+0) 3 credits
Chemical and metallurgical process dynamics and their responses to control systems. Corequisite: Math. 321.

462, 662 THERMODYNAMICS OF IRREVERSIBLE PROCESSES (3+0) 3 credits
(See Met.E. 462 for description.)

471, 671 TRANSPORT OPERATIONS (3+0) 3 credits
Mass, momentum, and energy transport phenomena and their application in chemical engineering. Prerequisite: Math. 320. Field trip.

482, 682 CHEMICAL ENGINEERING DESIGN
(1+6) 3 credits
Individual projects in the design of processes and plant components. Corequisite: Ch.E. 438.

483, 683 ADVANCED CHEMICAL ENGINEERING DESIGN
(3+0) 3 credits
Application of advanced mathematics to chemical engineering design. Emphasis upon derivation of differential equations describing physical situations and solution of these equations.

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 Min.E. 213. Corequisite: Ch.E. 437.

495 SPECIAL PROBLEMS 1 to 3 credits
Individual problems in chemical engineering. Maximum of 6 credits.

CHEMISTRY (Chem.)

Registration in laboratory courses requires a \$10 deposit with the unused amount refunded at the end of the semester.

100 THE CHEMISTRY OF MAN'S ENVIRONMENT
(3+0) 3 credits
Introductory lecture course for nonscience majors. Chemistry is 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) 4 credits
Fundamental principles of chemistry and the properties and uses of the common nonmetallic elements. Credit allowed in only one of the following: Chem. 101, 103, 171.

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, 103 or 171. Credit not allowed in both Chem. 102 and 104.

103 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: 2B or above on the Mathematics ACT examination and/or a year of high school chemistry.

104 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS (3+3) 4 credits
Continuation of Chem. 103 including thermodynamics, thermochemistry, redox systems, chemical kinetics, nuclear chemistry, metals and non-metals, coordination compounds, qualitative and quantitative analysis, organic chemistry, biochemistry. Prerequisite: Chem. 103, or a grade of A or B in Chem. 101

142 INTRODUCTORY ORGANIC CHEMISTRY
(3+0 or 3) 3 or 4 credits
Acquaints students with some of the fundamental principles of carbon chemistry. Prerequisite: Chem. 101 or 103. Credit allowed in only one of the following: Chem. 142, 172, or 243 and 245

243 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, 104

244 ORGANIC CHEMISTRY (3+0) 3 credits
Continuation of Chem. 243 including a more advanced treatment of synthetic procedures. Prerequisite: Chem. 243

245 ORGANIC CHEMISTRY LABORATORY
(0+3 or 6) 1 or 2 credits
Designed to develop laboratory skills and an understanding of the techniques and principles involved in carrying out typical organic reactions. Prerequisite: Chem. 243

246 ORGANIC CHEMISTRY LABORATORY
(0+3 or 6) 1 or 2 credits
Continuation of Chem. 245 but at a more advanced level. Prerequisite or corequisite: Chem. 244 and 245.

330 ANALYTICAL CHEMISTRY (2+6) 4 credits
Principles and techniques of quantitative chemical analysis including an introduction to instrumental methods. Prerequisite: Chem. 102, 104, or 172.

353-354, 553-554 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. Chem. 353 is prerequisite to 354

355, 555 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, 557 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. Prerequisite: two years of college chemistry. 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. Prerequisite: Chem. 246. 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 and 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. 244 and 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). Prerequisite: Chem. 244, 246.

450, 650 PHYSICAL CHEMISTRY (3+0) 3 credits
Study of selected topics (thermodynamics, kinetics, molecular structure, chemical statistics, etc.) at an intermediate level. Prerequisite: Chem. 354, 355, and 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: Chem. 354 (may be taken concurrently) or Chem. 357

458, 658 ADVANCED PHYSICAL CHEMISTRY LABORATORY
(0+6) 2 credits
Studies in the interpretation of data from, and the basic theory behind, modern research instrumentation. Representative topics include optical spectroscopy, mass spectroscopy, and magnetic resonance. Prerequisite: Chem. 354 (may be taken concurrently) and Chem. 355

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. 244-246, 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 six 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. 415.

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. 415.

714 SPECIAL TOPICS IN INORGANIC CHEMISTRY

(3+0) 3 credits
Selected topics of current interest. Prerequisite: Chem. 415. 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. 742.

741 ADVANCED ORGANIC STRUCTURE ELUCIDATION

(3+0) 3 credits
Methods used for structure elucidation.

742 THEORETICAL ORGANIC CHEMISTRY (3+0) 3 credits

Reaction mechanisms, reactivity, linear free energy relationships, and intermediates. Prerequisite: Chem. 442.

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. 442.

750 ADVANCED PHYSICAL CHEMISTRY (3+0) 3 credits

Thermodynamics, kinetic theory of gases, quantum theory, statistical mechanics, and related subjects. Prerequisite: Chem. 450 or equivalent.

751 SPECIAL TOPICS IN PHYSICAL CHEMISTRY

(3+0) 3 credits
Selected topics of current interest. Prerequisite: Chem. 750. May be repeated only in different subject areas to a maximum of 6 credits.

752 CHEMICAL KINETICS (3+0) 3 credits

Rate processes, the factors influencing reaction rates, and the correlation of kinetics and mechanisms of reaction. Prerequisite: Chem. 450 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. 450.

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. 472. Chem. 771 is prerequisite for 772.

773 EXPERIMENTAL TECHNIQUES IN BIOCHEMISTRY

(1+6) 3 credits
Experiments in the isolation, purification, and characterization of biological materials. Prerequisite: Chem. 472 and 474.

774 SPECIAL TOPICS IN BIOCHEMISTRY (3+0) 3 credits

Selected topics of current interest. Prerequisite: Chem. 472.

780 INDEPENDENT STUDIES 1 to 6 credits

May be repeated to a maximum of 12 credits.

785 SEMINAR (1+0) 1 credit

Maximum of 4 credits.

791 INORGANIC CHEMISTRY COLLOQUIUM (1+0) 1 credit.

S/U only.
Presentation of original research in inorganic chemistry. May be repeated to a maximum of 8 credits. No more than 8 credits may be obtained from among Chem 791, 792, and 793.

792 ORGANIC CHEMISTRY COLLOQUIUM (1+0) 1 credit.

S/U only.
Presentation of original research in organic chemistry. May be repeated to a maximum of 8 credits. No more than 8 credits may be obtained from among Chem. 791, 792, and 793.

793 PHYSICAL CHEMISTRY COLLOQUIUM (1+0) 1 credit.

S/U only.
Presentation of original research in physical chemistry. May be repeated to a maximum of 8 credits. No more than 8 credits may be obtained from among Chem. 791, 792 and 793.

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.)**140 GRAPHICAL ANALYSIS (0+6) 2 credits**

Application of mathematical principles and graphic arts to the creation of engineering graphs, charts, and monographs. Some lectures are included. Prerequisite: C.E. 101 or one year of mechanical drawing in high school. Corequisite: Math. 140.

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 training programs.

241 ENGINEERING MEASUREMENTS (2+3) 3 credits

Introductory study of the theory of engineering measurements and the instruments used. Introductory studies of theory of errors, statistics, field astronomy, and topographic surveying. Prerequisite: trigonometry. Corequisite: Math. 140.

242 SURVEYING (2+3) 3 credits

Continuation of C.E. 241 leading into detailed studies of photogrammetry, location of transportation routes, curves, earthwork computations, and other surveying problems encountered in civil engineering practice. Prerequisite: C.E. 241.

243 CIVIL ENGINEERING I (1+3) 2 credits

Computational methods applied to simple engineering problems. Introduction to electronic computers. Prerequisite: elementary calculus.

246 CONSTRUCTION MATERIALS (3+0) 3 credits

Detailed study of the source, manufacture, properties, and use of the materials ordinarily used in construction and machines. Prerequisite: sophomore standing in engineering.

360 SEMINAR (1+0) 1 credit

Preparation of written reports and/or delivery of oral presentations. Guest lectures. Maximum of 3 credits.

364, 564 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, 566 HIGHWAY ENGINEERING (3+0) 3 credits

Engineering problems encountered in the planning and design of highway transportation facilities. Prerequisite: C.E. 241, 246, and 388.

367, 567 ELEMENTARY FLUID MECHANICS

(3+0) 3 credits
Behavior of fluids at rest and in motion. Prerequisite: Math. 310, M.E. 241.

368 FLUID MECHANICS LABORATORY (0+3) 1 credit

Exemplifies the principles studied in C.E. 367. Prerequisite or corequisite: C.E. 367.

369 NONMETALLIC TESTING LABORATORY

(0+3) 1 credit
Physical properties of the nonmetallic materials used in construction, including soils, portland cement, concrete, aggregates, timber, and bituminous materials. Prerequisite: C.E. 246.

372 STRENGTH OF MATERIALS (3+0) 3 credits

Stress-strain relationship of structural elements under load. Prerequisite: M.E. 241.

374 MATERIALS TESTING LABORATORY (0+3) 1 credit

Detailed study of physical properties of metals generally used in engineering operations. This course is coordinated with, and supplements, C.E. 372. Prerequisite: M.E. 241.

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, 588 ENGINEERING ECONOMY, PROBABILITY, AND STATISTICS 1 or 2 credits

Fundamental principles of engineering economy, statistics, probability distributions, and regression analysis with civil engineering applications. Prerequisite: junior standing. (Civil engineering majors are required to take the course for 2 credits.)

390, 590 WATER QUALITY CONTROL (2+3) 3 credits

Study of the control of water quality including laboratory studies of the characteristics of water and its impurities and an introduction to the fundamentals of water treatment, waste water treatments, and the self-purification of water in the natural environment. Prerequisite: Chem. 101.

401, 601 CITY AND REGIONAL PLANNING I

(2+3) 3 credits
Theories and methods involved in area planning; importance of physical planning in local government; zoning and land uses; estimating population trends; subdivision planning. Social and economic implications assessed from the standpoint of the engineer. Prerequisite: senior standing.

402, 602 CITY AND REGIONAL PLANNING II

(3+0) 3 credits
Further studies based on C.E. 401. Prerequisite: C.E. 401.

410, 610 HYDRAULICS OF OPEN CHANNELS

(3+0) 3 credits
Advanced study of the flow of water through open channels. Prerequisite: C.E. 367.

415, 615 WATER RIGHTS (3+0) 3 credits

Study of the riparian doctrine and appropriation doctrine along with some of the federal aspects of water rights. Study to include both statutory law and case law.

429, 629 TIMBER STRUCTURES

(2+0 or 3) 2 or 3 credits
Fundamentals of design of timber structures and application to simple structures. Prerequisite: C.E. 381.

451, 651 TRANSPORTATION ENGINEERING

(3+0) 3 credits
Function, characteristics, and operation of transportation facilities and systems and their economic and social impact on man's environment. Prerequisite: C.E. 241 and 243.

452, 652 INTRODUCTION TO TRAFFIC ENGINEERING

(2+3) 3 credits
Problems of traffic control and regulation as related to streets and highways. Principles of design of thoroughfares based on operational characteristics. Prerequisite: C.E. 451.

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. 491.

473, 673 DECISION MAKING TECHNIQUES (3+0) 3 credits

Introduction to linear programming, network analysis, dynamic programming, classical optimization, and systems analysis. Prerequisite: Elementary calculus and C.E. 388.

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 DESIGN (2+6) 4 credits

Comprehensive and total problems in the structural design of typical engineering structures. Prerequisite: C.E. 381.

485, 685 REINFORCED CONCRETE FUNDAMENTALS

(3+0) 3 credits
Design and analysis of reinforced concrete members by elastic and inelastic procedures. Prerequisite: C.E. 369, 381.

486, 686 REINFORCED CONCRETE DESIGN

(2+3) 3 credits
Continuation of C.E. 485 with emphasis upon the total design of reinforced concrete structures. Prerequisite: C.E. 485.

489, 689 WATER RESOURCES ENGINEERING I

(2+3) 3 credits
Fundamental principles for the design and operation of systems for the transmission, storage and distribution of water and for the collection of waste water. Prerequisite: C.E. 364. Corequisite: C.E. 473.

490, 690 WATER RESOURCES ENGINEERING II

(3+0) 3 credits
Conventional engineering economic analysis of multipurpose water resources projects and a study of the components of systems which provide for the principal beneficial uses of water. Prerequisite: C.E. 364.

491, 691 CONTRACTS, SPECIFICATIONS AND COSTS

(3+0) 3 credits

Elementary presentation of the engineering aspects of contracts, specifications, and supporting documents for materials and services associated with the construction of private and public works; a consideration of methods of cost estimation and accounting. Prerequisite: senior standing in engineering.

492, 692 SOIL MECHANICS (2+3) 3 credits

Introductory study of the structure of soil and its reaction to loads and deformations. Prerequisite: C.E. 372.

493, 693 FOUNDATION ENGINEERING (3+0) 3 credits

Critical study of current procedure for design and construction of foundations and earth structures. 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.

498, 698 WATER QUALITY MANAGEMENT

(3+0) 3 credits

Water quality criteria for beneficial uses and the 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 ADVANCED SANITARY ENGINEERING I

(3+0) 3 credits

Unit operations and processes of wastewater treatment, sedimentation, filtration, activated sludge, lagoons. Sludge treatment and disposal. Prerequisite: C.E. 390.

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 the 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 complementary energy. Hamilton's principle and the methods of Ritz and Galerkin. Prerequisite: C.E. 724.

726 THEORY OF PLATES (3+0) 3 credits

Flat plates of various shapes bent by transverse loads. Analytical methods, numerical and other approximate techniques with an introduction to gridworks and anisotropic plates. Prerequisite: C.E. 372 and Math. 320 or M.E. 300.

727 THEORY OF SHELLS (3+0) 3 credits

Membrane and bending stresses in shells of various types, stress function methods, and numerical techniques. Examples to include roofs, tanks, cylinders, piping shells of revolution, and hyperbolic paraboloids. Prerequisite: C.E. 724 or 726.

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 HIGHWAY AND AIRPORT PAVEMENTS

(2+3) 3 credits

Theory and practice in the design, construction, and maintenance of flexible and rigid pavements. Prerequisite: C.E. 366.

732 ASPHALT PAVEMENT DESIGN (0+6) 2 credits

Laboratory testing of asphalts and aggregates to determine their suitability for use in paving mixtures. Stability studies of asphalt paving mixes; proportioning and preparation of specimen for testing. Prerequisite: C.E. 369, 374.

740 ADVANCED SOIL MECHANICS I (3+0) 3 credits

Principles of soil mechanics as applied to the foundations of structures. Prerequisite: C.E. 492.

741 ADVANCED SOIL MECHANICS II 1 to 4 credits

Principles of soil mechanics as applied to stability of earth structures. Prerequisite: C.E. 740.

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.

752 ADVANCED SANITARY ENGINEERING II 1 to 3 credits

Advanced wastewater treatment techniques including unit processes and operations for reduction of phosphorous, nitrogen, residual organics, residual solids, salinity. Introduction to eutrophication. Prerequisite: C.E. 499.

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. Prerequisite: Graduate Standing.

771 SPECIAL ENGINEERING PROBLEMS 1 to 3 credits

Specialized study in any of the subjects pertaining to civil engineering. The subject matter may be arranged after conference with the 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, 547 ENGINEERING REPORTS (1+0) 1 credit

373 STRENGTH OF MATERIALS LABORATORY (0+3) 1 credit

416, 616 EMINENT-DOMAIN LAW AND CONDEMNATION PROCEDURE

(2) 0 2 credits

419, 619 SNOW AND ICE SCIENCE (2+0) 2 credits

420, 620 ADVANCED PORTLAND CEMENT CONCRETE

(2+3) 3 credits

471, 671 MATHEMATICAL METHODS IN CIVIL ENGINEERING

(1+0 per credit) 1 to 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

CIVIL ENGINEERING TECHNOLOGY (C.E.T.)**101 BASIC DRAFTING (0+3) 1 credit**

For those who have not had mechanical drawing in high school, or its equivalent.

130 PLANE SURVEYING I (1+6) 3 credits

Elements of plane surveying, including field practice and office procedures.

215 PROPERTIES OF MATERIALS (2+0) 2 credits

Properties of ferrous and nonferrous metals, timber, stone, clay products, plastics, bituminous cementing materials; behavior of materials under load; control of the properties of the material.

224 STATICS AND STRENGTH OF MATERIALS

(4+0) 4 credits

Introduction to the free body diagram concept of statics, centroids, and moments of inertia. Elements of strength of machinery and beams in bending, torsion, tension, compression, and buckling.

254 TECHNICAL ECONOMICS (3+0) 3 credits

Study of basic economics emphasizing relation to technical operations.

258 STRUCTURAL ANALYSIS (3+0) 3 credits

Application of fundamental principles and techniques to the analysis of typical structural details involving the most commonly used building materials. Emphasis is placed on practical procedures used in the design of structural members.

260 COST ESTIMATES AND SPECIFICATIONS

(2+0) 2 credits

Elementary presentation of the engineering aspects of contracts, specifications, cost estimation, and accounting.

299 RESEARCH REPORT (Special Problem)

(0+3 per credit) 1 to 4 credits

Individual assignment to the development of a project of special interest to the student with the instructor's approval. A written report of the work is required.

Inactive Courses

131 PLANE SURVEYING II (1+6) 3 credits

132 PLANE SURVEYING III (1+6) 3 credits

235 MATERIALS TESTING I (1+3) 2 credits

236 MATERIALS TESTING II (1+3) 2 credits

240 APPLIED MATHEMATICS OF CONSTRUCTION (2+0) 2 credits

250 TRANSPORTATION TECHNOLOGY (3+0) 3 credits

251 TRAFFIC TECHNOLOGY (3+3) 4 credits

255 CIVIL ENGINEERING DRAFTING-DESIGN (1+6) 3 credits

COUNSELING AND GUIDANCE PERSONNEL SERVICES*(See Education)***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.

112 ADMINISTRATION (3+0) 3 credits

Principles of criminal justice management and organization.

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; and anticipatory offenses.

214 PRINCIPLES OF POLICE PATROL TECHNIQUES

(3+0) 3 credits

Identification of community problems which require prevention, suppression, or control through the basic methods and techniques of police patrol. Special attention to the responsibilities of officers in varying patrol situations such as foot beats, one-man cars, two-man cars, K-9 corps, and/or tactical units. Techniques of observation and perception. Recognition of police hazards; their evaluation and proper police patrol action. Prerequisite: sophomore standing. Open only to criminal justice majors.

220 CRIMINAL PROCEDURE (3+0) 3 credits

Origin, development, and rationale of the structural and procedural aspects of America's criminal justice system; emphasis on arrest, search-seizure, confessions, and related legal issues.

226 PREVENTION AND CONTROL OF DELINQUENCY

(3+0) 3 credits

Survey and evaluation of programs designed to prevent juvenile delinquency. Legal consideration of juvenile rights and court processing of delinquency cases.

230 RESEARCH PAPER 2 credits

Prerequisite: L.Sc. 135 and Engl. 102.

312 SUPERVISION AND MANAGEMENT (3+0) 3 credits

Supervisor's management role in criminal justice agencies. Prerequisite: C.J. 110 and 112.

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 or 112.

316 TECHNIQUES OF POLICE TRAFFIC FUNCTIONS

(3+0) 3 credits

Laws pertaining to vehicles, vehicle operators, and traffic safety. Traffic law enforcement including line patrol, selective enforcement, radar, and public education. Basic accident investigation, diagramming, and follow-up investigation. Case preparation and presentation. Open only to criminal justice majors.

320 CRIMINAL EVIDENCE (2+0) 2 credits

Origin, development, and rationale of rules governing admissibility of evidence; types of evidence; respective evidentiary roles of judge, jury, witness, and counsel in criminal litigation.

324 PRINCIPLES OF CRIMINAL INVESTIGATION

(3+3) 4 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.

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
Prerequisite: C.J. 230 and upper-division standing.

410 CRIMINAL JUSTICE SEMINAR (2+0) 2 credits
Prerequisite: junior standing.

412 ADVANCED ORGANIZATION AND ADMINISTRATION
(3+0) 3 credits
Advanced concepts and theories of criminal justice organization and administration. Prerequisite: C.J. 110 and 112.

420 CRIMINAL LAW SEMINAR I (2+0) 2 credits
Prerequisite: C.J. 110, 120, and 220.

421 CRIMINAL LAW SEMINAR II (2+0) 2 credits
Prerequisite: C.J. 420 and senior standing.

424 CRIMINALISTICS (2+3) 3 credits
Gathering and preservation of evidence. Preparation of evidence for forensic use. Open only to criminal justice majors. Prerequisite: C.J. 324 and senior standing.

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.

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

260 THE VOLUNTEER IN COURTS AND CORRECTIONS
(4+0) 4 credits

CURRICULUM AND INSTRUCTION

See Education)

ECONOMICS (Ec.)

101 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.

102 PRINCIPLES OF MACROECONOMICS
(3+0) 3 credits

Introduction to the study of the determination of levels of national income, employment and prices, and the basic causes of fluctuations of these levels.

109 ECONOMIC GEOGRAPHY (3+0) 3 credits

World distribution of economic activities and their natural bases. Major occupations such as agriculture, mining, manufacturing, and trade are considered in relation to the natural environment. (Same as Geog. 109.)

200 ECONOMIC DEVELOPMENT OF WESTERN CIVILIZATION
(3+0) 3 credits

Critical survey of the ideas and institutions underlying the economic transformation of Western civilization. Major emphasis on the development of capitalism.

208 ECONOMICS OF SOCIAL INCOME REPORTING
(3+0) 3 credits

The topics covered include input-output analysis, flow of funds analysis, social accounting, national income accounting, cost benefit studies, and environmental impact analysis. Prerequisite: Ec. 101, 102, sophomore standing.

281 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.

282 PRINCIPLES OF STATISTICS II (3+0) 3 credits

Statistical inference; estimation, hypothesis testing; simple linear regression and correlations; analysis of the variance. Prerequisite: Ec. 281.

301, 501 COMPARATIVE ECONOMIC SYSTEMS
(3+0) 3 credits

Analysis of the economic institutions of capitalism and other economic systems. Prerequisite: Ec. 101 and 102.

303, 503 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 and 102. Not applicable to an advanced degree in economics.

321, 521 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 and 102. Not applicable to an advanced degree in economics.

322, 522 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 and 102. Not applicable to an advanced degree in economics.

365, 565 LABOR ECONOMICS (3+0) 3 credits

Study of both the theoretical materials relating to the economic analysis of labor problems and the descriptive materials relating to unionism and collective bargaining. Prerequisite: Ec. 101 and 102.

403, 603 MONETARY INSTITUTIONS AND POLICY
(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 THE ECONOMIC AND SOCIAL ASPECTS OF GAMING AND GAMBLING (3+0) 3 credits

Analysis of topics relevant to gambling, including game strategies and oddsmaking, gambling behavior, the economics of the gaming industry, compulsive gambling, and gambling and the law. Prerequisite: senior standing.

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 and 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

Study and appraisal of the effects of government financial policies. Government expenditures, taxation, government borrowing and indebtedness, and fiscal policy are considered. Prerequisite: Ec. 101 and 102.

454, 654 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY
(3+0) 3 credits

Study of the interrelationships between industrial structure, conduct, and performance. Implications for public policy, with an emphasis on antitrust law. Prerequisite: Ec. 101 and 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 and 102.

458, 658 INTERNATIONAL ECONOMICS (3+0) 3 credits

Analysis of the theory of international trade, balance of payments, commercial policies; international institutions and the theory of international economic integration. Prerequisite: Ec. 101 and 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 and 102.

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 and 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 United States. Prerequisite: Ec. 101 and 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 A. R. Ec. 472.)

481, 681 HISTORY OF ECONOMIC DOCTRINES
(3+0) 3 credits

Development of classical political economy; the orthodox tradition in political economy in the nineteenth century; and the foundation of economic doctrine in the twentieth century. Prerequisite: Ec. 101 and 102.

490, 690 INDEPENDENT STUDY 1 to 3 credits

Independent study in selected topics. Maximum of 6 credits.

703 MONETARY ANALYSIS (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.

708 PUBLIC POLICY AND BUSINESS PERFORMANCE
(3+0) 3 credits

Analysis of the effects of various economic policies on the performance of business enterprise, and a general consideration of the social and political influences on business. Prerequisite: Graduate Standing and Ec. 101 and 102.

715-716 STATISTICS FOR BUSINESS DECISIONS
(3+0) 3 credits each

Probability, estimation, hypothesis testing, subjective probability, regression analysis, correlation, time series, index numbers, statistical and decision theory as applied to business problems. Prerequisite: Ec. 715 for Ec. 716. (Satisfies requirement for MBA first-year core.)

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

Uses of mathematics and statistics in economic analysis. Prerequisite: Ec. 441.

740 RESEARCH METHODOLOGY (3+0) 3 credits

(See A.R. Ec. 740 for description.) Students registering for Ec. 740 attend A.R. Ec. 740.

751 ECONOMICS OF THE PUBLIC SECTOR (3+0) 3 credits

Theory of local, state, and federal expenditures and revenues. The 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.

784 SEMINAR IN AMERICAN ECONOMIC HISTORY (3+0)

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.

785 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.

790 INDEPENDENT RESEARCH 1 to 3 credits

Advanced study and research in selected topics. Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

473, 673 BUSINESS FLUCTUATIONS AND FORECASTING
(3+0) 3 credits

717 ECONOMIC ANALYSIS AND POLICY I (3+0) 3 credits

718 ECONOMIC ANALYSIS AND POLICY II (3+0) 3 credits

772 REGIONAL ECONOMICS (3+0) 3 credits

EDUCATION

Counseling and Guidance Personnel Services (C.A.P.S.)

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. 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: C.A.P.S. 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. Graduate program credit for nonmajors and foreign students only.

401, 601 INTRODUCTION TO ELEMENTARY SCHOOL GUIDANCE (3+0) 3 credits

Overview of personnel services at the elementary school and pre-school levels. The teacher's role emphasized. Meets new teacher education certification requirements. Graduate program credit for nonmajors and foreign students only. Prerequisite: Psy. 101.

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: C.A.P.S. 400

414, 614 THE COLLEGE STUDENT (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: C.A.P.S. 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: C.A.P.S. 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: C.A.P.S. 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: C.A.P.S. 330.

431, 631 BEHAVIORAL ANALYSIS (3+0) 3 credits

Interaction analysis of groups and diagnosis of individual behavior. Prerequisite: C.A.P.S. 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: C.A.P.S. 330.

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: C.A.P.S. 400 or 401.

460, 660 THE GROUP PROCESS (3+0) 2 or 3 credits

Theory and techniques in understanding group behavior and the development of experiences that lead to self-insight. Prerequisite: C.A.P.S. 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: C.A.P.S. 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.

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.

715 FINANCIAL AIDS AND PROFESSIONAL PLACEMENT
(3+0) 3 credits

Student-personnel functions of developing, implementing, and evaluating financial aid programs to include scholarships, loans, work-study patterns, and grants. Career-placement activities provided college program graduates to facilitate their appropriate vocational placement. Prerequisite: C.A.P.S. 400.

721 THEORIES OF OCCUPATIONAL CHOICE
(3+0) 3 credits

Analysis of the relationships among theoretical constructs, counselor behavior, and vocational counseling services. Prerequisite: C.A.P.S. 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: C.A.P.S. 631, 632.

742 INDIVIDUAL APPRAISAL II (3+0) 2 or 3 credits

Nonstandardized processes for assessing individuals and groups to include observation and annotations, rating scales, opinions, interests, and attitudes. The guidance role in diagnostic and remedial programs and cumulative and other record systems. Prerequisite: C.A.P.S. 642.

744 INDIVIDUAL APPRAISAL III (4+6) 6 credits

Selection, administration, and interpretation of individually administered scales of mental capacity and emotional analysis. Prerequisite: C.A.P.S. 742 and 770.

749 CASE STUDY SEMINAR (2+1) 2 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: C.A.P.S. 750 plus 18 graduate credits in C.A.P.S. courses.

750 THE COUNSELING PROCESS (3+0) 3 credits

Theory and techniques of therapeutic counseling; self-theory emphasized, with dyadic relationships the focus. Prerequisite: C.A.P.S. 400 or 401. Prerequisite or corequisite: C.A.P.S. 642.

751 COUNSELING THE CULTURALLY DIFFERENT
(3+0) 3 credits

Special relational problems and processes in the counseling setting in effectively dealing with counselees from nonmiddle-class and/or non-Caucasian backgrounds. Values, attitudes, and beliefs of various subcultures. Prerequisite: C.A.P.S. 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: C.A.P.S. 770.

753 COUNSELING THE OLDER WORKER (3+0) 3 credits

The 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: C.A.P.S. 750.

755 SEMINAR IN ELEMENTARY SCHOOL COUNSELING
(3+0) 3 credits

Directed seminar format considering the roles and relationships of pupil personnel specialists within the grades kindergarten through sixth. Case studies illustrate interprofessional functioning between school and community agencies. Pupil, parental, and faculty concerns explicated. Prerequisite: C.A.P.S. 642, 660, 750.

764 GROUP COUNSELING THEORY

(1+0 per credit) 2 or 3 credits

Multiple counseling processes provided for small groups. Includes co-counseling designs: (a) family groups, (b) employment groups, (c) need groups. Prerequisite: C.A.P.S. 660 plus 15 graduate credits in C.A.P.S. courses.

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 one month prior to registration. Prerequisite: C.A.P.S. 620 or 721, 642, 660, and 750. (a) Elementary schools; (b) secondary schools; (c) higher education; (d) employment service; (e) vocational rehabilitation; (f) private agencies; (g) families.

772 PRACTICUM IN MULTIPLE COUNSELING

(1½+6) 3 credits

Supervised counseling internships with small groups. May be repeated to a maximum of 6 credits. Written applications required one month prior to registration. Prerequisite: C.A.P.S. 770.

774 COUNSELING INTERNSHIP (2+36) 1 credit. S/U only.

Development and improvement of 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. Supervision and evaluation by cooperating University/agency staff. Six hundred clock hours required; may be repeated to a maximum of 2 credits. Prerequisite: doctoral standing in C.A.P.S.

776 GUIDANCE LABORATORY (1½+6) 3 credits

Supervised guidance work experience at a professional leadership level. Prerequisite: 12 graduate C.A.P.S. credits appropriate to the task activities. (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.

779 PRACTICUM IN SCHOOL PSYCHOMETRY

(1½+6) 3 credits

Directed experiences in the administration, interpretation and write-up of individually administered mental or personality tests. May be repeated to a maximum of 6 credits. Written applications required one month prior to registration. Prerequisite: C.A.P.S. 744.

784 STRUCTURE AND SUPERVISION OF PUPIL PERSONNEL PROGRAMS (2+0) 2 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: C.A.P.S. 750.

790 INDIVIDUAL INSTRUCTION IN COUNSELING AND GUIDANCE PERSONNEL SERVICES 1 credit

Selected basic problems related to counseling and guidance personnel services. Maximum of 4 credits.

792 SEMINAR IN COUNSELING AND GUIDANCE PERSONNEL SERVICES 2 to 4 credits

Prerequisite: Graduate Standing. Maximum of 4 credits.

785 COMPREHENSIVE EXAMINATION 0 credit. S/U only.**797 THESIS** 1 to 6 credits**799 DISSERTATION** 1 to 12 credits**Curriculum and Instruction (C.I.)****110 INTRODUCTION TO SPECIAL EDUCATION**

(1+0 per credit) 2 or 3 credits

Exploration of services and professional opportunities in the education of exceptional children. Emphasis upon field experiences with children in public school and institutional settings.

240 MANPOWER NEEDS AND JOB ANALYSIS

(3+0) 3 credits

(See A.I.M. 240 for description.)

250 SCHOOL LABORATORY EXPERIENCES

(½+1½ per credit) 1 to 3 credits. S/U only.

Self-assessment of professional goals through a variety of sequential laboratory experiences in actual classroom situations and in campus seminars. Prerequisite or corequisite: Ed.F.M. 101.

270 HUMAN GROWTH AND DEVELOPMENT

(3+0) 3 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.

300 TEACHING OF READING IN THE ELEMENTARY SCHOOL

(3+0) 3 credits

Instruction in phonics, word recognition, and comprehension. Basic understandings, techniques, and approaches which are related to developmental and corrective programs in the elementary schools.

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 DISABILITIES

(3+0) 3 credits

Overview of contemporary theories in specific learning disabilities with emphasis on the perceptual, auditory, and haptic process dysfunction. Prerequisite: C.I. 310.

346 ART EDUCATION: SECONDARY SCHOOLS

(0+6) 3 credits

(See Art 346 for description.)

349 TEACHING OF SECONDARY MUSIC

(2+0) 2 credits

(See Mus. 349 for description.)

350 OBSERVATION IN THE SCHOOL (1+3) 2 credits

Observation of children and adolescents and the effect of teaching on the learning process.

372 METHODS OF TEACHING PHYSICAL EDUCATION

(2+2) 3 credits

(See R.P.Ed 372 for description.)

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

(3+0) 3 credits

Advanced work in developmental and corrective 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

(3+0) 3 credits

Advanced work in developmental and corrective reading for the reading teacher and the subject-matter teachers, 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+2) 3 credits

Sources of reading difficulties; reading skills; developmental reading; reading in content fields. Laboratory experiences required. Prerequisite: C.I. 270, C.A.P.S. 330 or valid teaching certificate.

405, 605 PRACTICUM IN THE READING CLINIC

(1+5) 3 credits

Apprentice teaching in the Reading Clinic with emphasis on testing procedures, corrective and remedial techniques that may be utilized with children in the classroom setting. Prerequisite: C.I. 300.

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.

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. Meets new teacher education certification requirements. Prerequisite: Ed.F.M. 101 and C.I. 270, or equivalent.

411 INTRODUCTION TO STUDY OF MENTAL RETARDATION (3+0) 3 credits

Introduction to theories of intelligence, learning, psychological and physical aspects of mental retardation.

412, 612 EDUCATION OF THE MENTALLY HANDICAPPED

(1+0 per credit) 2 or 3 credits

Nature of problem, diagnosis, and selection for special programs. Physiological characteristics. Educational goals and teaching procedures. Prerequisite: C.I. 310.

413, 613 ADVISING EXCEPTIONAL CHILDREN

(3+0) 3 credits

Implications of pupil-personnel administered standardized tests as they apply to the instructional objectives of the classroom teacher. Emphasis on the advisement of students and parents. Prerequisite: must meet screening requirements.

414, 614 PROBLEMS IN SPECIAL EDUCATION

(3+0) 3 credits

Integration of subject matter into the learning situation. New procedures and developments in the area of special education. Observation of special classrooms is required. May be repeated up to 12 credits, only 6 of which may apply to a degree. Prerequisite: C.I. 110, 310, 411. Corequisite: C.I. 453.

416, 616 CURRICULUM FOR MODERATELY AND SEVERELY RETARDED CHILDREN (3+0) 3 credits

Curriculum developments and methods in teaching the moderately and severely retarded child. Prerequisite: C.I. 310 and 411 or 412.

417, 617 CURRICULUM FOR EDUCABLE MENTALLY RETARDED CHILDREN (3+0) 3 credits

Problems and procedures in curriculum improvement for the mentally retarded child. Evaluation of materials and methods for educable mentally retarded children is made from the results of research. Prerequisite: C.I. 412.

418, 618 CURRICULUM DEVELOPMENT FOR THE LEARNING DISABLED CHILD (3+0) 3 credits

Problems and procedures in curriculum for the learning disabled child. Materials and technique development for use in either special, regular, or resource classrooms. Prerequisite: C.I. 110, 310.

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. 110 and 310.

420, 620 METHODOLOGY OF MULTICULTURAL EDUCATION (3+0) 3 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. Meets new teacher education certification requirements. Prerequisite: C.I. 270 or C.A.P.S. 330.

421 TEACHING OF SOCIAL STUDIES (3+0) 3 credits

Nature of social growth of children and adolescents in a democratic culture. Content and procedures in social studies. Development of instructional materials and techniques. (a) Elementary, (b) secondary.

422 TEACHING OF MATHEMATICS

(1+0 per credit) 2 or 3 credits

Content and methods of mathematics; diagnosis and remedial treatment of pupil difficulties; readiness; objectives of mathematics; recent trends. (a) Elementary, (b) secondary.

423 TEACHING OF LANGUAGE ARTS (3+0) 3 credits

Language needs of children and adolescents with emphasis on written expression, language skills, speaking, and listening. Criteria for selection and integration of literature are applied. (a) Elementary, (b) secondary.

424 TEACHING OF SCIENCE

(1+0 per credit) 2 or 3 credits

Content and procedures in teaching science; demonstrations; experiments; evaluation of curricular materials. (a) Elementary, (b) secondary.

425 METHODS AND MATERIALS IN TEACHING BUSINESS EDUCATION (3+0) 3 credits

(See O.A. 425 for description.)

426 METHODS AND MATERIALS IN TEACHING FOREIGN LANGUAGES AND BILINGUAL EDUCATION (3+0) 3 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.

427, 627 TEACHING INDUSTRIAL EDUCATION

(3+0) 3 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 C.A.P.S. 330.

428 GENERAL PRINCIPLES OF SECONDARY EDUCATION

(1+2) 2 credits

Basic orientation and preparation for supervised teaching. Laboratory experiences required. Prerequisite: C.I. 270 or C.A.P.S. 330.

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.

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.

431 APPLIED METHODS FOR GRADES K-3

(2+4) 4 credits

In-depth study of teaching-learning patterns within the curriculum. Skills in planning and organizing, and materials to maximize the learning potential of primary children developed. Laboratory required.

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: Ed.F.M. 101.

434, 634 CLASSROOM MANAGEMENT TECHNIQUES

(2+0) 2 credits

The ability to respond appropriately to many types of classroom situations including pupil-teacher interaction, daily planning, large and small group management, emergencies, and discipline is developed. (a) Young children, (b) intermediate grade children, (c) middle school pupils, (d) high school pupils.

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 C.A.P.S. 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 C.A.P.S. 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 C.A.P.S. 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.

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.

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.

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.

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. Meets new teacher education certification requirements. Prerequisite: C.I. 421.

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 10 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) educationally handicapped. No more than 16 credits in two fields may be taken. Prerequisite: C.I. 110, 310, 411.

457 SUPERVISED TEACHING IN THE SECONDARY SCHOOL

(0+2½ per credit) 4 to 8 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 DRIVER TRAINING AND TRAFFIC SAFETY EDUCATION (3+0) 3 credits

Development of the knowledge, skills, and attitudes needed for competent teaching of driver training and traffic safety. Prerequisite: C.I. 270 or C.A.P.S. 330.

460, 660 ADULT EDUCATION (1+0 per credit) 1 to 6 credits

Programs in adult education authorized under the vocational education program; additional credit for field work in promoting, organizing and observing, and teaching adult classes. (a) Promotion practices, (b) organization, (c) instructional observation, (d) programmed instruction, (e) curriculum. Maximum of 6 credits.

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. 270 or C.A.P.S. 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.

471, 671 DIAGNOSIS AND TREATMENT OF LEARNING DIFFICULTIES (3+0) 3 credits

Studies the more prominent theories of learning as a basis for understanding failure to learn in the school situation. (a) Deals specifically with the reading act; (b) deals specifically with the mental processes involved in school mathematics; (c) deals specifically with motor skills. Prerequisite: C.I. 311.

473 DISASTER PREPAREDNESS FOR EDUCATORS

(2+0) 2 credits. S/U only.

Methods and techniques of disaster preparedness appropriate for preservice and inservice teachers and administrators. Includes natural and man-made disasters that might impinge on school systems. Individual school system plans for coping with disasters are stressed. Prerequisite: all preliminary course work prior to student teaching must be completed.

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.

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. May be repeated to a maximum of 12 credits, only 6 of which may be applied toward any degree. Prerequisite: C.I. 440 or other curriculum course.

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. May be repeated to a maximum of 12 credits. Prerequisite: C.I. 440 or other curriculum course.

483, 683 SPECIAL PROJECT WORKSHOP IN CURRICULUM AND INSTRUCTION

(1+0 per credit) 1 to 3 credits

Study of 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 H.Ec. 484.)

485, 685 WORKSHOP IN BUSINESS EDUCATION

(1+0 per credit) 2 to 6 credits
For experienced teachers, office personnel, and those entering these job areas. Emphasis on techniques, materials, methods, equipment, and trends. (a) Secretarial procedures, (b) stenography, (c) typewriting, (d) office automation, (e) business machines, (f) economic education. Maximum of 6 credits. Prerequisite: C.I. 425.

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.

713 ORGANIZATION OF PROGRAMS FOR EXCEPTIONAL CHILDREN (3+0) 3 credits

Problems of organization of public school programs for exceptional children. Involves the planning of programs and facilities for the exceptional child in public and private institutions. Prerequisite: C.I. 411, 412, 413, 453.

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 the instruction of the neurologically handicapped.

717 EDUCATION OF THE EMOTIONALLY HANDICAPPED

(3+1) 3 credits
Consideration of school programs for emotionally disturbed children, methods and procedures in regular and/or special classrooms and institutions. Field trips to mental institutions and special education classes for the emotionally disturbed. Prerequisite: C.I. 310.

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, (i) agricultural-industrial mechanics. Maximum of 6 credits. Prerequisite: Ed.F.M. 700.

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: Ed.F.M. 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 the 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.

753 SUPERVISION AND FIELD WORK WITH EXCEPTIONAL CHILDREN (3+0) 3 credits

Practicum in (a) mental retardation, (b) specific learning disabilities, (c) gifted, with emphasis on classroom instruction, curriculum design, administration of programs for exceptional children, and/or research and field experiences. Maximum of 6 credits. Prerequisite: C.I. 413, 453, 748.

760 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, C.A.P.S. 442, or equivalent.

775 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.

780 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. 330 and Ed.F.M. 705.

781 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 remediation, (d) evaluation, (e) administration and supervision, (f) research. Prerequisite: certification for teaching.

782 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.

783 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.

784 SEMINAR IN VOCATIONAL AND INDUSTRIAL EDUCATION (3+0) 3 credits

Analysis of a topic in vocational, technical, and industrial education pertaining to curriculum, methodology, or evaluation. Maximum of 6 credits. Prerequisite: C.I. 661.

785 SEMINAR IN DRIVER TRAINING AND TRAFFIC SAFETY EDUCATION (3+0) 3 credits

Analysis of a topic in driver training and traffic safety education pertaining to curriculum revision, driver education services, new concepts in instruction, and defensive driving. Maximum of 6 credits. Prerequisite: C.I. 658.

786 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, 620.

787 SEMINAR IN ADULT EDUCATION

(3+0) 3 credits
Analysis of a topic in adult education pertaining to curriculum, methodology, development, and evaluation of adult education. Prerequisite: C.I. 460 or 660.

788 INDIVIDUAL INSTRUCTION (0+1) 1 credit

Selected problems related to curriculum and instruction: (a) teaching problems, (b) curriculum, (c) supervision, (d) programmed instruction, (e) elementary, (f) junior high school, (g) senior high school, (h) area problems, (i) 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

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

470, 670 ADVANCED STUDY OF PROBLEMS IN CHILD DEVELOPMENT

(1+0 per credit) 2 or 3 credits

714 EDUCATION OF THE PHYSICALLY HANDICAPPED

(1+0 per credit) 2 or 3 credits

Educational Administration and Higher Education (E.A.H.E.)

411, 611 THE TEACHER AND EDUCATIONAL ADMINISTRATION (3+0) 3 credits

Overview of professional relationships between teachers and administrators in the public school setting. Designed as a preservice course for the preparation of teachers or an in-service course for teachers. Prerequisite: supervised teaching.

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: E.A.H.E. 700 or equivalent.

702 THEORY AND PRACTICE IN EDUCATIONAL ADMINISTRATION (3+0) 3 credits

Advanced course with emphasis on the theory undergirding the principles and practices in school administration. Bases for decision-making are treated. Prerequisite: E.A.H.E. 700 or equivalent.

703 ADMINISTRATION AND CURRICULUM IMPROVEMENT

(3+0) 3 credits

Clarifies the role of the administrator in improving curriculum and instruction in public schools.

704 ORGANIZATION AND 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 arranged per credit) 1 to 4 credits

Provides opportunity for advanced students to select and analyze current problems and issues, such as Federal aid to education, integration, professional staff negotiations, use of new media in education. Maximum of 4 credits. Prerequisite: E.A.H.E. 700, 701, or 715.

706 ADMINISTRATION OF SPECIAL PROGRAMS

(3+0) 3 credits

Treatment is given to the administration and supervision of such special areas of the school program as vocational-technical, special education, transportation, library, food services, health services, and business management.

707 SEMINAR IN ORGANIZATION AND ADMINISTRATION OF COMMUNITY COLLEGES

(0+1 arranged 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: E.A.H.E. 707.

710 THE UNIT ADMINISTRATOR AND ADMINISTRATION

(3+0) 3 credits

Gives specific treatment to the administration of the school unit on the elementary, middle school, junior high, and senior high levels. Prerequisite: E.A.H.E. 700 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: E.A.H.E. 704, 707.

715 SUPERVISION IN THE PUBLIC SCHOOLS

(3+0) 3 credits

Principles and procedures used by supervisors to improve the curriculum and instructional program in the public schools stressed.

716 SUPERVISION OF THE SCHOOL UNIT

(3+0) 3 credits

Emphasizes modern approaches in supervisory practices common to the various school units. Prerequisite: E.A.H.E. 715 or equivalent.

718 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.

725 PUBLIC SCHOOL FINANCE (3+0) 3 credits

Deals with such problems of business management as purchasing of supplies, budgeting, and bonding for school purposes.

726 PROBLEMS OF FINANCING PUBLIC EDUCATION

(3+0) 3 credits

Philosophical as well as practical treatment given to State and Federal involvement in public education, including budgetary and program procedures.

727 SEMINAR IN SCHOOL FINANCE

(0+1 arranged per credit) 1 to 4 credits

Specific problems related to financing public education on the local, State, and national levels. Prerequisite: E.A.H.E. 725 or 726.

730 SCHOOL SURVEY AND EDUCATIONAL FACILITIES

(1+0 per credit) 2 or 3 credits
Master planning, involving the details of programming, site selecting, constructing, maintaining, and equipping the school plant.

731 THE EDUCATIONAL PLANT (3+0) 3 credits

Specialized treatment given to the theoretical and practical procedures in developing written specifications for the school plant. Laboratory work. Prerequisite: E.A.H.E. 730.

735 PRINCIPLES AND PRACTICES IN SCHOOL LAW

(2+0) 2 credits
Deals with legal authority of school boards, administrators, and teachers as indicated by statutes, official opinions, and court decision.

740 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES (1+0 per credit) 2 or 3 credits

Problems of organizing and administering guidance services in the public schools.

741 ADMINISTRATION OF PUPIL PERSONNEL PROGRAMS

(2+0) 2 credits
Presents factors pertaining to the responsibility for policies and practices dealing with pupil personnel services.

742 ADMINISTRATION OF VOCATIONAL EDUCATION PROGRAMS (3+0) 3 credits

The responsibilities of the administrator and directors of vocational and technical programs in the public schools and community colleges are emphasized.

743 PUBLIC RELATIONS FOR SCHOOLS

(2+0) 2 credits
Principles and practices pertaining to public relations, including the role of professional and classified personnel as well as the public.

744 PROBLEM AREAS IN EDUCATIONAL ADMINISTRATION

(1+0 per credit) 2 or 3 credits
Group work to select current problems pertaining to public school administration and to develop proposed solutions to such problems.

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: E.A.H.E. 742.

0 INDIVIDUAL INSTRUCTION IN EDUCATIONAL ADMINISTRATION

(0+1 per credit) 1 to 4 credits
Opportunity for graduate students to select, delimit, and research a problem in school administration: (a) curriculum, (b) administration, (c) supervision, (d) evaluation, (e) advanced methodology, (f) research, (g) public relations, (h) finance, (i) school plant. Maximum of 4 credits.

751 INDIVIDUAL INSTRUCTION IN ADULT AND TEACHER EDUCATION (0+1 per credit) 1 to 4 credits

Selected basic problems related to teaching on the college or university level as well as in adult education programs: (a) curriculum, (b) administration, (c) supervision, (d) evaluation, (e) advanced methodology, (f) research, (g) public relations, (h) finance, (i) school plant. Maximum of 4 credits.

752 FIELD EXPERIENCES IN EDUCATIONAL ADMINISTRATION

(1+0 per credit) 1 to 4 credits
Enables graduate students to observe, study, and do research projects in the various areas of school administration in the public schools: (a) curriculum, (b) administration, (c) supervision, (d) evaluation, (e) advanced methodology, (f) research, (g) public relations, (h) finance, (i) school plant. Maximum of 4 credits.

753 READINGS IN EDUCATIONAL ADMINISTRATION

(0+1 per credit) 1 to 4 credits
Supervised readings with conferences between student and instructor. Maximum of 4 credits.

760 INTERNSHIP IN EDUCATIONAL ADMINISTRATION

(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.

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.**797 THESIS 1 to 6 credits****799 DISSERTATION 1 to 12 credits****Educational Foundations and Media (Ed.F.M.)****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.

210 LEGAL FOUNDATIONS OF EDUCATION (2+0) 2 credits

Historical development of paramount issues in contemporary education. Emphasizes legal aspects of emerging educational patterns. Nondegree course to meet state certification requirements in Nevada school law. (Offered by EPCE, Independent Study Department only.)

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.

402, 602 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: Ed.F.M. 301, 403, 404, 406, or equivalents.

403, 603 LITERATURE SELECTION FOR CHILDREN

(3+0) 3 credits
Survey of the field of literature for children. Children's reading interests and needs as bases for evaluating and selecting library materials for the elementary school.

404, 604 BOOK SELECTION FOR ADOLESCENTS

(3+0) 3 credits
Prepares teacher-librarians and administrators for evaluation of books and other library materials for pupils in the secondary schools. Prerequisite: Ed.F.M. 301 or equivalent.

406, 606 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. Sears and Library of Congress subject headings, principles of entry and cross referencing, and organization of periodicals and pamphlet files. Prerequisite: Ed.F.M. 301 or equivalent.

407, 607 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: Ed.F.M. 301, 403, 404, 406, 408, or equivalents.

408, 608 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: Ed.F.M. 301, 403, 404, 406, or equivalents.

409, 609 NONPRINT MATERIALS IN THE SCHOOL LIBRARY

(3+0) 3 credits
Selection, acquisition, organization, storage, and maintenance of films, filmstrips, recordings, pictures, maps, charts, and realia in libraries and media centers. Prerequisite: Ed.F.M. 301.

410, 610 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: Ed.F.M. 101.

413, 613 EDUCATIONAL MEASUREMENTS AND STATISTICS

(3+0) 3 credits
Study and application of 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.

420, 620 AUDIOVISUAL METHODS IN TEACHING

(3+0) 3 credits
For both elementary and secondary students; a study of the principles and application of both projected and nonprojected materials in audiovisual education. Prerequisite: Ed.F.M. 101 or equivalent.

421, 621 EDUCATION IN DEVELOPING NATIONS

(3+0) 3 credits
Interrelations of education with economic, political, and social development in selected Latin American, African, and Asian countries. Emphasis placed upon identifying the role that educational services, formal and informal, may play in upgrading human resources and preparing for modernization in the policies considered. A case-study approach is used.

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, and Asia. Prerequisite: Ed.F.M. 421, 621, or equivalent.

425, 625 EDUCATIONAL MOTION PICTURE PRODUCTION

(2+1) 3 credits
Idea development, research, planning, and production of instructional motion pictures. Script writing, filming, editing, sound systems and applications; supervision of budget, personnel, and content during film preparation. Prerequisite: Ed.F.M. 420 or equivalent.

426, 626 PRACTICUM IN EDUCATIONAL MEDIA

(0+2 per credit) 1 to 3 credits
Supervised experience in designing, developing and evaluating instructional media for specific teaching objectives. Involves working in the Learning and Resource Center. Prerequisite: Ed.F.M. 402 or equivalent.

460, 660 TEACHING FOR CRITICAL THINKING

(3+0) 3 credits
Emphasizes 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 an equivalent 3-credit philosophy course.

475, 675 ANTHROPOLOGY AND EDUCATION

(3+0) 3 credits
Patterns of learning and transmission of culture in literate and nonliterate societies; the education process and cultural factors such as values, goals, world-view, language, and leadership. Recommended for teachers and others in multicultural situations. Prerequisite: Anth. 100 or 101. (Same as Anth. 475.)

499, 699 SPECIAL PROBLEMS IN EDUCATION 1 to 6 credits

Specialized instruction in general professional education designed to develop depth in understanding of a current educational problem of the in-service teacher and administrator. A maximum of 6 semester credits is accepted in special problems in courses Ed.F.M. 499 and C.I. 481 for degree programs. However, the course may be repeated to a maximum of 12 credits, only 6 of which may be applied toward any degree.

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.

701 HISTORY OF EDUCATION (3+0) 3 credits

Development of educational thought and practice in Western civilization.

702 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.

703 SOCIAL FOUNDATIONS OF EDUCATION

(3+0) 3 credits
Emphasizes the changing role of our educational system in meeting the demands of our post-Industrial society.

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 will be directed to the teaching profession. Required of all students in a graduate degree program of the College of Education. 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. Includes 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 laboratories. Emphasis on current research and experimentation in this area. Required of all students in a graduate degree program of the College of Education.

708 PROBLEMS IN AUDIOVISUAL EDUCATION

(1+2) 2 credits
Meets the needs of individual students primarily in production and utilization of audiovisual materials. Problems pertinent to production of educational materials.

709 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.

710 ADVANCED PHILOSOPHY OF EDUCATION

(3+0) 3 credits
Critical analysis and evaluation of philosophies of education. Implications for practice of pragmatism, logical empiricism, and existentialism. Prerequisite: Ed.F.M. 709.

711 COMPARATIVE EDUCATION (2+0) 2 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, Red China, and Japan. Prerequisite: Ed.F.M. 421, 422, or in-depth cross-cultural experience.

712 FIELD EXPERIENCES IN EDUCATIONAL RESEARCH

(1½+6) 1 to 4 credits
Directed experience in research in various areas in the public schools and other educational agencies. Prerequisite: Ed.F.M. 700 or equivalent.

713 ADVANCED EDUCATIONAL MEASUREMENTS AND STATISTICS (3+0) 3 credits

Second course designed for the student planning to contribute research findings of his own design. Refinement of inferential statistical methods introduced in Ed.F.M. 413. Prerequisite: Ed.F.M. 413 or equivalent.

714 INDIVIDUAL RESEARCH 1 to 4 credits

Pursuance of selected basic problems from one of the areas listed under general professional education

752 SEMINAR IN COLLEGE TEACHING

(1+0 per credit) 2 to 5 credits
Includes units on following topics: (1) methods of teaching; (2) theories of learning; (3) modern technology in teaching; (4) evaluation and measurements; (5) social foundations of higher education. Prerequisite: Graduate Standing and recommendation by chairman of student's major.

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 laboratories. Prerequisite: undergraduate major in the subject or equivalent.

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 educational problems. Doctoral research area should be identified before enrolling; concurrently, the student must be registered for at least three credits of 799 Dissertation. Prerequisite: doctoral candidacy plus Ed.F.M. 613 and 700 or equivalent courses.

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.**797 THESIS** 1 to 6 credits**799 DISSERTATION** 1 to 12 credits**ELECTRICAL ENGINEERING (E.E.)****131 COMPUTER TECHNIQUES I** (2+0) 2 credits

Beginning computer programming using FORTRAN, designed to illustrate the fundamental principles of mathematics which use of the computer can display. Regular use of University computer is required. Corequisite: Math. 215.

132 COMPUTER TECHNIQUES II (1+0) 1 credit

Solution of typical problems using the FORTRAN language. Prerequisite: E.E. 131.

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.

231 COMPUTERIZED MATRIX ALGEBRA I (1+0) 1 credit

Simplified introduction to matrix algebra operations using the digital computer. No prior experience in matrices is required. Prerequisite: E.E. 132.

232 COMPUTERIZED MATRIX ALGEBRA II

(2+0) 2 credits
Continuation of E.E. 231. Includes consideration of the vector space, its basis and transformations. Computerized solutions to eigen value and eigen function problems are studied. Prerequisite: E.E. 231.

291-292 ELECTRICAL PROJECTS LABORATORY

(0+3 or 6) 1 or 2 credits
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. Corequisite: E.E. 311 and 355.

302 MEASUREMENT TECHNIQUES (1+3) 2 credits

Continuation of E.E. 301. Theory and techniques of precise measurement by electrical means, including discussion of measurement errors. Prerequisite: E.E. 301. Corequisite: E.E. 351 and 372.

311 NETWORK THEORY I (4+0) 4 credits

Introduction to network analysis with emphasis on the response of RLC networks to simple time functions and sinusoidal forcing functions, including single and polyphase systems and matrix representations of networks. Prerequisite: Physics 202, M.E. 300 or Math. 320.

312, 512 NETWORK THEORY II (3+0) 3 credits

Continuation of EE 311 using Fourier and Laplace transform procedures. Investigation of two-port parameters with fundamental passive and active filter design procedures. Prerequisite: EE 311.

331 INTRODUCTION OF COMPUTERIZED LOGIC

(1+0) 1 credit
Introduction to computerization of logical operations. VENN Diagrams, Truth Tables, equivalence between logical expressions, DeMorgan's Theorem, and Karnaugh Maps. No prior experience in logic is required. Prerequisite: E.E. 131.

333, 533 COMPUTER LOGIC AND ARCHITECTURE

(3+0) 3 credits
Techniques for analysis and design of combinational and sequential switching networks; Boolean Algebra, elements of code theory, function minimization, computer subsystems, arithmetic and logic algorithms, asynchronous sequential networks. (Same as Math. 387).

336 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.)

337 COMPUTER ACQUAINTANCE FOR THE HEALTH SCIENCES (3+3) 4 credits

Introduction to the computer and its application. Programming in various languages is included, plus applications in areas of interest to each student. Prerequisite: elementary algebra and junior standing. (Not open to engineering majors.) (Same as Med.S. 337.)

338 COMPUTER APPLICATIONS FOR THE HEALTH SCIENCES (1+0) 1 credit

Computer project of interest to each student. Prerequisite: E.E. 337 or equivalent. Maximum of 3 credits. (Same as Med.S. 338.)

340 ELECTRONICS FOR MEDICAL APPLICATIONS

(2+3) 3 credits
Electrical and electronic theory for life processes and functional substitute applications. Prerequisite: Math. 216 and college physics.

345 NUCLEAR INSTRUMENTATION LABORATORY

(1+3) 2 credits
Electrical instrumentation for nuclear reactors and other nuclear measurements in the industrial and health fields. Prerequisite: E.E. 302 and E.E. 440 or equivalent.

348, 548 MACHINERY AND ELECTRONICS (2+3) 3 credits

Integrated course in machinery and electronics with industrial applications for nonelectrical engineering students. Prerequisite: E.E. 372.

350, 550 ELECTRIC SYSTEMS I (3+0) 3 credits

Integrated course in energy conversion and electric machinery, including transformers, energy transformations, and storage of energy. Prerequisite: E.E. 311 and 355.

355, 555 ELECTRIC AND MAGNETIC FIELDS

(3+0) 3 credits
Vector analysis approach to the study of electric and magnetic fields, leading to the development of Maxwell's equations. Prerequisite: Phys. 210 and Math. 320.

380, 580 GENERATION AND DISTRIBUTION OF ELECTRIC POWER I (3+0) 3 credits

Operation of electric utilities. A survey of conventional and unconventional energy generation including magnetohydrodynamics, thermionic, hydroelectric, fossil-fuel, nuclear powered plants. Principles of control, switchgear, insulators, and lightning arrestors. Corequisite: E.E. 350.

372, 572 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: EE 311.

373, 573 ELEMENTARY ELECTRONICS CIRCUITS

(2+0) 2 credits
Principles of electronics. Emphasis upon the application of electronic tubes and circuits to industrial and biological instruments and processes. Lectures and demonstrations. Intended particularly for students not taking electrical or mechanical engineering. Prerequisite: college physics.

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 and Math. 310.

391-392 ELECTRICAL PROJECTS LABORATORY

(0+3 or 6) 1 or 2 credits
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.

401 SYSTEMS MEASUREMENT TECHNIQUES

(1+3) 2 credits
Theory and techniques of measurement on complex systems by electrical means. Prerequisite: E.E. 302. Corequisite: E.E. 451 and 481.

402, 602 ADVANCED SYSTEM MEASUREMENT TECHNIQUES

(1+3) 2 credits
Continuation of E.E. 401 with emphasis on individual projects. Prerequisite: E.E. 401.

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. Corequisite: E.E. 473.

412, 612 ADVANCED NETWORK THEORY (3+0) 3 credits

Introduction to network synthesis procedures and computer aided design of networks. Prerequisite: EE 312 and 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.

430, 630 NUMERICAL METHODS IN ELECTRICAL ENGINEERING (2+3) 3 credits

Numerical analysis and digital computer applications. Prerequisite: Math. 320.

431, 631 DIGITAL COMPUTER 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: EE 333.

435, 635 MICROPROCESSORS (3+0) 3 credits

Elementary microprocessor principles founded in electrical engineering applications. Hardware, software, and interface areas analyzed. Prerequisite: E.E. 431a.

436, 636 COMPUTER SYSTEMS AND SYSTEMS PROGRAMMING (3+0) 3 credits

(See Math 486, 686 for description.)

440 NUCLEAR ENERGY CONVERSION (3+0) 3 credits

Nuclear reactor type power plants, reactor electrical systems, shielding and safety requirements, and environmental impact. Prerequisite: E.E. 350.

445 RADIATION DAMAGE TO MATERIALS (3+0) 3 credits

Effect of nuclear radiation upon materials, including biological materials. Prerequisite: E.E. 372 or modern physics or equivalent.

451, 651 ELECTRIC SYSTEMS II (3+0) 3 credits

Continuation of E.E. 350. Prerequisite: E.E. 350.

455, 655 DISTRIBUTED SYSTEMS (3+0) 3 credits

Systems where time of propagation of energy is not negligible. Prerequisite: E.E. 312 and 372.

481, 681 GENERATION AND DISTRIBUTION OF ELECTRIC POWER II (3+0) 3 credits

Design and construction of electric transmission lines and systems. Short circuit calculations using symmetrical components. Stability. Economic load control. Prerequisite: E.E. 350. Corequisite: E.E. 485.

482 ENGINEERING ANALYSIS (2+3) 3 credits

Principles underlying engineering analysis and design. Emphasis on the use of available knowledge of electrical and mechanical engineering and mathematics to solve new or unfamiliar problems. Prerequisite: E.E. 372, 451, and 455.

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: E.E. 372 and 431a.

481, 681 ADVANCED ELECTRONICS (3+0) 3 credits

Continuation of E.E. 372. Includes oscillators, modulation, demodulation, wave-shaping circuits, pulse circuits, cascaded and compensated amplifiers. Prerequisite: E.E. 372.

482, 682 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: Math 251 and EE 312.

485, 685 FEEDBACK SYSTEMS (3+0) 3 credits

Theory, analysis, and synthesis of closed-loop systems. Prerequisite: E.E. 372. Corequisite: E.E. 451.

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.

488 ENGINEERING ETHICS (1+0) 1 credit

Study and discussion of the nontechnical aspects of the engineering profession. Prerequisite: senior standing.

489, 689 MODERN SYSTEM THEORY (3+0) 3 credits

Modern techniques of system analysis and design, primarily in the time domain using State Variable concept. Prerequisite: E.E. 485.

490, 690 ELECTROACOUSTICS (2+3) 3 credits

Theory of sonic and ultrasonic vibrations and acoustics, including electromechanical transducers. Prerequisite: E.E. 355.

492, 692 POWER ELECTRONICS (2+3) 3 credits

Control of electric machines and systems. Current and potential transformers, relays, load dispatch, starting, speed control, and paralleling of machines. Computerized control. Prerequisite: E.E. 401, 485.

495, 695 INDEPENDENT STUDY IN ELECTRICAL ENGINEERING 1 to 3 credits

Special projects or studies in electrical engineering. Maximum of 6 credits each.

703 INFORMATION AND COMMUNICATION THEORY

(3+0) 3 credits
a) Information theory and statistical description of information and noise sources. Concepts of coding theory, b) continuous and pulsed communication systems, c) optimum transmission and propagation techniques. Each topic may be taken for 3 credits. Maximum course credit is 9. Prerequisite: EE 482

713 PASSIVE AND ACTIVE NETWORKS (3+0) 3 credits each

(a) Linear passive network synthesis, (b) linear active network synthesis, (c) nonlinear active network analysis. These courses are sequential. Prerequisite: E.E. 312 and 485

721 ADVANCED ELECTRONICS (3+0) 3 credits each
(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. 312 and 481.

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: E.E. 431a.

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: E.E. 431a.

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 and 451.

781 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. 481.

782 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. 481.

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. 481.

782 ELECTRICAL COMPUTERS (3+0) 3 credits
Digital and analog types, the basic principles of each, the type of work for which best suited, encoding of data, and work with computer circuits. Prerequisite: E.E. 481.

783 MICROWAVE LABORATORY (0+3) 1 credit
Normally accompanying and having the same prerequisite as E.E. 781.

784 COMPUTER LABORATORY (0+3) 1 credit
Normally accompanying and having the same prerequisite as E.E. 782.

786 ADVANCED CONTROL SYSTEM THEORY (3+0) 3 credits each
(a) Random signal response systems, (b) sampled data systems, (c) nonlinear control systems. These courses are not sequential. Prerequisite: E.E. 485.

787 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.

788 ADVANCED CONTROL SYSTEM THEORY II (3+0) 3 credits
System optimization and adaptive systems. Prerequisite: E.E. 489 or 786c.

789 READINGS AND CONFERENCES 1 to 3 credits
Special projects or studies in electrical engineering. Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit. *S/U only.*

796 PROFESSIONAL PAPER 2 credits. *S/U only.*
Report required of M.S. Plan B candidates, based on research or engineering experience before entering the M.S. program.

797 THESIS 1 to 6 credits

799 DISSERTATION 1 to 24 credits

Inactive Courses

202 MATERIALS IN ELECTRICAL ENGINEERING (1+3) 2 credits
240 ELECTRICAL INSTRUMENTATION FOR THE HEALTH SCIENCES (2+3) 3 credits
252 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3+0) 3 credits
341, 342, 343, 344 ELECTRO-MEDICAL INSTRUMENTATION I, II, III, IV (0+3) 1 credit
715 NANOSECOND PULSE SYSTEMS (3+0) 3 credits
741 ELECTROMAGNETIC FIELDS (3+0) 3 credits each
774 POWER SYSTEM ANALYSIS (3+0) 3 credits each

ELECTRONICS ENGINEERING TECHNOLOGY (E.E.T.)

114 DC AND AC CIRCUITS (3+6) 5 credits
A study of electrical characteristics in DC and AC circuits. Includes the use of Ohm's Law, Kirchoff's Laws, vector algebra, Thevenin's and Norton's theorems in circuit analysis.

123 ELECTRONICS I (3+6) 5 credits
Characteristics of diodes, transistors, and vacuum tubes and their use in rectifiers and amplifiers. Design and analysis of basic amplifiers. Fabrication and testing of amplifiers. Prerequisite: E.E.T. 114.

253 ELECTRONICS II (3+6) 5 credits
Operation, design, and analysis of electronic circuits used in communications receivers and transmitters. R. F. and audio oscillators, amplifiers, frequency response, power amplifiers, impedance matching, microphones, and speakers. Construction and testing of communication circuits. Prerequisite: E.E.T. 114 and 123.

255 PULSE CIRCUITS (2+6) 4 credits
Pulse amplifiers; wave shaping circuits to include differentiators, integrators, clippers and clampers, multivibrators, time base oscillators and sweep circuits; gating circuits; the application of pulse circuits as used in the oscilloscope. Prerequisite: E.E.T. 114, 123.

256 COMPUTER FUNDAMENTALS (2+6) 4 credits
Introduction to digital and analog computers, computing circuits and systems; numbers systems; switching and logic circuits; storage devices; input and output devices; principles of programming and control. Prerequisite: E.E.T. 114, 123.

260 RESEARCH REPORT (SPECIAL PROBLEM) (0+6) 2 credits
Individual assignment to the development of apparatus of special interest to the student. A written report of the work is required.

261 ULTRA-HIGH FREQUENCIES AND MICROWAVES (3+6) 5 credits
Principles of radar and microwave systems. Prerequisite: E.E.T. 123.

262 TELEVISION CIRCUITS (2+6) 4 credits
Principles of television transmission and reception, with emphasis on circuits for pulse-shaping that are used in other electronic applications.

263 INDUSTRIAL ELECTRONICS (3+6) 5 credits
Time constant and electronic timing circuits; photoelectric controls, welder and motor controls; saturable reactors and magnetic amplifiers; synchros and servomechanisms; induction and dielectric heating; radiation detection; applications in the field of industrial control and automation; combining of electrical, electronic, magnetic and mechanical principles. Prerequisite: E.E.T. 123.

Inactive Courses

113 DIRECT CURRENT CIRCUITS (3+6) 5 credits
115 BASIC ELECTRICITY AND ELECTRONICS (3+0) 3 credits
122 ALTERNATIVE CURRENT CIRCUITS (3+6) 5 credits
254 TRANSMITTER THEORY AND OPERATION (3+6) 5 credits

ENGINEERING (Engr.)

180 INTRODUCTION TO FLIGHT I (2+0) 2 credits
Development of the science of aviation. Basic principles of flight. Field trips. Approved as a science elective in education.

181 INTRODUCTION TO FLIGHT II (2+0) 2 credits
Aviation history since Wright brothers, weather systems and reports, airplane weight and balance, FAA regulations, navigation and various airplane systems. Approved as a science elective in education. Prerequisite: Engr. 180.

191 HOME TECHNOLOGY (3+0) 3 credits. *S/U only.*
Nontechnical emphasis on the problems associated with buying or building a home. Planning for functions and site location, financial considerations, and the necessary electrical, mechanical, and structural systems are covered.

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. Prerequisite: sophomore standing.

204 ENGINEERING FOR SPACESHIP EARTH (3+0) 3 credits
Appreciation of what is possible to be done for and to the world by technology, and why. For nonengineering students only. Minimal mathematics background required.

ENGLISH (Engl.)

Stated prerequisites must be observed except with approval of department chairman.

Composition and Communication

All entering students are required to take the ACT examination in English, except those transfer students presenting evidence of completion of an acceptable second semester 3-credit course in composition.

Initial placement is based upon ACT English standard scores:

English 101W 1 to 18
English 101 19 to 24
English 102, 102H 25 to 36
(W, Writing laboratory; H, Honors level)

English

101 COMPOSITION I (3+0) 3 credits
Practice in varieties of expository writing, with attention to spelling, punctuation, grammar, usage, and idiom.

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.

105 ENGLISH LABORATORY FOR FOREIGN STUDENTS (1+2) 2 credits
Training in conversation, reading, and writing in English for foreign students. Designed for groups of visiting foreigners under special circumstances. Credit not to apply toward any baccalaureate degree.

111 ENGLISH AS A SECOND LANGUAGE I (2+3) 3 credits
Intensive practice in idiomatic English: speaking, listening, reading.

112 ENGLISH AS A SECOND LANGUAGE II (2+3) 3 credits
Continuation of Engl. 111, with special emphasis on writing. Prerequisite: Engl. 111 or its equivalent.

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 EPCE, Independent Study Department only.)

Literature for Appreciation

131 INTRODUCTION TO LITERATURE (2+0) 2 credits
Introduction to fiction, poetry, and drama.

223 THEMES OF LITERATURE (2 or 3+0) 2 or 3 credits
Themes and ideas significant in literature. May be repeated to a 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+0) 2 credits
Significant works of fiction from various languages, with attention to the novel and the short story as literary forms.

261 INTRODUCTION TO POETRY (2+0) 2 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 portrayal 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+0) 2 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.

275 CONTEMPORARY LITERATURE (2 or 3+0) 2 or 3 credits
Selected contemporary writers for understanding and appreciation. Emphasis on British and American figures.

Literature, Writing, and Language for Professional Study

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.

282 INTRODUCTION TO LANGUAGE AND LITERARY EXPRESSION (3+0) 3 credits

Nature and function of language, with special applications to literary study.

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 F.L.L. 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 F.L.L. 293).

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.

311, 511 APPLIED LINGUISTICS (3+0) 3 credits

Modern approaches to language and their applications, designed for those in other disciplines, as well as English, who wish to explore applications of modern linguistics in particular fields. A major research paper based on independent investigation as well as secondary sources is required. Prerequisite: Engl. 281 or 282. (Same as Anth. 311.)

316, 516 LANGUAGE AND CULTURE (3+0) 3 credits

(See Anth. 316 for description.)

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.

333 FAR EASTERN LITERATURE (2 or 3+0) 2 or 3 credits

Chinese and Japanese literature in translation, including, e.g., Confucius, Taoism, Haiku, Kabuki, and No drama.

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. (Same as Anth. 339.)

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 nineteenth century through about 1945, including, e.g., Ibsen, Chekhov, Shaw, theatre of the absurd. (Same as F.L.L. 355.)

356 CONTEMPORARY DRAMA (3+0) 3 credits

Treats selected plays of the recent theatre, including current productions here and abroad.

358, 558 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 nineteenth and twentieth century fiction, by such authors as Balzac, Flaubert, Dostoevsky, Tolstoy, Proust, Kafka, Mann, Camus. (Same as F.L.L. 366.)

385, 585 DESCRIPTIVE GRAMMAR (3+0) 3 credits

Modern English grammar and usage. Not applicable toward an advanced degree in English. Prerequisite: Engl. 281.

405-406 ADVANCED TRAINING IN CREATIVE WRITING:

FICTION (3+0) 3 credits each

Continuation of Engl. 305-306.

407-408 ADVANCED TRAINING IN CREATIVE WRITING:

POETRY (3+0) 3 credits each

Continuation of Engl. 307-308.

411, 611 LINGUISTICS (3+0) 3 credits

Studies in general linguistics. Prerequisite: Engl. 281 or 282. (Same as Anth. 411.)

412, 612 INTRODUCTION TO OLD NORSE (3+0) 3 credits

Introduction to Old Icelandic language and literature.

413, 613 HISTORY OF THE LANGUAGE (3+0) 3 credits

History of English from its beginnings to the present. Prerequisite: Engl. 281 or 282.

415, 815 PHONEMICS AND COMPARATIVE PHONETICS

(3+0) 3 credits

Phonetic phenomena that occur in languages of the world. Phoneme concept as applied to the analysis of speech sounds. Phonological structures. Prerequisite: Engl. 281 or 282 or S.P.A. 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 or 282.

418 BEOWULF (3+0) 3 credits

Beowulf and the Germanic Heroic Age for undergraduate students. Prerequisite: Engl. 417 or equivalent.

419, 619 MODERN ENGLISH (3+0) 3 credits

Development of English from 1500 to the present. Prerequisite: Engl. 281 or 282.

421, 621 LITERARY CRITICISM (3+0) 3 credits

Major theories and methods of literary criticism.

423, 823 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, and 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.

430, 630 STUDIES IN COMPARATIVE LITERATURE

(3+0) 3 credits

Literature in English and English translation, following an historical (e.g., Classicism, Romanticism, Modernism), or a formal (e.g., narrative and fiction, drama) approach. Maximum of 6 credits. (Same as F.L.L. 430.)

438 TEACHING ENGLISH AS A SECOND LANGUAGE

(3+0) 3 credits

Current methods in teaching ESL, stressing contrastive linguistic methods in bilingual programs. Class observation at primary, secondary, and university levels. Prerequisite: Engl. 281 or 282, and 385.

441, 641 AMERICAN IDEAS (3+0) 3 credits

Readings in American fiction, poetry, and intellectual prose from the seventeenth to the twentieth 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 nineteenth century.

446, 646 AMERICAN POETRY (3+0) 3 credits

American poetry from the Puritans to about 1940 with emphasis on the nineteenth 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 or 282.

453, 653 LITERATURE OF THE MIDDLE AGES

(3+0) 3 credits

Medieval writers and works from both England and the continent, read primarily in translation, e.g., Boethius, *Beowulf*, *Romance of the Rose*, *Sir Gawain and the Green Knight*, *Langland*, *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 sixteenth and early seventeenth centuries, e.g., Marlowe, Jonson, Webster.

461, 661 THE RENAISSANCE (3+0) 3 credits

Writers of prose and poetry in sixteenth-century England, e.g., More, Sidney, Spenser.

463, 663 THE SEVENTEENTH 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 Jonson, Dryden). Authors and credits listed in class schedule.

470, 670 RESTORATION AND EIGHTEENTH CENTURY DRAMA

(3+0) 3 credits

English dramatists from about 1660 to 1800, including, e.g., Wycherley, Congreve, Sheridan, Goldsmith.

471, 671 RESTORATION AND EIGHTEENTH 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, and 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 nineteenth century as revealed in English poetry and prose.

483, 683 TWENTIETH CENTURY BRITISH AND AMERICAN POETRY

(3+0) 3 credits

Readings in such poets as Auden, Eliot, Frost, Thomas, Stevens, Yeats, and Williams.

484, 684 TWENTIETH CENTURY BRITISH AND AMERICAN FICTION

(3+0) 3 credits

Selected fiction written in English by, e.g., Conrad, Joyce, Woolf, Faulkner, Pynchon.

485, 685 STUDIES IN TWENTIETH 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

Undergraduate seminar on one or two authors (e.g., Joyce, Emerson and Thoreau, Dickens). Authors and credits listed in class schedule.

495 INDEPENDENT STUDY 1 to 3 credits

Open to juniors and seniors specializing in English. Maximum of 6 credits.

711 INTRODUCTION TO GRADUATE STUDY (3+0) 3 credits

Bibliography and modern research techniques in language and literature, methods of literary analysis, preparation of documented investigation.

713 PROBLEMS IN LANGUAGE (3+0) 3 credits

Typical problems in the advanced study of language. Prerequisite: Engl. 411 or equivalent. Maximum of 6 credits. (Same as Anth. 713.)

714 PROBLEMS IN MODERN GRAMMATICAL STUDY

(3+0) 3 credits

Examination of important current grammatical descriptions, especially of English. Prerequisite: Engl. 411 or equivalent. Maximum of 6 credits.

715 SEMINAR IN PHILOLOGY AND LINGUISTICS

(3+0) 3 credits

Special problems in philology and linguistics. Prerequisite: Engl. 411 or equivalent. Maximum of 6 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

(3+0) 3 credits

Important critical modes and approaches from Plato and Aristotle to the present.

722 PROBLEMS IN LITERARY THEORY (3+0) 3 credits

Problems in criticism and critical theory. May be repeated to a maximum of 6 credits with approval of the student's committee.

723 PROBLEMS IN THEMES AND IDEAS IN LITERATURE

(3+0) 3 credits

Typical problems in the development of themes and ideas in literature and introduction to broad literary approaches like comparative literature and the history of ideas. May be repeated to a maximum of 6 credits with approval of the student's committee.

725 PROBLEMS IN THE NOVEL (3+0) 3 credits

Intensive study of the novel, with attention to its history and development. Maximum of 6 credits.

726 PROBLEMS IN LITERARY FORM (3+0) 3 credits

Generic or crossgeneric studies of literary structure. Maximum of 6 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

(3+0) 3 credits

Study of rhetorical problems. Maximum of 6 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; credit to be set by the instructor. Maximum of 6 credits.

738 TEACHING ENGLISH AS A FOREIGN LANGUAGE

(3+0) 3 credits

Theory and practice in the teaching of English to speakers of other languages and nonstandard dialects. Students work under supervision of the instructor in charge of English for foreign students. Prerequisite: Engl. 411 or equivalent. Maximum of 6 credits.

741 PROBLEMS IN EARLY AMERICAN LITERATURE

(3+0) 3 credits

Selected subjects in early American literature. Prerequisite: Engl. 443 or equivalent. Maximum of 6 credits.

743 PROBLEMS IN LATER AMERICAN LITERATURE

(3+0) 3 credits

Companion course to Engl. 941. Prerequisite: Engl. 444 or equivalent. Maximum of 6 credits.

753 PROBLEMS IN CHAUCER (3+0) 3 credits

Selected problems in Chaucer. Prerequisite: Engl. 451 or equivalent. Maximum of 6 credits.

761 PROBLEMS IN THE EARLY RENAISSANCE

(3+0) 3 credits

Intensive study of selected topics in nondramatic Renaissance literature prior to 1603. Prerequisite: Engl. 461 or equivalent. Maximum of 6 credits.

762 PROBLEMS IN SEVENTEENTH CENTURY LITERATURE

(3+0) 3 credits

Companion course to Engl. 761. Prerequisite: Engl. 461 or equivalent. Maximum of 6 credits.

764 PROBLEMS IN NON-SHAKESPEAREAN DRAMA

(3+0) 3 credits

Sixteenth and seventeenth century drama exclusive of Shakespeare. Prerequisite: Engl. 461 or equivalent. Maximum of 6 credits.

765 PROBLEMS IN SHAKESPEARE (3+0) 3 credits

Intensive study of the works of Shakespeare. Prerequisite: Engl. 465 or equivalent. Maximum of 6 credits.

767 PROBLEMS IN MILTON (3+0) 3 credits

Intensive study in the works of Milton. Prerequisite: Engl. 464 or equivalent. Maximum of 6 credits.

771 PROBLEMS IN THE AGE OF REASON (3+0) 3 credits

Considers special figures or aspect of the period. Prerequisite: Engl. 471 or equivalent. Maximum of 6 credits.

775 PROBLEMS IN THE ROMANTIC MOVEMENT

(3+0) 3 credits

Problems in the prose and verse of the late eighteenth and early nineteenth centuries in England. Prerequisite: Engl. 475 or equivalent. Maximum of 6 credits.

781 PROBLEMS IN THE VICTORIAN AGE (3+0) 3 credits

Studies in English literature of the middle and late nineteenth century in England. Prerequisite: Engl. 481 or equivalent. Maximum of 6 credits.

783 PROBLEMS IN EARLY TWENTIETH CENTURY BRITISH LITERATURE (3+0) 3 credits

Intensive study of British and Irish literature of the early twentieth century. Maximum of 6 credits.

785 PROBLEMS IN CONTEMPORARY AMERICAN LITERATURE (3+0) 3 credits

Intensive study of selected contemporary American writers or current literary movements. Maximum of 6 credits.

787 PROBLEMS IN CONTEMPORARY BRITISH LITERATURE

(3+0) 3 credits

Contemporary literature studied with emphasis upon movements which center in Great Britain. Maximum of 6 credits.

788 PROBLEMS IN MODERN COMPARATIVE LITERATURE

(3+0) 3 credits

Modern literature studied with emphasis upon international movements. Maximum of 6 credits.

790 INDEPENDENT STUDY 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. May be repeated to a 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*

14 ELEMENTS OF ENGLISH USAGE (3+0) 3 credits

15 TECHNICAL SEMINAR (2+0) 2 credits

50 EXPOSITORY WRITING (2 or 3+0) 2 or 3 credits

253 INTRODUCTION TO DRAMA (2+0) 2 credits

323, 523 PRINCIPLES OF LITERARY ANALYSIS (2+0) 2 credits

365 MODERN CONTINENTAL FICTION (3+0) 3 credits

452, 652 CHAUCER (3+0) 3 credits

462, 662 THE RENAISSANCE (2+0) 2 credits

739 SUPERVISION OF COURSES IN EXPOSITION (3+0) 3 credits

ENTOMOLOGY (Ent.)**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.

391, 591 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 pest control majors. Prerequisite: Biol. 201 or 202.

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: Ent. 391 or Biol. 360. (Offered in even numbered years.)

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: Ent. 391 or Biol. 360. (Offered in odd numbered years.)

720 INSECT ECOLOGY (3+0) 3 credits

Principles governing activity and distribution of insects in relation to their environment. Prerequisite: general zoology, botany, and one or more courses in entomology.

731 PESTICIDE RESIDUE ANALYSIS TECHNIQUES

(2+3) 3 credits

Emphasizes proper sampling techniques, laboratory analysis, significance of residue data for pesticide residues in the environment. Designed for ecologists, agriculturalists, or chemists. Prerequisite: graduate standing or senior.

Inactive Courses

70 INSECT PESTS AND THEIR CONTROL (1+3) 2 credits

400 UNDERGRADUATE SEMINAR (1+0) 1 credit

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 (2+0) 2 credits

(See H.Ec. 294 for description.)

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

(See H.Ec. 494 for description.)

FAMILY AND COMMUNITY MEDICINE (F.C.M.)*(See Medical Sciences)***FOREIGN LANGUAGES AND LITERATURES (F.L.L.)****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) Basque, (c) Chinese, (d) Classical Greek*, (e) Ancient Hebrew, (f) Japanese, (g) Latin*, (h) Norwegian, (i) 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, (h) Norwegian, (i) French, (k) German, (m) Russian, (n) Spanish, (p) Portuguese, (r) Italian. At least one conference per week with instructor concerned. May be repeated to a maximum of 4 credits in any one language.

355 MODERN DRAMA (3+0) 3 credits

(See Engl. 355 for description.)

365 MODERN CONTINENTAL FICTION (3+0) 3 credits

(See Engl. 365 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.

*A combination of two semesters of Latin and two semesters of classical Greek fulfills the College of Arts and Science language requirement.

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, (i) French, (k) German, (m) Russian, (n) Spanish, (p) Portuguese, (r) Italian. At least one conference per week with instructor concerned. May be repeated to a 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.

701 SUPERVISED TEACHING IN COLLEGE1 to 3 credits. *S/U only*.

Directed experience in college teaching. One class meeting per credit plus one hour of discussion evaluation. May be repeated to a maximum of 4 credits. Prerequisite: undergraduate major in the subject or equivalent.

702 INTRODUCTION TO GRADUATE STUDY (3+0) 3 credits

Methods of literary analysis, research techniques, preparation of documented investigation, and bibliography.

714 PROBLEMS IN ROMANCE PHILOLOGY AND LINGUISTICS (3+0) 3 credits

Seminar in typical problems of Romance philology and linguistics. May be repeated to a maximum of 6 credits.

758 PROBLEMS IN COMPARATIVE LITERATURE

(3+0) 3 credits

Literature studied with emphasis on international movements.

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.

For French, German and Spanish majors only.

Basque (Basq.)**351, 551 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.

366, 566 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. 366.)

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.)

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

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 Sciences 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, and Ionesco.

301, 501 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: Fr. 203 or equivalent. May be repeated one time only.

305-306, 505-506 FRENCH COMPOSITION (2+0) 2 credits each
Development of directed and creative writing skills in French. Not available for graduate credit to M.A. candidates in French. Prerequisite: Fr. 204; prerequisite to Fr. 306 is Fr. 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.

311, 511 INTRODUCTION TO FRENCH LITERATURE (3+0) 3 credits
Readings in the major *genres* of French literature with emphasis on understanding and appreciation. Prerequisite: Fr. 204 or equivalent. Not available for graduate credit to M.A. candidates in French.

312, 512 HISTORY OF FRENCH LITERATURE (3+0) 3 credits
Comprehensive view of French literature from its beginning to the present day. Prerequisite: Fr. 204 and 311. 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, 311, 312.

407-408, 607-608 ADVANCED FRENCH GRAMMAR AND COMPOSITION (3+0) 3 credits each
Prerequisite: Fr. 306; prerequisite to Fr. 408 is Fr. 407.

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.

463-464, 663-664 MEDIEVAL FRENCH LITERATURE (3+0) 3 credits each
Literature and thought of the Renaissance. Maximum 6 credits each.

465-466, 665-666 THE SIXTEENTH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Literature and thought of the Renaissance. Maximum 6 credits each.

469-470, 669-670 THE SEVENTEENTH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Trends of seventeenth century literature and thought.

473-474, 673-674 THE EIGHTEENTH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Literature and thought of the Age of Enlightenment. Maximum 6 credits each.

477-478, 677-678 THE NINETEENTH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Main literary and intellectual trends from Romanticism to Naturalism.

491-492, 691-692 THE TWENTIETH CENTURY IN FRENCH LITERATURE (3+0) 3 credits each
Main currents of twentieth century prose, poetry, and theatre.

Prerequisite for following 700-level French courses: admission to Graduate Standing in the Department of Foreign Languages and Literatures.

725-726 EXPLICATION DE TEXTES (2+0) 2 credits each
French method of *explication de textes* applied to selected prose and poetry of principal French 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 SEVENTEENTH CENTURY FRENCH LITERATURE 2 or 3 credits
Seminar in literary problems of the century, considered by genre or by author. Maximum of 9 credits.

743 STUDIES IN EIGHTEENTH CENTURY FRENCH LITERATURE 2 or 3 credits
Special consideration of various authors or aspects of the period. Maximum of 9 credits.

747 STUDIES IN NINETEENTH CENTURY FRENCH LITERATURE 2 or 3 credits
Seminar in selected literary schools and movements of the century, selected authors, or genres. Maximum of 9 credits.

761 STUDIES IN TWENTIETH CENTURY FRENCH LITERATURE 2 or 3 credits
Problems of modern and contemporary literature; selected authors, movements, schools; influences, genres. Maximum of 9 credits.

763 SPECIAL TOPICS 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.

780 SPECIAL 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, 501 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, 505-506 GERMAN COMPOSITION (2+0) 2 credits each
Not available for graduate credit to M.A. candidates in German. Prerequisite: Ger. 204; prerequisite to Ger. 306 is Ger. 305. Not applicable to an advanced degree in German.

309 GERMAN CONVERSATION (0+2) 1 credit
Prerequisite: Ger. 204. Maximum of 4 credits.

311, 511 INTRODUCTION TO GERMAN LITERATURE (3+0) 3 credits
Readings in German literature in its major forms with emphasis on the modern period. Discussions. Not available for graduate credit to M.A. candidates in German. Prerequisite: Ger. 204. 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 seventeenth century to the present.

472, 672 NINETEENTH CENTURY GERMAN LITERATURE (3+0) 3 credits
Studies in 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 TWENTIETH CENTURY GERMAN LITERATURE (3+0) 3 credits
Main currents of German prose, poetry, and drama since 1890.

Prerequisite for following 700-level German courses: admission to Graduate Standing in the Department of Foreign Languages and Literatures.

709 CRITICAL AND CREATIVE WRITING IN GERMAN (2+0) 2 credits
Study and 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*, *Klassik*, 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.

780 SPECIAL 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

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 to Ital. 203 is Ital. 102 or equivalent. Prerequisite to Ital. 204 is Ital. 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, Petrarch, Boccaccio, Machiavelli, Pirandello.

Inactive Courses

305-306, 505-506 INTERMEDIATE ITALIAN COMPOSITION AND CONVERSATION (3+0) 3 credits each
 351-352, 551-552 THE ITALIAN NOVEL (2+0) 2 credits each
 381-382, 581-582 ITALIAN LITERATURE OF THE EIGHTEENTH AND NINETEENTH CENTURIES (2+0) 2 credits each

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, 505-506 INTERMEDIATE RUSSIAN COMPOSITION AND CONVERSATION (3+0) 3 credits each
 357-358, 557-558 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 CULTURE (3+0) 3 credits
 Introduction to the culture and civilization of Spain and Portugal. 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.

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, 501 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, 505-506 SPANISH COMPOSITION (2+0) 2 credits each
 Syntax and idiomatic usage. Prerequisite: Span. 204; prerequisite to Span. 306 is Span. 305. Not applicable to an advanced degree in Spanish.

309 SPANISH CONVERSATION (0+2) 1 credit
 Prerequisite: Span. 204. Maximum of 4 credits.

311, 511 INTRODUCTION TO SPANISH AND SPANISH-AMERICAN LITERATURES (3+0) 3 credits
 Close readings in Spanish and Spanish-American literatures, with emphasis on understanding and appreciation. Not available for graduate credit to M.A. candidates in Spanish. Prerequisite: Span. 204 or equivalent.

357, 557 SURVEY OF SPANISH LITERATURE (3+0) 3 credits
 Selective survey of Spanish literature from its beginning to the present day. Prerequisite: Span. 311. Not applicable to an advanced degree in Spanish.

359, 559 SURVEY OF SPANISH-AMERICAN LITERATURE (3+0) 3 credits
 Selective survey of Spanish-American literature from its beginning to the present day. Prerequisite: Span. 311. Not applicable to an advanced degree in Spanish.

Prerequisite for all Spanish 400-level literature courses: Span. 305-306, 311, and 6 credits from Span. 221, 222, 357, or 359.

410, 610 SPANISH STYLISTICS (3+0) 3 credits
 Designed to help the mature language student achieve a personal style in written and spoken Spanish. Prerequisite: Span. 306 or equivalent. Maximum of 6 credits.

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.

484, 684 SPANISH GOLDEN AGE PROSE (3+0) 3 credits
 Prose forms of the sixteenth and seventeenth centuries with emphasis on Cervantes.

466, 666 SPANISH GOLDEN AGE POETRY (3+0) 3 credits
 Poetry of the sixteenth and seventeenth centuries, from Garcilasco to Gongora.

469, 669 SPANISH GOLDEN AGE DRAMA (3+0) 3 credits each
 Theater of the sixteenth and seventeenth centuries from Torres Naharro to Calderón de la Barca.

476, 676 THE EIGHTEENTH CENTURY IN SPAIN (3+0) 3 credits
 Neoclassical and traditional writers in the eighteenth century.

477, 677 NINETEENTH CENTURY SPANISH LITERATURE (3+0) 3 credits
 Main currents in either the prose, drama, or poetry of the nineteenth 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 TWENTIETH CENTURY SPANISH LITERATURE (3+0) 3 credits
 Main currents in either the prose, drama, or poetry of the twentieth century in Spain. May be repeated to a maximum of 6 credits if topics 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 following 700-level Spanish 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 period. 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 EIGHTEENTH 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 NINETEENTH CENTURY SPANISH LITERATURE (3+0) 3 credits
 Seminar on selected movements, authors, or genres in Spanish literature of the nineteenth century. Maximum of 6 credits.

761 STUDIES IN SPANISH LITERATURE OF THE TWENTIETH CENTURY (3+0) 3 credits
 Problems of modern and contemporary literature; selected authors, movements; influences, genres. Maximum of 9 credits.

763 SPECIAL TOPICS IN SPANISH LITERATURE (3+0) 3 credits
 Special topics in literary movements, authors, genres, literary criticism, etc. Maximum of 9 credits.

780 SPECIAL STUDY 1 to 3 credits
 Maximum of 6 credits.

794 SPECIAL TOPICS IN SPANISH-AMERICAN LITERATURE (3+0) 3 credits
 Seminar in selected authors, genres, movements, literary criticism, etc. Maximum of 9 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+3) 3 credits
 Study and practice of 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
 Designed to stimulate environmental awareness among the local community; specifically examines the causes of environmental problems and considers possible solutions. Examples from Nevada are included. (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.

314, 514 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. Not applicable to an advanced degree in geography.

319, 519 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.

322, 522 CLIMATOLOGY (3+0) 3 credits
 Weather elements basic to understanding climate. Classification of world climates, microclimatology, and aspects of applied climatology. Prerequisite: Geog. 103 or 3 credits of physics or meteorology. Not applicable to an advanced degree in geography.

325, 525 BIOCLIMATOLOGY (2+3) 3 credits
 (See P.S.W. 331 for description.)

331, 531 LANDFORMS (3+0) 3 credits
 Origin, description, and classification of landforms. Distribution of landforms and their significance to environmental and resource problems in the United States. Prerequisite: Geog. 103 or Geol. 101.

334, 534 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.

335, 535 CONSERVATION OF NATURAL RESOURCES (3+0) 3 credits
 Basic information regarding current 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 R.N.R. 335.)

338, 538 FUNDAMENTALS AND TEACHING OF CONSERVATION (2+0) 2 credits
 Concentrated information on and solution of conservation problems. Methods of integrating conservation information with other subjects in elementary and secondary school curricula. Field trips to the Sierra. Lectures by State and Federal conservation officials.

341, 541 GEOMORPHOLOGY (2+3) 3 credits
(See Geol. 341 for description.)

355, 555 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.

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.

388, 588 CULTURAL AND LINGUISTIC PATTERNS IN THE NEAR EAST (3+0) 3 credits
(See Anth. 388 for description.)

415, 615 INTERNSHIP IN GEOGRAPHY
1 to 5 credits each
Work experience on a professional level with a government agency or private company, including such tasks as library or field research, statistical analysis, mapping, and drafting.

418, 618 GEOGRAPHIC THOUGHT (2+0) 2 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.

420, 620 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, 322 or 325.

421, 621 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.

423, 623 HYDROMETEOROLOGY (3+0) 3 credits
Hydrological cycle; orographic, frontal, and convective precipitation patterns; precipitation variability; statistical relationships between precipitation and stream flow. Prerequisite: general physics and calculus.

430, 630 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.

431-432, 631-632 ENVIRONMENTAL ISSUES IN PUBLIC LAND MANAGEMENT (3+0) 3 credits
(See R.N.R. 490 for description.)

434, 634 ADMINISTRATION AND POLICY (3+0) 3 credits
(See R.N.R. 494 for description.)

436, 636 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.

440, 640 ECONOMICS OF COMMUNITY RESOURCE DEVELOPMENT (3+0) 3 credits
(See A.R.Ec. 460 for description.)

481, 681 THE AMERICAN WEST: RESOURCES AND ECONOMY (3+0) 3 credits
Interdisciplinary inquiry into natural and human resources, and the economic development of the western United States, Alaska, and related areas of Canada. Special attention to resource utilization problems and international trade relations. Prerequisite: senior standing. (Same as Ag. 461.)

462, 662 WORLD MINERAL ECONOMICS (3+0) 3 credits
(See Min.E. 472 for description.)

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, 776 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 social-economic development of the world's largest state. Prerequisite: introductory geography course. (Offered in alternate years.)

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 geography 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: elementary geography course.

491, 691 SPECIAL PROBLEMS 1 to 3 credits
Independent study of selected geographic problems, including library research, field work, and reports. May be repeated to a maximum of 8 credits.

701-702 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. Courses consist of either lectures, conferences, supervised reading, laboratory work, or field work. May be elected 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. 322, 325 or 420.

725 ADVANCED BIOCLIMATOLOGY (3+0) 3 credits
(See P.S.W. 731 for description.)

736 PERSPECTIVES IN RENEWABLE NATURAL RESOURCES (3+0) 3 credits
(See R.N.R. 736 for description.)

752-753 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.*
Inactive Courses

476, 676 LATIN AMERICA (3+0) 3 credits
478, 678 AFRICA (3+0) 3 credits
486, 686 ASIA (3+0) 3 credits
489, 689 CHINA (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 survey 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.

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.

201 GEOLOGY OF NEVADA (2+0) 2 credits
Lectures and exercises on Nevada's geology, including areal geology, geologic history, and economic geology. Occasional Saturday field trips. Prerequisite: Geol. 101 or 102.

203 PROSPECTING TECHNIQUES (1+1 or 2) 1 to 3 credits.
S/U only.
Rock and mineral identification; basics of geology and ore deposit formations; claim staking; use of aerial photographs and maps. Field trips. For persons seriously interested in prospecting.

211 CRYSTALLOGRAPHY-MINERALOGY (1+3) 2 credits
Elementary crystallography, physical and chemical mineralogy. Origin and determination of nonsilicates. Prerequisite: elementary chemistry and trigonometry.

212 ORE MINERALS (1+3) 2 credits
Introduction to the geochemistry and mineralogy of ore minerals with emphasis on determinative techniques. Prerequisite: Geol. 211.

213 LITHOLOGY (0+3) 1 credit
Classification and identification of silicate minerals and rocks. Prerequisite or corequisite: Geol. 211.

215 ELEMENTARY PETROLOGY (1+0) 1 credit
Origin of igneous, sedimentary, and metamorphic rocks. Prerequisite or corequisite: Geol. 211.

280 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.

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, 541 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: Geol. 101 or Geog. 103 and Geol. 332 (usually taken concurrently). (Same as Geog. 341.) Not applicable toward an advanced degree in geology.

351, 551 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.

381, 581 APPLIED GEOLOGY (3+0) 3 credits
Concepts and methods used in mineral resource geology. Structural and economic geology applied to exploration, development, and management of mineral deposits. Not open to geology majors. Prerequisite: Geol. 211.

404, 604 INTRODUCTION TO REMOTE SENSING (3+0) 3 credits
Lectures on sensor design and applications to environmental problems. Exercises in data interpretation in geology, geography, agriculture, forestry, hydrology, land use, urban planning, and other disciplines. Prerequisite: Geol. 446 or R.N.R. 442. (Same as R.N.R. 404.)

415, 615 GEOLOGICAL THERMODYNAMICS (3+0) 3 credits
Reversible and irreversible thermodynamics. Includes first law, second law, Gibbs equation, entropy production, flows and forces, transport processes, electrochemical processes. Prerequisite: senior or graduate standing, 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 OPTICAL MINERALOGY (2+6) 4 credits
Fundamentals of optical crystallography and optical mineralogy of rock-forming minerals with a brief introduction to instrumental analysis. Prerequisite: Geol. 212 and physics of light.

427, 627 IGNEOUS AND METAMORPHIC PETROLOGY (2+0) 2 credits
Theory of origin, composition, and classification of igneous and metamorphic rocks. Prerequisite: Geol. 425.

428, 628 IGNEOUS AND METAMORPHIC PETROGRAPHY (0+6) 2 credits
Laboratory study of igneous and metamorphic rocks. Prerequisite: Geol. 425.

446, 646 PHOTO GEOLOGY-PHOTOGRAMMETRY (1+6) 3 credits
Lectures on photogrammetric principles. Laboratory applications of photogrammetry to geologic problems and photogeologic interpretation. Nongeologic majors given laboratory exercises in their fields of interest.

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 THE 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 differential equations.

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 MICROPALAEONTOLOGY (2+6) 4 credits
Study of microfossils, chiefly Foraminifera and Ostracoda. Consideration of other groups including spores and pollen and nanofossils.

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, 669 STRATIGRAPHY AND SEDIMENTATION

(2+3) 3 credits

Principles of stratigraphy and sedimentation as illustrated by selected examples from the geologic record. Prerequisite: Geol. 102, 211-212.

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.

476, 676 NONMETALLIC MINERAL DEPOSITS

(3+0) 3 credits

Occurrence, distribution, origin, and economic value of the non-metallic minerals. Prerequisite: Geol. 212.

477, 677 ORE PETROLOGY (3+3) 4 credits

Microscopic identification and study of ore minerals and ore mineral suites. Ore textures and their interpretation. Use of X-ray diffraction, reflectivity, and microhardness determinations in ore mineral studies. Prerequisite: Geol. 425 and 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.

481, 681 TECTOGENESIS AND GEOTECHNOLOGY

(2+6) 4 credits

Process by which rocks form large scale structures and discontinuities, plate tectonics, engineering behaviour of rock and soil masses. Prerequisite: C.E. 372, M.E. 241.

482, 682 GEOLOGY OF ENERGY (3+0) 3 credits

Geologic origin and occurrence of energy sources with emphasis on petroleum and exploration techniques. Additionally considered are coal, hydroelectric, solar, and geothermal sources. Prerequisite: Geol. 102.

483, 683 GEOLOGICAL ENGINEERING I

(3+0 or 3) 3 or 4 credits

Application of geological factors to design and construction of engineering works and evaluation of geological hazards in urban development.

484, 684 GROUNDWATER HYDROLOGY (2+3) 3 credits

Occurrence, movement, resources, and properties of subsurface water. Elementary theory of groundwater flow and flow-net analysis. Prerequisite: Geol. 101, Phys. 152, Math. 215.

485, 685 GEOLOGICAL ENGINEERING II (3+3) 4 credits

The relationship between the geology of soft sediments and their engineering behaviour. Petroleum reservoir engineering. Design of surface and underground excavations. Ground improvement and instrumentation. Prerequisite: C.E. 367, 372, Geol. 483.

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.

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.

493, 693 ELEMENTARY SEISMOLOGY (2+3) 3 credits

Propagation of seismic waves in relation to the structure of the earth, with emphasis on problems of earthquake analysis and seismic prospecting. Prerequisite: Phys. 208, 210 and Math. 310.

494, 694 GEOPHYSICS AND POTENTIAL THEORY

(2+3) 3 credits

Potential theory and interpretation technique as applied to the gravity, magnetic and electrical methods. Prerequisite: Geol. 492. Phys. 352 (may be taken concurrently) and 473. Offered in alternate years.

495, 695 SPECIAL PROBLEMS 1 to 5 credits each

Independent study or research. Consists of conferences, reading, laboratory or field work. May be taken more than once to a 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, (i) 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. Courses consist of either lectures, periodic conferences, supervised reading, laboratory or field work. May be elected more than once to pursue different studies.

710 HISTORY OF GEOLOGY (2+0) 2 credits

Evolution of man's thought concerning earth and development of geology as a science.

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

(3+0) 3 credits

Case studies involving acquisition of solutes, equilibrium models for the establishment of chemical boundary conditions, steady state models. Theory of sampling and analysis. Prerequisite: Geol. 716.

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.)

726 VOLCANIC PETROLOGY (2+6) 4 credits

Lectures, reports, and discussions on origin and nature of volcanic igneous rocks. Laboratory includes the use of the Universal Stage in determining the optical properties of rock-forming minerals. Prerequisite: Geol. 425, 427-428 or equivalent. (Alternates with Geol. 728.)

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 Geol. 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 leading to the development of fabric, and elementary petrofabrics. Prerequisite: Geol. 425 and Geol. 427-428 or equivalent. (Alternates with Geol. 727.)

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.

771 METALLOGENY (3+0) 3 credits

Analysis of the mineral deposits of the Cordilleran geosyncline from the viewpoint of regional geology, tectonics, and concepts of ore emplacement. Comparison of the Cordillera with other orogenic belts, particularly in the USSR and Australia.

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 THEORY OF WAVES IN AN ELASTIC MEDIUM

(3+0) 3 credits

Theory of stress and strain, equilibrium and wave motion in elastic solids, with special attention to earthquake waves. Prerequisite: Geol. 493, Math. 320.

775 ADVANCED SEISMOLOGY (2+3) 3 credits

General mathematical theory of the seismograph with discussion of problems in modern seismology. Laboratory assembly and calibration of seismographic systems. Prerequisite: Phys. 208, Math. 320.

783 HYDROGEOLOGY I (2+3) 3 credits

Study of hydrogeologic systems, seepage toward wells and flow nets. Prerequisite: Geol. 484, Math. 216, or equivalents.

784 HYDROGEOLOGY II (2+3) 3 credits

Advanced topics in hydrogeology. Prerequisite: Geol. 783.

791 MINERAL INDUSTRY SEMINAR 1 to 3 credits

(See Met. E. 791 for description.)

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.**797 THESIS 1 to 6 credits****799 DISSERTATION 1 to 24 credits****Inactive Courses**

487, 687 MINING GEOLOGY (2+3) 3 credits

488, 688 EXPLORATION GEOLOGY (3+0) 3 credits

651 SUMMER FIELD GEOLOGY 3 or 6 credits

HISTORY (Hist.)**101 UNITED STATES (3+0) 3 credits**

United States political, social, economic, diplomatic, and cultural development from colonial times to 1865. Includes examination of the United States Constitution and satisfies the United States Constitution requirement.

102 UNITED STATES (3+0) 3 credits

United States 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

The history of the physical, mathematical, natural, biological, and medical sciences from the 17th century to the present.

300 INTRODUCTION TO HISTORIOGRAPHY (3+0) 3 credits

Philosophy of history, the history of history, and the techniques of historical research.

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 UNITED STATES

(3+0) 3 credits

Expansion and growth of the United States 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 twentieth century ecological movement.

317-318 HISTORY OF RELIGION IN THE UNITED STATES

(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 twentieth century.

320 THE SPANISH-SPEAKING PEOPLE OF THE WESTERN**UNITED STATES (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 United States 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 nineteenth and twentieth 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

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

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 centuries.

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 United States 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 UNITED STATES 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 twentieth century agricultural policy. Regional characteristics of American agriculture.

410, 610 TWENTIETH 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 UNITED STATES: 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. Prerequisite: 6 credits of history, including 101 or equivalent.

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 UNITED STATES: 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 UNITED STATES: 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 UNITED STATES: 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 UNITED STATES: 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 (2+0) 2 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.

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
Fall: a study of the institutional, social, economic, and political development of the German states to 1848. Spring: a study of 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
The 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 seventeenth to twentieth 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.

Graduate Courses**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. Required of graduate majors in history.

784 PROBLEMS IN HISTORIOGRAPHY (3+0) 3 credits

Prerequisite: Hist. 783 or equivalent.

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.**797 THESIS 1 to 6 credits.****799 DISSERTATION 1 to 24 credits****Inactive Courses**

431, 631 ENGLISH CONSTITUTIONAL HISTORY (3+0) 3 credits

453 ETHNIC HISTORY IN THE UNITED STATES (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.

122 CREATIVE FOODS (2+0 or 2) 2 or 3 credits

Introduction to basic food principles including meal preparation. The optional laboratory provides guided experience in meal preparation.

131 CHILD DEVELOPMENT: PRENATAL TO SIX

(3+0 or 3) 3 or 4 credits
Prenatal growth and development; developmental needs of the infant and young child and how these needs can be met in the family and nursery school. The optional 3 hours of laboratory will be spent in observing children.

132 GUIDANCE PRINCIPLES IN EARLY CHILDHOOD

(3+0) 3 credits
Child development principles used in working with young children as related to health, safety, environment, guidance, and group management. Prerequisite or corequisite: H.Ec. 131.

151 DESIGN (2+0 or 2) 2 or 3 credits

Fundamentals of design. Optional laboratory provides guided experience in the application of design.

152 DISPLAY (3+0) 3 credits

Study and use of design principles and display fixtures for application in merchandising through interior and exterior display. Prerequisite or corequisite: H.Ec. 151.

171 PERSPECTIVES IN HOME ECONOMICS

(1+2) 2 credits

Acquaintance with professionals serving families, attitudes and skills of a home economist, and disciplines contributing to home economics.

172 FOOD AND PEOPLE (4+0) 4 credits

Influences of economic, cultural, aesthetic, and socio-psychological aspects of food habits on dietary patterns and nutrition of individuals.

200 SPECIAL TOPICS IN HOME ECONOMICS 1 to 6 credits*S/U only.*

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 CLOTHING CONSTRUCTION (1+4) 3 credits

Understanding and utilization of basic clothing construction techniques. Study of fabric with respect to pattern design and processes of construction.

211 PATTERN DESIGN (1+6) 3 credits

Basic principles of pattern construction and design through a combination of draping and drafting techniques. Prerequisite: H.Ec. 210.

212 PATTERN ALTERATION (1+6) 3 credits

Principles of pattern alterations: development of proficiency in fitting individual figures. Prerequisite: H.Ec. 210.

223 PRINCIPLES OF NUTRITION (3+0) 3 credits

Nutrient functions and bases for nutrient requirement at the cellular level. Prerequisite: Chem. 101 or 171, and Chem 142 or 172.

225 PRINCIPLES OF FOOD PREPARATION (1+6) 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.

311 CHILD DEVELOPMENT: SIX THROUGH ADOLESCENCE

(3+0 or 3) 3 or 4 credits

Growth and development of the child from age six to eighteen years. Interrelated physical, mental, emotional, and social factors influencing healthy development. The optional 3 hours of laboratory are spent observing children. Prerequisite: Psy. 101.

232 PRESCHOOL PROGRAMMING (3+0) 3 credits

Planning preschool programs; giving consideration to the special needs of day care and nursery school situations. Prerequisite: H.Ec. 132, Corequisite: H.Ec. 233.

233 PRACTICUM WITH CHILDREN AND FAMILIES

(1+4 to 13) 2 to 5 credits

Working in a preschool setting with young children and their families on three levels of competence: (1) aide, (2) assistant, (3) head teacher. Satisfactory performance necessary for continuation in the course. Prerequisite or corequisite: H.Ec. 131. Maximum of 12 credits.

251 DELINEATION IN HOUSING (1+4) 3 credits

Studio course to develop ability in communicating housing ideas and information through representational delineation, perspective and rendering techniques; preparation of a professional presentation.

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. Satisfactory performance necessary for continuation in the course. Prerequisite: approval of screening committee. Maximum of 3 credits.

271 CLOTHING (4+0) 4 credits

Aesthetic, cultural, economic, physical, and socio-psychological factors in the creative use of clothing resources; fibers, fabrics, and garment design in relation to functional applications. Prerequisite: design and Psy. 101.

274 THE INDIVIDUAL AND THE FAMILY

(4+0 or 2) 4 or 5 credits

Human growth and development and the needs of individuals and families at all stages in the life cycle. Prerequisite: Psy. 101 and Soc. 101.

275 SHELTER AND ENVIRONMENT (4+0) 4 credits

Development of sensitivity to total shelter and environment, both aesthetic and functional, as a framework for family living. Prerequisite: Psy. 101 and Soc. 101.

294 LIFE STYLES AND THE ENVIRONMENT (2+0) 2 credits

Evaluation of personal decisions and modes of behavior which have effects upon environmental problems such as the consumption of resources, pollution, and population growth. (Same as Env. 294)

301, 501 CURRENT TOPICS IN HOME ECONOMICS1 to 5 credits *S/U only.*

Study of a topic of special interest in areas of home economics. Maximum of 10 credits.

309 MUSEOLOGY (3+0) 3 credits

(See Anth. 309 for description.)

313 CLOTHING AND THE CONSUMER (3+0) 3 credits

Clothing economics related to changing needs and life styles throughout the life cycle. Consumer behavior related to clothing purchase and satisfaction. Prerequisite: Ec. 101 or 102 and Psy. 101.

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.

316 TEXTILES (2+2) 3 credits

Textiles performance applied to merchandising and consumer satisfaction. New developments in the textile industry and their effect on fashion and the economy. Prerequisite: H.Ec. 271.

318 CREATIVE TEXTILES (2+2) 3 credits

Design of textile 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.

321 QUANTITY FOODS (0+6) 2 credits

(2+3) 3 credits (3+6) 5 credits

Experience in management of quantity food production and service; use, preparation, and maintenance of equipment. (The 2-credit (0+6) session is open only to students who previously had a 2- or 3-credit course in Quantity Foods.) Maximum of 5 credits. Prerequisite: H.Ec. 225.

322 MEAL MANAGEMENT (1+5) 3 credits

Application of the principles of management, foods, and nutrition to the process of meal preparation. Prerequisite: H.Ec. 121 or 172, and 225.

325 FOOD AND CULTURE (2+0 or 3) 2 or 3 credits

Food patterns and nutrition of ethnic groups and their effects on behavioral, mental, and physical development

340 HOUSEHOLD EQUIPMENT (1+2) 2 credits

Materials, specifications, performance, layout, installation and maintenance of home and institutional equipment. Techniques of writing consumer advisement, demonstration of equipment.

341 PERSONAL FINANCE (3+0) 3 credits

Factors relevant to consumer behavior in American society. Consumer's use of money, how to earn, spend, budget, borrow it, and use it.

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 and community service major must enroll for 3 credits.

353 HISTORY OF FURNITURE (3+0) 3 credits

Furniture and interior design reflecting the culture of significant historical periods.

355 HOME FURNISHINGS (3+0) 3 credits

Application of design principles in the creation of an interior environment suited both to the individual and to exterior factors.

371 FAMILY ECONOMICS AND MANAGEMENT

(4+0) 4 credits

Managerial processes and decision-making in the utilization of human and nonhuman resources; values, goals, and standards. Societal, economic, and legislative influences on family management problems. Prerequisite: 3 credits each of economics, psychology, and sociology.

373 ISSUES IN CONSUMER COMPETENCE

(1+0) 1 credit

Integrates economics and management as they relate to family decision-making in food, clothing, shelter, and interpersonal relationships. Prerequisite: H.Ec. 172, 271, 274, 275, and 371.

374 COMMUNICATIONS IN HOME ECONOMICS

(2+2) 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.

376 ISSUES IN FAMILY HEALTH (1+0) 1 credit

Physical and mental health of families as influenced by physical and cultural environment. Prerequisite: H.Ec. 172, 271, 274, 275.

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 relations, (e) foods, (f) general home economics, (g) home economics education, (h) home furnishings, (i) home management, (k) housing, (m) household equipment, (n) nutrition or (p) textiles. Maximum of 10 credits.

406, 606 DEMONSTRATION TECHNIQUES (1+2) 2 credits

Experience in planning and presenting demonstrations in home economics subjects. Prerequisite: H.Ec. 374.

410, 610 EXPERIMENTAL CLOTHING (2+2) 3 credits

Experimental investigation and application of construction methods and techniques to problem textiles. Prerequisite: H.Ec. 210.

412, 612 FASHION ANALYSIS (3+0) 3 credits

Factors affecting development and cycles of fashion trends; fashion promotion; production and distribution of fashion goods; factors involved in consumer acceptance of fashion. Prerequisite: H.Ec. 271.

420, 620 BIONUTRITION (3+0) 3 credits

Physiological and biochemical aspects of nutrient roles within subsystems of the human biosystem. Prerequisite: H.Ec. 223, approved biochemistry and physiology courses.

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: organic chemistry and H.Ec. 225.

426, 626 DIET THERAPY (2+3) 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.

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 MIDDLE AND LATER LIFE (2+0 or 3) 2 or 3 credits

Development, adjustment, and needs of people in our culture as they reach middle age and approach the advanced years. Prerequisite: 6 credits in psychology and sociology.

432, 632 PRESCHOOL FOR SPECIAL CHILDREN AND THEIR**FAMILIES (3+0 or 3) 3 or 4 credits**

Preschool for children who are handicapped, retarded, emotionally disturbed, or gifted. Particular emphasis on involvement of the families. Optional credit is for work with special children in a preschool setting. Prerequisite: 6 credits in child development.

434, 634 PARENT EDUCATION IN FAMILY LIFE

(3+0) 3 credits

Planning, organizing, and analyzing parent education programs for schools, churches, and other community agencies; methods of working with parent groups. Prerequisite: H.Ec. 274 or Soc. 275 or 380 or Psy. 233 or C.I. 270.

436, 636 FAMILY INTERACTION (2+2) 3 credits

Family theory and research, with laboratory experience to facilitate understanding of the dynamics of family interaction and its impact on family members.

438, 638 CHILDREN AND FAMILIES IN A MULTIETHNIC**SOCIETY 1 to 3 credits**

Study of the life styles, values, and needs of children and their families from diverse ethnic groups; designed to assist those working with minority children. Prerequisite: 6 credits in sociology, psychology, education, or human development. 3 credits of course meet State of Nevada multiethnic education requirement.

439, 639 THEORETICAL PRESCHOOL MODELS

(3+0) 3 credits

Preschool programs including basic philosophies (traditional, Montessori, eclectic, etc.), curricula, and procedures. Prerequisite: H.Ec. 131 or equivalent.

441, 641 ADVANCED CHILD DEVELOPMENT (3+0) 3 credits

Cognitive, psychomotor, and affective modes of behavior with implications for understanding and interacting with children. Prerequisite: H.Ec. 131 and 231 or 274.

449 ORGANIZATION AND ADMINISTRATION OF HOME**ECONOMICS (1+0 per credit) 1 to 3 credits**

The interrelationship of the vocational and nonvocational aspects of home economics in youth and adult programs. Evaluation as a technique for appraising progress. Home economics education and extension majors must enroll for 3 credits. Prerequisite: H.Ec. 347.

453, 653 ECONOMIC ASPECTS OF THE HOUSING**ENVIRONMENT (3+0) 3 credits**

Impact of the economy and of technological change on the structure, operation, and function of housing submarkets. Government programs designed to alter market performance in relation to current societal goals. Prerequisite: Ec. 101 or its equivalent.

454, 654 INTERIOR DESIGN - MATERIALS AND TECHNIQUES

(1+4) 3 credits

Exploration and application of rendering media and methods used in visual presentation of interior design ideas; practice in effective oral presentation and critique. Prerequisite: H.Ec. 251 and 355. Undergraduate component may be repeated to a maximum of 5 credits but must be taken for 3 credits initially.

456, 656 INTERIOR DESIGN STUDIO (1+4) 3 credits

Special problems in interior design involving practice in client relations and presentation of design ideas. Prerequisite: H.Ec. 454. Undergraduate component may be repeated to a maximum of 6 credits.

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: Foundations for Secondary Teaching I, II, III completed, and IV completed or in progress, or equivalent. Arrangements are made by teacher-educator in home economics education.

458, 658 FAMILIES AND PUBLIC DECISION-MAKING

(1+3 or 6) 2 or 3 credits

Role of the family in decision-making and management of public issues; analysis of legislation directly affecting the family. Laboratory includes experience with the legislature and other policy-making bodies. Prerequisite: H.Ec. 371 or equivalent, 3 credits of political science or history.

470 FIELD EXPERIENCE 3 to 8 credits

Work with one or more community agencies or firms that utilize home economics subject matter as they work with clientele. Combines a seminar with a supervised field experience. Prerequisite: approval of screening committee. Maximum of 8 credits.

475 PHILOSOPHIES AND ISSUES IN HOME ECONOMICS

(2+0) 2 credits

Seminar encompassing objective and critical thought, creativity, choice of life styles, current philosophies and issues, and professional responsibilities. Prerequisite: senior standing in home economics.

484, 684 WORKSHOP IN VOCATIONAL EDUCATION

(1+0 per credit) 1 to 6 credits

(See C.I. 484 for description.)

494, 694 SEMINAR ON LIFE STYLES AND THE ENVIRONMENT (2+0) 2 credits

Systematic analysis and reconsideration of alternative individual life styles in the framework of society's impact on the environment. Prerequisite: senior or graduate standing. (Same as Env. 494)

719 SOCIO-PSYCHOLOGICAL ASPECTS OF CLOTHING

(3+0) 3 credits

Clothing in the context of its social and social-psychological significances. Prerequisite: 6 credits of work in psychology and sociology and 6 credits of work in clothing.

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 subsequent impact on nutritional status. Prerequisite: 3 credits nutrition and 6 credits in behavioral science.

30 SEMINAR IN CHILD DEVELOPMENT AND FAMILY LIFE

(3+0) 3 credits

Critical analysis of recent research and theory in the area of child development and family life. Prerequisite: 6 credits of course work in child development and family relations.

740 ISSUES IN FAMILY AND CONSUMPTION ECONOMICS

(3+0) 3 credits

Critical review of research and theory in family and consumption economics. Special emphasis on theories of consumer behavior, concepts related to family welfare, and income adequacy and equivalence. Prerequisite: 12 credits from the social science root discipline, to include 6 credits in economics.

755 DIRECTED TEACHING IN COLLEGE HOME ECONOMICS

3 credits S/U only

Teaching a college-level home economics course. Team planning, individual preparation presentation of material, and testing undergraduate students in lectures, discussions, and laboratories. Undergraduate major in home economics or equivalent required. Prerequisite or corequisite: H.Ec. 347.

780 INTERSTATE DOCTORAL STUDY 1 to 3 credits

Extended registration for students participating in an interinstitutional doctoral program. May be repeated for credit.

790 GRADUATE SEMINAR (1+0) 1 credit

Clarifies the basic philosophy of home economics and the place of the home economist in present day society. Required for M.S. degree in home economics.

791 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. Presentation of thesis prospectus for criticism. Required of all graduate students during their first year of graduate study.

794 EVALUATION IN HOME ECONOMICS (3+0) 3 credits

Selection and construction of evaluation devices; their use as a technique for guiding learning and appraising progress in home economics. Prerequisite: 18 credits in home economics.

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.**796 PROFESSIONAL PAPER 1 to 3 credits**

Required of all graduate students who wish to complete an M.S. degree in the School of Home Economics under Plan B.

797 THESIS 1 to 6 credits*Inactive Courses*

421, 621 READINGS IN FOODS AND NUTRITION (2+0) 2 credits

443, 643 WORK SIMPLIFICATION (1+2) 2 credits

452, 652 DECISION-MAKING IN THE FAMILY ECOSYSTEM

(3+0) 3 credits

700 GRADUATE STUDIES IN HOME ECONOMICS 1 to 3 credits in a field

per semester

758 INDIVIDUAL INSTRUCTION IN HOME ECONOMICS EDUCATION (1+0

per credit) 1 to 3 credits

HONORS STUDY (Hon.)*Interdisciplinary Courses***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 (c) communications. Maximum of 12 credits.

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, political. Maximum of 6 credits.

435 BRIDGING INTELLECTUAL DISCIPLINES

(3+0) 3 credits

Study of methods, values, theories, and directions of two or more academic disciplines in search of their common ground, as well as differences in approaches; open to upper-class and graduate students. 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

Study of 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.

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.

Inactive Courses

210 GENERAL HUMANITIES (3+0) 3 credits

240 AMERICA AND THE FUTURE OF MAN 2 credits

432 RACE AND ETHNIC RELATIONS (3+0) 3 credits

433 SCIENCE AND CULTURE (3+0) 3 credits

487 REVOLUTION: SOURCES AND MANIFESTATIONS

(3+0) 3 credits

INFORMATION SYSTEMS (I.S.)**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 COBOL (3+0) 3 credits

Programming in COBOL (Common Business Oriented Language). Parallel emphasis in analysis and documentation of management systems problems. Prerequisite: I.S. 250

252 FORTRAN (3+0) 3 credits

A survey of the FORTRAN (FORmula TRANslation) programming language and an introduction to assembly languages. Prerequisite: I.S. 250.

350 COMPUTER OPERATING SYSTEMS (3+0) 3 credits

A survey of computer operating systems and related technology. Prerequisites: I.S. 250 and 251.

352 COMPUTER APPLICATIONS (3+0) 3 credits

Problems involving RPG programming, computer feasibility studies, computer center management, and information system security. Prerequisite: I.S. 250.

451, 651 ADVANCED COMPUTER PROBLEMS (3+0) 3 credits

Case studies and problems in administrative information systems using the COBOL language. Prerequisites: I.S. 250 and 251.

480, 680 ACCOUNTING SYSTEMS AND AUTOMATION

(3+0) 3 credits

Management information systems with emphasis on accounting and data bases. An introduction to administrative systems analysis and design. A survey of computer auditing techniques. Prerequisites: I.S. 250 and 251.

488, 688 SEMINAR IN INFORMATION SYSTEMS

(3+0) 3 credits

Research in selected information systems problems. Prerequisites: I.S. 250, 251 and 451.

490, 690 INDEPENDENT STUDY 1 to 3 credits

Independent study in selected topics. Maximum of 6 credits.

716 MANAGEMENT AND THE COMPUTER (3+0) 3 credits

Using computer-based information systems in organizations. Computer hardware and programs, computer economics, system selection, staffing, budgeting, and implementation. (Satisfies requirement for M.B.A. first-year core.)

Inactive Course

150 BASIC (1+0) 1 credit

JOURNALISM (Jour.)**101-102 INTERPRETING THE DAY'S NEWS**

(3+0) 3 credits each

Study of the news of the day and the function of the newspaper, the news magazine, and news broadcasts in American life. History of journalism also is emphasized. Course may be started with Jour. 101 or 102.

221 INTRODUCTION TO NEWS WRITING (1+6) 3 credits

Newswriting fundamentals, with emphasis on journalistic problems and practices of grammar, word usage, spelling, punctuation, and style. Discussion and laboratory. Ability to type essential. Prerequisite: Jour. 101.

222 NEWS GATHERING AND WRITING (1+6) 3 credits

The gathering of news and preparation of stories for publication in newspapers; the nature and ethics of news gathering and reporting. Prerequisite: Jour. 101 and a grade of C or better in Jour. 221.

280 INTRODUCTION TO BROADCASTING (2+0) 2 credits

Radio and television as news media in the U.S. and abroad, including history, relationship to press and governments, and varieties and effectiveness as news media.

281-282, 381-382 ON-THE-AIR BROADCASTING

(0+3) 1 credit each

Participation in radio and television production, preparation of programs for on-air broadcast. Prerequisite: Jour. 280. Not applicable to Sequence II.

301 PUBLIC RELATIONS PRINCIPLES AND PRACTICE

(2+0) 2 credits

Public relations in social welfare, business, education, government, industry, labor, politics, and civic organizations, with stress on journalistic media.

302 PUBLIC RELATIONS PROBLEMS (2+0) 2 credits

Application of the principles and techniques of public relations to the solving of representative problems. Prerequisite: Jour. 301.

311-312 RADIO AND TELEVISION NEWS WRITING AND EDITING (1+4) 3 credits each

Principles of writing and editing news copy for radio and television, practice in writing, organizing, and broadcasting. Prerequisite: Jour. 222 and 280.

314 RADIO AND TELEVISION PRODUCTIONS (1+6) 3 credits

Production techniques as applied to major program types, critical evaluation of programs, program patterns, audience analysis. Prerequisite: Jour. 280.

315 RADIO AND TELEVISION DIRECTION (1+6) 3 credits

Methods of radio and television direction. Problems of time, film, audience, music, casting, acoustics, space, etc. Prerequisite: Jour. 314.

316 BROADCAST STATION OPERATION (2+6) 4 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. 280.

320 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 major in journalism.

351-352 NEWS EDITING (1+2) 2 credits each

Copy reading, rewriting, headline writing, news evaluation, make-up, and similar duties of the copy editor. Prerequisite: A grade of C or better in Jour. 222.

354 ADVANCED REPORTING (1+3) 2 credits

In-depth reporting of news in such areas as medicine, law, science, the arts, human relations, agriculture, economics, ecology, and community activities. Coverage of off-campus beats. Prerequisite: a grade of C or better in Jour. 222.

358 PRINCIPLES OF ADVERTISING (2+0) 2 credits

Elements which go into successful advertising, including basic principles, types, planning, media, copy, production, and social responsibility.

358 ADVERTISING MEDIA (2+0) 2 credits

Relations of advertising to media; characteristics, evaluation, and use of media, rates, mechanics of purchasing, scheduling, and appropriations. Prerequisite Jour. 356.

359 ADVERTISING COPY WRITING (2+0) 2 credits

Application of the basic principles of advertising in the writing of copy for newspapers, magazines, and radio and television stations. Prerequisite: Jour. 356.

370 TECHNICAL JOURNALISM (2+0) 2 credits

Writing of news stories and feature articles on agriculture, home economics, engineering, mining, and science subjects for newspapers and magazines. Not acceptable toward the requirements for the major in journalism.

372, 572 THE LAW OF THE PRESS (3+0) 3 credits

State and Federal laws affecting the reporting of news, the expression of opinion, advertising, the publication of newspapers and magazines, and radio and television broadcasting.

373 TYPOGRAPHY AND LAYOUT (1+2) 2 credits

Study and practice in the use of type, illustrations, color, and similar typographic elements in the display of news, advertisements, and other printed journalistic materials. Prerequisite: Jour. 222 or 356.

375 PHOTOJOURNALISM (1+6) 3 credits

Principles of reporting news through photography and the application of these principles in practice work for various publications. Prerequisite: Jour. 222.

387 JOURNALISM IN THE HIGH SCHOOL (2+0) 2 credits

Introduction to the teaching of journalism in high school and to the supervision of high school newspapers, magazines, and yearbooks. Not acceptable toward the requirements for the major in journalism.

388 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. 221-222.

404, 604 HISTORY AND ETHICS OF JOURNALISM

(3+0) 3 credits
Development of journalism in America. Analysis of ethical problems and the relationship to other institutions, historically and in contemporary times. Prerequisite: 3 credits in journalism for 400-level registration; 6 credits in journalism for 600-level registration.

414, 614 TELEVISION SCRIPT WRITING (3+0) 3 credits

Journalism writing techniques including theory and practice in the writing of all major continuity types. Prerequisite: Jour. 222 and 280.

415, 615 EDUCATIONAL TELEVISION PRODUCTION

(3+0) 3 credits
Study of current trends in the uses of public broadcasting for educational and instructional purposes, including studio exercises, demonstration, and critical evaluation.

416, 621 THE AMERICAN MAGAZINE (3+0) 3 credits

Assigned to introduce students to the reading, enjoyment, and understanding of various types of primarily journalistic magazines.

454, 654 PUBLIC AFFAIRS REPORTING (1+3) 2 credits

Background and materials of the news of public affairs, together with the actual reporting from such sources as courts, city hall, Federal building, and the State Capitol. Prerequisite: Jour. 354.

485-488, 685-688 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. 222 and 351.

487, 687 EDITORIAL WRITING (3+0) 3 credits

Interpretation of contemporary events through the newspaper and magazine editorial, coupled with extensive practice in writing. Prerequisite: Jour. 222.

488, 688 THE FEATURE ARTICLE (2+0) 2 credits

Study, writing, and marketing of the feature article for magazines and newspapers. Prerequisite: Jour. 222. Maximum of 4 credits.

480, 680 PUBLICATION PRODUCTION AND MANAGEMENT

(1+2) 2 credits
Principles, problems of journalism involved in the management of publications including editorial, circulation, production.

481-482 JOURNALISM INTERNSHIP (1+6) 3 credits each

Professional work as staff members of daily and weekly newspapers, radio and television stations, advertising, and public relations agencies. Prerequisite: Jour. 222, 351, and 454.

485, 685 JOURNALISTIC EVALUATION (3+0) 3 credits

Study and practice in the standard methods of testing journalistic media, as content analysis, readership, readability, habits and response, reader attitudes, copy effectiveness, media selection, and media coverage. Prerequisite: Jour. 222.

490, 690 SPECIAL PROBLEMS IN JOURNALISM

1 to 3 credits
Students can pursue further some special interests in their education for journalism not adequately covered by other courses. Prerequisite: Jour. 222.

493 INDEPENDENT STUDY 1 credit

Aspects of journalism not covered by other courses. Open only to juniors and seniors in journalism who have attained an average grade of B. Maximum of 4 credits.

701 INDEPENDENT STUDY 1 or 2 credits

Advanced study and investigation into problems in journalism. Maximum of 10 credits.

751 GRADUATE SEMINAR 1 or 2 credits

Maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit S/U only.**797 THESIS 1 to 6 credits**

Inactive Courses

231-232 361-362

491-492 691-692 ADVANCED INTERPRETATION OF THE DAY'S NEWS (1 or 2+0) 1 or 2 credits each

410, 610 ON-THE-SCENE REPORTING FOR RADIO AND TELEVISION (1+2) 2 credits

LIBRARY SCIENCE (L.Sc.)**135 USE OF THE LIBRARY (1+0) 1 credit**

Arrangement of books in the University library; principles of organization and elementary bibliography; major reference works, periodicals, and other sources of information. Self-paced workbook.

303 BIBLIOGRAPHY AND GENERAL REFERENCE

(3+0) 3 credits*
Introduction to 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.

313 HISTORY OF BOOKS AND PRINTING (3+0) 3 credits*

Development of the book, of printing, publishing, and the book arts.

381 PRACTICE AND HISTORY OF PRINTING (0+6) 3 credits

Survey of the history of graphic communication in conjunction with actual practice of printing: typographic design, block making, typesetting, press work. (Same as Art 381.)

407 ORAL HISTORY, METHODS, AND TECHNIQUES

(1+6) 3 credits
Introduction to oral history as research method; practice in interviewing, transcription, editing of oral history materials.

*Offered successively, usually in the Summer Session. Contact Director of Libraries for information.

MANAGERIAL SCIENCES (Mgr.S.)**101 INTRODUCTION TO BUSINESS (3+0) 3 credits**

The character of enterprise in the United States. 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.

301 INSTITUTIONAL MANAGEMENT I (3+0) 3 credits

Principles of operation and administration of industries providing direct services to the public, such as hotels, motels, food and recreational establishments, resorts, and hospitals.

302 INSTITUTIONAL MANAGEMENT II (3+0) 3 credits

Continuation of Mgr.S. 301. Prerequisite: Mgr.S. 301.

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: Ec. 102 and junior standing.

312 CONSUMER BEHAVIOR (3+0) 3 credits

Study of the 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.

314 MARKET STRUCTURE AND CHANNELS (3+0) 3 credits

Theory, principles, and channel implications of wholesale and retail distribution; factors affecting channels; and physical distribution. Prerequisite: Mgr.S. 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: junior standing.

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: junior standing.

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. Prerequisite: junior standing.

352 OPERATIONS MANAGEMENT (3+0) 3 credits

Application of basic quantitative methods to decision processes. Covers such topics as linear programming, inventory control, queueing theory, PERT, calculus applications, and decision trees. Prerequisite: Math. 265 or 215, Acc. 201 and 202, Ec. 261 and 262.

353 RISK AND INSURANCE (3+0) 3 credits

Theory of risk, introduction to risk management, principles and legal aspects of insurance, survey of all areas of insurance as a risk treating device for firms and consumers, insurance and society. Prerequisite: Ec. 101.

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: Mgr.S. 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: Acc. 201 and Ec. 102.

367, 567 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: Mgr.S. 365.

373-BUSINESS LAW I (3+0) 3 credits

Nature, origin, and philosophy of law and procedures. Law of contracts, agency and partnerships. Prerequisite: junior standing.

374 BUSINESS LAW II (3+0) 3 credits

Continuation of Mgr.S. 373. Law of corporations, sales, property, negotiable instruments, insurance, and bankruptcy. Prerequisite: junior standing and Mgr.S. 373.

375, 575 LAND RESOURCES: VALUE AND ALLOCATION

(3+0) 3 credits
Use of land resources: physical, economic, and institutional factors that affect, condition, and control man's use of these resources. Prerequisite: Mgr.S. 270. Not applicable toward an advanced degree in managerial sciences.

378 REAL ESTATE LAW (3+0) 3 credits

Law of real property; transfers, deeds, leases, title insurance, es-crows, land contracts, foreclosures, recordings. Law as it affects brokers and salesman. Prerequisite: Mgr.S. 270.

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: Mgr.S. 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: Mgr.S. 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: Mgr.S. 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: Mgr.S. 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: Mgr.S. 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: Mgr.S. 310.

430, 630 REAL ESTATE EVALUATION (3+0) 3 credits

Process and techniques of evaluation. Function of the appraiser.

Actual practice in appraising. Prerequisite: Mgr.S. 270 and one additional course in real estate.

431, 631 REAL ESTATE APPRAISAL PROBLEMS

(3+0) 3 credits
Problems of urban real estate appraisal. The income approach to value, derivation of capitalization rates, annuity capitalization, and the residual techniques of capitalization. Prerequisite: Mgr.S. 430.

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: senior standing.

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: Mgr.S. 323.

455, 655 BUSINESS LOGISTICS (3+0) 3 credits
Physical supply and physical distribution systems from the point of view of the user business firms. Logistics systems topics include transportation systems and inventory control systems, design and management in both the preproduction and postproduction channels. Prerequisite: Mgr.S. 310.

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: Mgr.S. 323 and senior standing.

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: Mgr.S. 352 and 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. Prerequisite: senior standing.

460, 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: Mgr.S. 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: Mgr.S. 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: Mgr.S. 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. Prerequisite: senior standing.

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: senior standing.

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: Mgr.S. 310, senior standing.

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.

714 LEGAL ENVIRONMENT OF BUSINESS (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. (Satisfies requirement for M.B.A. first-year core.)

715 BUSINESS FINANCE (3+0) 3 credits
Managerial finance oriented from the decision-making viewpoint with emphasis on financial planning, investment decisions, sources of financing, capital structure, cost of capital, and dividend policy. (Satisfies requirement for M.B.A. first-year core.) Prerequisite: Acc. 715.

716 ADVANCED MANAGEMENT (3+0) 3 credits
Evolution of management theory: efficiency school, classical school, human relations school. Two central forces influencing management thinking today: (1) behavioral school: motivation, leadership, communication, group relationships, conflict; and (2) quantitative school: linear programming, dynamic programming, simulation, decision theory. (Satisfies requirements for M.B.A. first-year core.)

717 MARKETING ANALYSIS AND STRATEGIES (3+0) 3 credits
Objectives and policies of marketing managers as influenced by marketing institutions, functions performed, and consumer wants and needs. (Satisfies requirement for M.B.A. first-year core.)

732 FINANCIAL MANAGEMENT (3+0) 3 credits
Analysis and discussion of case problems in the area of corporate finance; emphasis on the viewpoint of financial managers and top management. Topics include budgets, short-term and long-term planning, sources of capital, organization and legal aspects. Prerequisite: Mgr.S. 365 or 715.

733 SEMINAR IN FINANCE (3+0) 3 credits
Advanced study of selected topics in finance. Prerequisite: graduate standing. Maximum of 6 credits.

741 SEMINAR IN RESEARCH METHODOLOGY (3+0) 3 credits
Analysis of topics in the philosophy of scientific investigation, causality and predictability, theory of models, and measurement. Problems in designing, conducting, and reporting research.

742 ADVANCED MARKETING (3+0) 3 credits
Problem-solving and decision-making from the viewpoint of the marketing executive. Prerequisite: Graduate Standing. Mgr.S. 310 or 717.

743 MARKETING SEMINAR (3+0) 3 credits
Contemporary trends and theory in marketing developed through reports and discussion.

752 SEMINAR IN GENERAL MANAGEMENT (3+0) 3 credits
Analysis of the functions and problems of industrial managers with emphasis on underlying principles and analytical tools, via study of recent management and management science literature and individual research projects. Prerequisite: Mgr.S. 716.

753 SEMINAR IN OPERATIONS MANAGEMENT (3+0) 3 credits
Advanced topics in production management, operations research, or quantitative methods applied to management problems.

758 BUSINESS POLICY (3+0) 3 credits
Integrating course with a general management point of view. Evaluation determination, implementation, and administration of policies of the business enterprise. Case studies with supporting readings. Prerequisite: second-year M.B.A.

790 INDEPENDENT STUDY 1 to 3 credits
Advanced study and research in business administration. Maximum of 6 credits.

797 THESIS 1 to 6 credits

Inactive Courses

345 INDUSTRIAL PURCHASING (3+0) 3 credits
361 RETAILING (3+0) 3 credits
387 WAGE AND SALARY ADMINISTRATION (3+0) 3 credits
427, 627 PROBLEMS IN LABOR RELATION AND PERSONNEL ADMINISTRATION (3+0) 3 credits
477, 677 SEMINAR IN INSTITUTIONAL MANAGEMENT (3+0) 3 credits

MATHEMATICS (Math.)

Each student is required to present to the Mathematics Department an ACT STANDARD MATHEMATICS SCORE and a copy of the Admission Evaluation form prior to the first registration. Students with previous college mathematics experience should contact the department chairman for proper placement before enrolling.

Preparatory Mathematics

101 INTERMEDIATE ALGEBRA (2+0) 2 credits
Second course in algebra for students who have had one year of algebra in high school. Prerequisite: 1 unit of high school algebra.

102 PLANE TRIGONOMETRY (2+0) 2 credits
Study of the trigonometric functions and their identities; solution of triangles. Prerequisite: plane geometry and either Math. 101 or 1½ units of high school algebra.

110 COLLEGE ALGEBRA (3+0) 3 credits
Relations, functions, graphing; equations: linear, quadratic, polynomial systems; matrices and determinants; sequences, mathematical induction, compound interest and amortization, binomial theorem; the complex numbers; logarithms; combinatorics. Designed as preparation for Math. 183, 265 or as a terminal course. Prerequisite: satisfactory score on qualifying examination or Math. 101.

140 ANALYTIC GEOMETRY (3+0) 3 credits
Coordination of the plane; linear, quadratic, polynomial, rational, exponential, and logarithmic functions; lines, slope, parallelism, perpendicularity; vectors; parabolas, ellipses, hyperbolas; translation and rotation; the complex numbers. Prerequisite: (1) satisfactory score in algebra on the qualifying examination; and (2) satisfactory score in trigonometry on the qualifying examination, or Math. 102, or concurrent registration in Math. 102.

History, Foundations, and Logic

201 MATHEMATICS FOR LIBERAL ARTS (2+0) 2 credits
Elementary mathematical logic, primitive concepts, axioms, axiomatic method; logical crises; sets, structures from sets;

equinumerosity cardinality; algebraic structures; number theory, geometrics; topological results. Prerequisite: 3 units of high school mathematics, Math. 110, or satisfactory score on qualifying examination.

301, 501 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, 508 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. 310, for those majoring in the physical sciences. (Same as Phil. 308.)

374, 574 THE NUMBERING SYSTEMS (3+0) 3 credits
(For description see the listing under Mathematical Education.)

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.

Analysis

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 and a course in plane trigonometry, or Math. 140 or equivalent; a student deficient in plane trigonometry must take Math. 102 prior to or concurrently with Math 215.*

216 CALCULUS II (4+0) 4 credits
Continuation of Math. 215; transcendental functions, methods of integration, conics, vectors. Prerequisite: Math 215.*

310 CALCULUS III (4+0) 4 credits
Continuation of Math. 216; infinite series, three-dimensional calculus. Prerequisite: Math. 216.

311, 511 MULTIVARIABLE CALCULUS (3+0) 3 credits
Mappings between Euclidean spaces, their differentials and partial derivatives; the chain rule; extremization computations; line and surface integrals; the theorems of Gauss, Green, and Stokes. Prerequisite: Math. 310 and 330.

410, 610 COMPLEX ANALYSIS (3+0) 3 credits
Complex numbers, analytic and harmonic functions. Cauchy-Weierstrass 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-Weierstrass Theorem; multivariable functions, linear transformations, differentiation, inverse and implicit functions, Jacobians and change of variable; Lebesgue measure and integration. Prerequisite: Math. 311, 341, and 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, and 330.

*A student whose current progress is unsatisfactory in the opinion of the instructor may be required to attend supervised study sessions.

419, 619 TOPICS IN ANALYSIS (1+0 per credit) 1-3 credits
Variable content chosen from such topics as differential forms, analytic functions, distribution theory, measure and integration, constructive analysis. Maximum of 6 credits.

Applied Analysis

320 DIFFERENTIAL EQUATIONS (2+0) 2 credits
Scalar-valued differential equations; linear theory, differential operators, in-homogenous constant coefficient linear initial-value problems. Green's functions, Wronskians; non-linear first order initial-value problems. Prerequisite: Math. 310 or both Math 216 and coregistration in Math. 310.

321, 521 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. 310 and 320.

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 and 321.

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. 311 and 321.

429, 629 TOPICS IN APPLIED ANALYSIS (1+0 per credit) 1-3 credits

Variable content chosen from such topics as: integral transforms, approximation of functions, nonlinear mathematics, stability theory. Maximum of 6 credits.

Algebra

330 MATRIX AND VECTOR ALGEBRA (3+0) 3 credits

Vector space structure of one-, two-, and three-dimensional Euclidean space; linear mappings and their matrix representations; solution of systems of linear equations; the concepts of orthogonalization, rank, and diagonalization. Prerequisite: Math. 216.

J1, 531 GROUPS, RINGS, AND FIELDS (3+0) 3 credits

Study of the elementary structure of groups, rings, and fields, including homomorphisms, automorphisms, normal subgroups, ideals and Galois theory. Prerequisite: Math 310.

432, 632 LINEAR ALGEBRA (3+0) 3 credits

Vector space structure; linear mappings and their matrix representation; rank, determinants, eigenvalues and eigenvectors, diagonalization; scalar products and orthogonality. 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) 1-3 credits

Variable content chosen from such topics as Galois theory, number theory, topological groups, combinatorial analysis, theory of graphs. Maximum of 6 credits.

Geometry and Topology

341, 541 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. 310.

375, 575 FOUNDATIONS OF GEOMETRY (3+0) 3 credits
(For description see listing under Mathematical Education.)

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; homology, 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

449, 649 TOPICS IN GEOMETRY AND TOPOLOGY

(1+0 per credit) 1-3 credits
Variable content chosen from such topics as projective geometry, algebraic topology, convexity, topological vector spaces. Maximum of 6 credits.

Probability and Statistics

251 PROBABILITY AND STATISTICS (3+0) 3 credits

Finite probability, random variables, distributions, sampling theory, and hypotheses testing. Designed to show the dependence of statistical theory on probability. Prerequisite: Math 110 or satisfactory score on qualifying examination

351, 551 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, 553 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. 251 and 310

354, 554 APPLIED PROBABILITY THEORY (3+0) 3 credits

Introduction to stochastic processes, including random walks and Markov chains with applications. Prerequisite: Math. 353

453, 653 MATHEMATICAL STATISTICS (3+0) 3 credits

Univariate and multivariate normal distributions, point and interval estimation, tests of hypotheses including multivariate and nonparametric techniques. Prerequisite: Math. 353

Mathematics for the Biological, Management, and Social Sciences

251 PROBABILITY AND STATISTICS (3+0) 3 credits
(For description see listing under Probability and Statistics.)

265 ELEMENTS OF CALCULUS I (3+0) 3 credits

Fundamental ideas of analytic geometry and calculus: plane coordinates, graphs, functions, limits, derivatives, integrals, the fundamental theorem of calculus, rates, extrema, and the applications thereof. Prerequisite: two years of high school mathematics or equivalent and satisfactory score on qualifying examination or Math. 110.

365 ELEMENTS OF CALCULUS II (3+0) 3 credits

Continuation of Math. 265. Includes topics from multivariable calculus, matrices and linear algebra, and multilinear and curvilinear regression. Prerequisite: Math. 265.

469, 669 MATHEMATICAL TOPICS IN THE BIOLOGICAL, MANAGEMENT, AND SOCIAL SCIENCES (1+0) 1-3 credits

Variable content chosen from such topics as linear and integer programming, nonlinear programming, game theory, and optimization problems. Maximum of 6 credits.

Mathematical Education

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 chairman.

174 ELEMENTARY SCHOOL MATHEMATICS II

(3+0) 3 credits

Continuation of Math. 173. Prerequisite: Math. 173.

371, 571 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, 572 CONCEPTS OF SCHOOL MATHEMATICS II

(3+0) 3 credits

Continuation of Math. 371. Emphasis on geometry mensuration, and coordinate systems. Prerequisite: Math. 371.

373, 573 FUNDAMENTALS OF SECONDARY SCHOOL MATHEMATICS (3+0) 3 credits

Axiomatic theory of the positive integers; elementary number theory, including induction, g.c.d., l.c.m., primes, the fundamental theorem of arithmetic. The elementary properties of rational and real numbers derived axiomatically. Emphasis on formulating and proving theorems.

374, 574 THE NUMBER SYSTEMS (3+0) 3 credits

Set theory; discussion of the natural numbers, integers, rational numbers, real numbers, and complex numbers from a constructive standpoint. Counting, decimal expansions, completeness of the real number system and its consequences, fundamental theorem of algebra. Prerequisite: Math. 215 and 373.

375, 575 FOUNDATIONS OF GEOMETRY (3+0) 3 credits

Elements of Euclidean, non-Euclidean, affine and projective geometries, and their interrelations. Prerequisite: Math. 215 and 373.

Computer Science

183 INTRODUCTION TO COMPUTER SCIENCE

(2+2) 3 credits

Introductory concepts of computers and programming, including computer organization, algorithms, data representation, elementary machine language. Numerical and nonnumerical problems solved using computer languages such as FORTRAN and BASIC. Prerequisite: Math. 110 or satisfactory score on qualifying examination.

283 COMPUTER MATHEMATICS (2+0) 2 credits

Classical numerical methods. Selected topics in elementary mathematics motivated by high-speed computation, such as linear programming, propositional calculus, and Post languages. Prerequisite: Math. 183 or 215 or 265.

383, 583 NUMERICAL METHODS (3+0) 3 credits

Analysis of numerical methods of linear algebra and nonlinear equations. Prerequisite: Math. 216 and 283.

385, 585 COMPUTER PROGRAMMING AND ORGANIZATION

(3+0) 3 credits

Computer structure, machine language, representation of data. Microprogramming and interpreters. Assembly systems, macro-definition, programming techniques. Basic concepts of data structures, symbol tables, searching and sorting techniques. Prerequisite: Math. 183.

386, 586 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: Math. 385.

387, 587 COMPUTER LOGIC AND ARCHITECTURE

(3+0) 3 credits

(See E. E. 333 for description.)

485, 685 DATA STRUCTURES (3+0) 3 credits

Mathematical models and algorithms of data structures including sets, strings, lists, trees, digraphs. Illustration of the above topics by a nonnumerical language. Prerequisite: Math 283, 385.

486, 686 COMPUTER SYSTEMS AND SYSTEMS

PROGRAMMING (3+0) 3 credits

Overall structure of multiprogramming systems on multiprocessor hardware configurations. Addressing techniques, core management, file system design and management, system accounting, traffic control, interprocess communication, design of system modules. Prerequisite: Math 386, 387. (Same as E.E. 436.)

489, 689 TOPICS IN COMPUTER SCIENCE (1+0) 1-3 credits

Variable content chosen from such topics as numerical methods of integration and of differential and integral equations, optimization, computability, applied formal systems. Maximum of 6 credits.

Individual Study

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.

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.

Graduate Study

700 SEMINAR 1 to 3 credits

Library work and reports on topics of mathematical interest. Limited to 6 credits except under special circumstances.

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.

781-782 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.

783 COMPUTABILITY AND COMPLEXITY (3+0) 3 credits

Turing machines, Markov algorithms, recursive functions, noncomputable functions, complexity of computation.

795 COMPREHENSIVE EXAMINATION 0 credit. S/U only.

797 THESIS 1 to 6 credits

798 TOPICS IN ADVANCED MATHEMATICS

(3+0) 3 credits

Probability, topology, statistics or other fields of mathematics at advanced level depending upon current interest of staff and students. Maximum of 9 credits.

Inactive Courses

163 INTRODUCTION TO PROBABILITY (2+0) 2 credits
210 MATHEMATICS OF FINANCE (3+0) 3 credits

MATHEMATICS—TECHNICAL (M.T.)

111 TECHNICAL MATHEMATICS I (5+0) 5 credits
Review of basic algebra, advanced algebra, and a complete course in trigonometry.

121 TECHNICAL MATHEMATICS II (3+0) 3 credits
Elements of analytic geometry and calculus with applications to technical problems.

Inactive Courses

10 GENERAL MATHEMATICS (2+0 or 3) 2 or 3 credits
26 DESCRIPTIVE GEOMETRY (1+6) 3 credits

MECHANICAL ENGINEERING (M.E.)

140 ENGINEERING ANALYSIS I (2+2) 3 credits
Problems related to engineering and society. Spatial relations, graphical and mathematical analysis, computer use, problems in materials and production, properties and working of materials.

141 ENGINEERING ANALYSIS II (2+2) 3 credits
Continuation of M.E. 140

150 GRAPHICS (1+6) 3 credits
Science and techniques of graphical representations, communications, and solution of spatial and mathematical problems. Corequisite: Math. 140.

241 ANALYTIC MECHANICS FOR ENGINEERS I (3+0) 3 credits
Study of static force systems. Topics include resolution and composition of forces, equilibrium of force systems, friction, centroids, moments of inertia, cables, beams, fluid statics, work. Corequisite: ath. 216, Phys. 201.

242 KINEMATICS OF MACHINERY (2+3) 3 credits
Study of the laws of motion of the parts which compose a machine. Includes analysis and synthesis, both graphical and analytical. Prerequisite: M.E. 241.

250 ENGINEERING ANALYSIS III (2+2) 3 credits
Continuation of M.E. 141.

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. 310.

301 COMPUTER PROGRAMMING (1+3) 2 credits
Basic theory and techniques used in programming problems for the digital and analog computer. Prerequisite: M.E. 300 and M.E. 141 or equivalent in programming experience.

342 ANALYTIC MECHANICS FOR ENGINEERS II (3+0) 3 credits
Study of particles and rigid bodies in translation, rotation in planes and space, work and energy, impulse, momentum, impact, periodic motion. Prerequisite: M.E. 241.

343 DYNAMICS OF MACHINERY (2+0) 2 credits
Study of the dynamical behavior of machine elements and mechanisms, inertia forces on linkages, two degrees of freedom vibrations, gyroscopic effects, selected special problems. Prerequisite: M.E. 342.

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.

374 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 or equivalent.

391 INSTRUMENTATION (2+2) 3 credits
Theory and practice of instrumentation and experimentation including both static and dynamic measurement. Prerequisite: M.E. 342, Corequisite CE 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. 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. 300.

410, 610 INTRODUCTION TO SYSTEM CONTROL (3+0) 3 credits
Mathematics of linear systems and their control. Prerequisite: M.E. 300, 342.

430 MATERIALS (2+0) 2 credits
Properties of materials as they affect selection and design. Prerequisite: Met.E. 350.

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. 342.

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, the elastica, electric resistance strain gauging. Prerequisite: C.E. 372.

451, 651 MECHANICAL DESIGN I (2+3) 3 credits
A study of materials and their properties; design of machine elements; principles and philosophy of good mechanical design. Prerequisite: C.E. 372.

452, 652 MECHANICAL DESIGN II (2+3) 3 credits
Continuation of M.E. 451 with more advanced integrated design problems on machines and systems. Consideration of functional, creative, economic, and optimum design. Prerequisite: M.E. 451.

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. 300, 342.

461, 661 HEAT TRANSFER (3+0) 3 credits
Study of the basic laws of heat transfer by conduction, convection, and radiation; the application of heat transfer principles to engineering problems. Analytical, numerical, and graphical solutions of problems are studied. Prerequisite: M.E. 371.

464 HEAT TRANSFER LAB (0+3) 1 credit
Laboratory covering conduction, convection, and radiation areas. Prerequisite or corequisite: M.E. 461.

471, 671 PRINCIPLES OF FLUID MACHINERY (3+0) 3 credits
Development of the principles of momentum transfer and discussion of machines to utilize such transfer. Prerequisite: C.E. 367, M.E. 372.

472, 672 AIR CONDITIONING (2+0) 2 credits
Design of buildings and their heating and cooling systems for health and comfort with energy conservation, solar applications. Prerequisite: M.E. 371.

473, 673 REFRIGERATION (2+0) 2 credits
Principles of refrigeration, both normal temperature and cryogenic. Prerequisite: M.E. 372.

480, 680 GAS DYNAMICS I (2+0) 2 credits
Fundamentals of compressible flow; one dimensional flow, shock waves, area change, heat transfer, friction in subsonic and supersonic flow. Prerequisite: C.E. 367, M.E. 372.

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. 480.

491 SEMINAR (1+0) 1 credit
Preparation and delivery of oral and written reports concerning current engineering and scientific problems of particular interest to mechanical engineers. Prerequisite: senior standing in engineering.

492 SEMINAR IN ENGINEERING ECONOMY (2+0) 2 credits
Instruction and individual studies in engineering economy with special application to mechanical engineering. Prerequisite: senior standing in engineering.

493 SENIOR LABORATORY (0+2) 1 credit
Projects related to courses. Prerequisite: senior standing in mechanical engineering.

494 PROJECTS LABORATORY (0+2) 1 credit
Group and/or individual projects related to student's area of concentration. Prerequisite: M.E. 493.

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.

700 MATHEMATICAL METHODS IN ENGINEERING (3+0) 3 credits each
Use of advanced mathematical methods in solving engineering problems. (a) General advanced mathematical methods, (b) operational methods, (c) numerical methods. Prerequisite: M.E. 300.

740 DYNAMIC ANALYSIS IN ENGINEERING (3+0) 3 credits each
(a) Kinematics and kinetics of rigid bodies, central force motion, Lagrange's equations, (b) matrix methods in vibrations, continuum vibrations. Single degree of freedom systems with nonlinear characteristics. These courses are not sequential.

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 HEAT TRANSFER (3+0) 3 credits each
Advanced study of steady-state, transient, and periodic problems of heat transfer using analytical, graphical, and numerical methods. (a) Conduction, (b) convection. Prerequisite: M.E. 461, M.E. 700a. (May be taken concurrently with M.E. 700a.)

770 ADVANCED PROBLEMS IN THERMODYNAMICS (3+0) 3 credits each
Introduction to the statistical thermodynamics of the pure component and of mixtures. An introduction to the kinetic theory of gases, the thermodynamics of irreversible phenomena. (a) Classical thermodynamics, (b) statistical thermodynamics. Prerequisite: M.E. 372 and M.E. 700a.

772 ADVANCED THERMODYNAMIC/FLUID SYSTEM DESIGN (3+0) 3 credits each
System design and analysis with emphasis on dynamic behavior.

(a) Environmental systems, (b) powers systems. Prerequisite: M.E. 372.

780 MECHANICS AND THERMODYNAMICS OF FLUID FLOW (3+0) 3 credits each
Systematic development of laws of mechanics and thermodynamics as applied to problems of fluid flow to include two-dimensional steady and unsteady flow, Eulerian equations of motion, compressible flow, and boundary layer theory. (a) Boundary layer theory, (b) mechanics of real fluids. Prerequisite: M.E. 480 and 700a.

790 RESEARCH 1 to 4 credits
Study and experimentation in areas of special interest.

795 COMPREHENSIVE EXAMINATION 0 credit S/U only

797 THEESIS 1 to 6 credits

798 READINGS AND CONFERENCES 1 to 4 credits
Literature search and analytical study of special problems. Maximum of 6 credits.

799 DISSERTATION 1 to 24 credits

Inactive Courses

100 PRODUCTION PROCESSES I (0+6) 2 credits
200 PRODUCTION ENGINEERING (1+3) 2 credits
462, 662 SPECIAL TOPICS IN HEAT TRANSFER (2+0) 2 credits
474, 674 COMBUSTION POWER (2+0) 2 credits
475, 675 POWER SYSTEM DESIGN (1+3) 2 credits
483, 683 PROPULSION SYSTEMS (3+0) 3 credits
710 CONTROL SYSTEM DESIGN AND ANALYSIS (3+0) 3 credits
720 HUMAN ENGINEERING (3+0) 3 credits
721 ENGINEERING STATISTICS (3+0) 3 credits
777 PROPULSION SYSTEMS (3+0) 3 credits

MECHANICAL ENGINEERING TECHNOLOGY (M.E.T.)*Inactive Courses*

112 TECHNICAL DRAFTING (1+6) 3 credits
114 INTRODUCTION TO TECHNOLOGY (3+0) 3 credits
123 TECHNICAL DRAFTING II (1+6) 3 credits
251 GRAPHIC ANALYSIS (1+3) 2 credits
252 ELEMENTARY THERMODYNAMICS AND HEAT TRANSFER (3+0) 3 credits
263 MACHINE LAYOUT AND GRAPHICAL ANALYSIS (1+6) 3 credits
268 ELEMENTARY FLUID FLOW (2+0) 2 credits
267 DYNAMICS (3+0) 3 credits
281 MACHINE DRAFTING DESIGN I (1+6) 3 credits
262 AIR CONDITIONING, HEATING AND VENTILATION (3+3) 4 credits
263 POWER AND TRANSMISSION SYSTEMS (3+0) 3 credits
265 MACHINE DRAFTING-DESIGN II (1+6) 3 credits
267 MANUFACTURING PROCESSES (2+0) 2 credits
268 MACHINERY DYNAMICS
269 ELECTRICAL DRAFTING DESIGN (1+6) 3 credits

MEDICAL SCIENCES (Med.S.)

101 INTRODUCTION TO HEALTH SCIENCES (4+0) 4 credits
Community and personal health, emphasizing illness prevention and health decision-making. Health care system, epidemiology, chronic disorders, nutrition, fitness, drugs, and family health are examined.

202 SELF-LEARNING LABORATORY 1 to 3 credits
For lower-division students and selected upper-division students who wish to pursue an in-depth study or project in health sciences which can be supervised in the self-learning laboratory.

251 HUMAN BIOLOGY I (3+0) 3 credits
The integration of gross anatomy with histology, embryology, and neuroanatomy. Introductory physiology of the major organ systems. Programmed instruction, demonstrations, and multimedia laboratory exercises. A self-paced learning course.

252 HUMAN BIOLOGY II (3+0) 3 credits

Programmed instruction and multimedia laboratory experiences involving correlation of human anatomy and physiological background for clinical application. A self-paced learning course. Prerequisite: Med.S. 251.

272 CLINICAL INTERVIEWING AND COMMUNICATION SKILLS (2+3) 3 credits

Focus on skills essential for helping relationships as well as peer and team relationships. Course designed to assist future health professionals to express care and concern for others as well as maintain an emotional balance for themselves.

282 HEALTH CARE: ASSESSMENT AND INTERVENTION (2+3) 3 credits

Emphasis on basic assessment skills—emergency assessment and intervention, physical, developmental, nutritional, and social assessment techniques. Practice in use of medical interview, the DDST, the POMR, and clinical measurements and observations.

321 PSYCHOSOMATIC HEALTH (3+0) 3 credits

Investigation of the effects of emotions and social stress on physical health. Utilizes a multidisciplinary approach to examine psychosomatic concepts and their relationship to health.

324 ADVANCED NUTRITION II (2+0 or 6) 2 or 4 credits
(See H.Ec. 424 for description.)**337 COMPUTER ACQUAINTANCE FOR THE HEALTH SCIENCES (3+3) 4 credits**
(See E.E. 337 for description.)**338 COMPUTER APPLICATIONS FOR THE HEALTH SCIENCES (1+0) 1 credit**
(See E.E. 338 for description.)**380 HUMAN VALUES AND ETHICS IN PROFESSIONAL HEALTH PRACTICE (3+0) 3 credits**

Focus on human value systems and major ethical issues in health care such as the right to live and the right to die, genetic manipulation, discrimination in quality and quantity of health care, codes for professional behavior.

381 CONSUMER AND PROFESSIONAL HEALTH PROBLEMS (3+0) 3 credits

Legal, political, economic, and environmental problems affecting the quality and quantity of health care. National and international trends in the delivery of health care.

385 HEALTH OF THE SCHOOL-AGED CHILD (3+0) 3 credits

Major health problems encountered in school-age children. An interdisciplinary approach to health management and health awareness programs for children and youth.

390 INDEPENDENT STUDY 1 to 3 credits

Identification of problem in field of health sciences. Pursuit of actual research problem with approval and guidance by faculty committee. Maximum of 6 credits.

403 MEDICAL ORIENTATION (1+0) 0 credit. S/U only.

Professional introduction and orientation to the history, nature, status, and future of medical practice and role of the student and practitioner of medicine in society.

405, 605 HEALTH CONCEPTS IN GERONTOLOGY (2+3) 3 credits

Exploration of health concepts and the interrelationship between physical and emotional well-being in the elderly. Includes supervised clinical experiences with the elderly. Prerequisite: 6 credits in growth and development or behavioral sciences.

406, 606 APPLIED BEHAVIOR ANALYSIS (3+0) 3 credits
(See Psy. 406 for description.)**411, 611 CELL BIOLOGY IN HEALTH AND DISEASE (5+3) 6 credits**

Consideration of cellular levels of structure, function, and chemical characteristics in health and disease. Review of dynamics of cell function in relationship to cell structure as altered by stress and disease.

412 GENERAL AND MOLECULAR PHARMACOLOGY (2+0) 2 credits

Consideration of the basic principles of pharmacology and an introduction to molecular pharmacology based upon biochemistry and molecular biology.

413, 613 TISSUE BIOLOGY IN HEALTH AND DISEASE (2+3) 3 credits

Consideration of various tissue types, their development, differentiation, and relationship to organ systems structurally and functionally. Study of the neoplastic process, diagnosis, and methods of treatment.

415 HEMATOPOIETIC SYSTEM (3+3) 4 credits

Blood in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

416, 616 SEMINAR IN ANATOMY (1+0 per credit) 1 to 3 credits

Library research and presentation in seminar fashion of a selected topic in any subdiscipline of anatomy.

417, 617 SELECTED TOPICS IN ANATOMY (0+3 per credit) 1 to 3 credits

Comprehensive study of dissection of a selected area or system of the human body.

418, 618 READINGS IN ANATOMY (1+0 per credit) 1 to 3 credits

Readings on selected topics in anatomy; involves library research and discussions with the anatomy staff; may include preparation and submission of a paper.

419, 619 RESEARCH IN ANATOMY (0+3 per credit) 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.

420 PATHOBIOLOGY (5+6) 7 credits

Introduction to general pathology including toxic and degenerative change, inflammation and repair, neoplasia, disturbances of circulation, nutrition and metabolism, and elementary forensic principles and cytogenetics. Prerequisite: Med.S. 413.

430 INTEGUMENTARY SYSTEM (1+0) 1 credit

Skin and breast in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

432 MUSCULOSKELETAL SYSTEM (4+3) 5 credits

Musculoskeletal system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

436 CARDIOVASCULAR SYSTEM (6+6) 8 credits

Heart and blood vessels in health and disease with differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment.

437 RESPIRATORY SYSTEM (5+3) 6 credits

Respiratory system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

439 GASTROINTESTINAL SYSTEM AND ABDOMEN (5+6) 7 credits

Gastrointestinal system and abdomen in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

441 RENAL SYSTEM AND LOWER URINARY TRACT (4+3) 5 credits

Renal system and lower urinary tract in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

442 HEAD, NECK, AND SPECIAL SENSES (4+3) 5 credits

Head, neck, and special senses in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

443, 643 NERVOUS SYSTEM (7+6) 9 credits
Nervous system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

444, 644 CENTRAL NERVOUS SYSTEM (2+3) 3 credits
Central nervous system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

445, 645 ENDOCRINOLOGY (2+3) 3 credits
Endocrinology in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

446, 646 REPRODUCTIVE SYSTEM (3+3) 4 credits
Reproductive system in health and disease and the differentiation of the most important and common diseases. Basic approaches to diagnosis and treatment are considered.

449, 649 INDEPENDENT STUDY IN LABORATORY MEDICINE (2+3) 3 credits
Application of sophisticated techniques in the fields of laboratory medicine (e.g., anatomic pathology, hematology, immunology, microbiology, urinalysis, clinical chemistry, and immunopathology) to diagnosis and research. Primarily for medical students.

450 INTERSYSTEM BIOLOGY IN HEALTH AND DISEASE (2+3) 3 credits
Consideration of the interaction of various systems in health and disease such as pregnancy, growth and development, aging, hemorrhage and shock, fluid and electrolyte balance, etc.

451 HEALTH EDUCATION SEMINAR (3+0) 3 credits
Seminar for health education majors. Emphasis on program development in health education and on major issues and innovations in the field of health education.

452 HEALTH SCIENCES FIELD WORK (1+6) 1 to 3 credits
Field work for health sciences majors. Focus on special health problems as identified by health agencies. Maximum of 6 credits.

455, 655 THE MENTAL DISORDERS (3+0) 3 credits
Advanced study of the mental disorders, utilizing live and multimedia presentations of patients, empirical rating scales, and diagnostic flow charts. Emphases on symptom recognition and evaluation, diagnostic assessment, and principles of management.

456, 656 INFORMATION PROCESSING IN MEDICINE (1+6) 3 credits
Seminar and practicum concerned with the ways in which clinical information derived from tests and interviews is processed and recorded in order to optimize decisions about diagnosis and management.

457, 657 MEDICAL ASPECTS OF HUMAN SEXUALITY (3+0) 3 credits
Varieties of normal and abnormal sexual behavior from an interdisciplinary viewpoint.

458, 658 COMMUNITY MENTAL HEALTH (3+0) 3 credits
Mental health problems of populations, including epidemiology and mental health needs of communities. Mental health consultation and crisis intervention.

459, 659 PSYCHOBIOLOGY OF COGNITION (3+0) 3 credits
Integration of research from the neurosciences, psychopathology, and experimental psychology into a comprehensive description of human cognitive processes.

480 INTRODUCTION TO CLINICAL MEDICINE (2+3) 3 credits
Introduction to medical interviewing, medical record keeping, history taking and physical examination, clinical problem-solving, and potential doctor-patient relationship problems. Considers nature of health and disease and response to treatment in individual patients.

481 HUMAN BEHAVIOR (5+3) 6 credits
Human behavioral problems in medicine; human growth and development; delivery systems; family dynamics; human sexuality; and health care systems. Clinical problem-solving and relevant basic science material from behavioral biology, psychophysiology, medical psychology and sociology, and epidemiology. Programmed and multimedia presentations.

482, 682 PSYCHOPHYSIOLOGY (3+0) 3 credits

Seminar designed to explore the relationship between activities of the human autonomic nervous system and responses to emotional states. Consideration of the effects of biofeedback experiments and their use in clinical practice.

483-484 ADVANCED BEHAVIORAL SCIENCE (3+0) 3 credits each
(See Med.S. 461 for description.)**485, 685 ADVANCED DIAGNOSTIC INTERVIEWING (0+9) 3 credits**

Supervised practice in interviewing patients to assess the possible existence, causes, and management of disordered behavior.

486, 686 ADVANCED THERAPEUTIC INTERVIEWING (0+9) 3 credits

Supervised practice in therapeutic interviewing with medical and psychiatric patients.

487, 687 INSTRUMENTATION IN HUMAN PSYCHOBIOLOGY (1+6) 3 credits

Laboratory course presenting methods of measuring, analyzing, and interpreting physiological indices of human sensory, perceptual, cognitive, and emotional behaviors. Includes electroencephalography, evoked cortical, cardiac, electrodermal, and respiratory responses.

488, 688 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.

489, 689 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.

470 INTRODUCTION TO CLINICAL MEDICINE (1+3) 2 credits

Continuation of Med.S. 460.

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.

473 PHYSICAL DIAGNOSIS (1+3) 2 credits
(See Med.S. 471 for description. S/U only.)**476 COMMUNITY HEALTH (1+3) 2 credits**

Field placements exemplifying different community health problems and delivery of health care.

477-478 ADVANCED COMMUNITY MEDICINE (0+1) 1 credit each
(See Med.S. 476 for description.)**480, 680 TEAM APPROACH TO HEALTH CARE I (3+0) 1 to 3 credits**

Interdisciplinary approach to comprehensive health care with emphasis on the health team. Students function as teams to provide effective health care for individuals and families in various clinical settings in the community. Prerequisite: senior standing.

481, 681 TEAM APPROACH TO HEALTH CARE II (1+6) 1 to 3 credits

Case study and field work methods are continued from Med.S. 480, with more time being allocated to direct experiences with individuals and families in the community through preceptorships.

482, 682 MEDICAL BACTERIOLOGY (1+3) 2 credits

Application of bacteriological techniques to clinical specimens in the identification of disease-causing bacteria.

483, 683 MEDICAL MYCOLOGY (1+6) 3 credits

Application of mycological techniques to clinical specimens in the identification of disease-causing fungi.

484, 684 MEDICAL VIROLOGY (1+3) 2 credits

Systematic treatment of the major groups of viruses involved in human disease. Emphasis on principles of virus pathogenesis, replication, culture and laboratory identification.

485, 685 EXPERIMENTAL IMMUNOCHEMISTRY

(1+3) 2 credits

Emphases encompass the qualitative and quantitative methods for measurement of immunoglobulins. Both *in vivo* and *in vitro* methods of antigen and antibody interaction are considered.

486, 686 CELLULAR IMMUNOLOGY (1+3) 2 credits

Mechanisms of antigen processing and antigen stimulation at the cellular levels.

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 3 credits

Identification of problem in field of health sciences. Pursuit of actual research problem with approval and guidance by faculty committee. May be repeated to a maximum of 6 credits.

491 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.

492 PROBLEMS IN CLINICAL PHARMACOLOGY AND THERAPEUTICS (1+0 per credit) 1 to 3 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.

493, 693 INDIVIDUAL STUDY IN PHARMACOLOGY

(1 to 3+0) 1 to 3 credits

Library research in selected topics of pharmacology and discussions with the faculty. May include preparation and submission of paper.

494, 694 SEMINAR IN PHARMACOLOGY

(1+0) 1 credit

Student and/or faculty presentations on special topics in pharmacy. May be repeated to a maximum of 2 credits.

695 TOPICS IN PHARMACOLOGY

(1 to 3+0) 1 to 3 credits

Lectures and/or seminars on topics in pharmacology. Emphasis is on current literature of pharmacologic interest. May be repeated to a maximum of 6 credits. Prerequisite: background course in pharmacology.

496, 696 DIRECTED RESEARCH IN PHARMACOLOGY

(0+3 per credit) 1 to 3 credits

Guided research in any of the areas of mutual interest to the student and faculty. May be repeated to a maximum of 6 credits.

499, 699 CURRENT TOPICS IN HEALTH SCIENCES

(3+0) 1 to 3 credits

Intensive study and discussion of current issues in health care delivery and major health problems. May be repeated to a maximum of 6 credits. Prerequisite: 6 credits of upper-division medical science or one year experience as a practicing health care professional.

725 MEDICAL HUMAN ANATOMY (4+12) 8 credits

Schedule in anatomy comparable to that offered in medical school, involving human dissection, histology, embryology, and basic neuroanatomy. 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 Med.S. 726. Detailed anatomy and dissection of the deeper head areas with emphasis on the oral cavity. The neurological implication of lesions of cranial nerves. Prerequisite: Med.S. 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.

CLINICAL COURSES FOR MEDICAL PROGRAM FAMILY AND COMMUNITY MEDICINE (FCM)**451 CLERKSHIP (1+15) 6 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.

MEDICINE (MEDI)**451 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.

OBSTETRICS AND GYNECOLOGY (OBGY)**451 CLERKSHIP (1+15) 6 credits**

Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing obstetrics and gynecology.

PEDIATRICS (PEDI)**451 CLERKSHIP (1+15) 6 credits**

Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing pediatrics.

PSYCHIATRY AND BEHAVIORAL SCIENCES (PCHY)**451 CLERKSHIP (1+15) 6 credits**

Hospital and ambulatory clinical experience with preceptorial supervision to develop knowledge (practical, theoretical, basic science), technical and interpersonal skills basic to practicing psychiatry.

SURGERY (SURG)**451 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.

MEDICAL TECHNOLOGY (Med.T.)**303 HEMATOLOGY (3+6) 5 credits**

Study of formed elements of blood and bone marrow and the coagulation mechanism. Clinical laboratory techniques are applied to enumerative procedures, blood cell metabolism, morphology, instrumentation and coagulation factors. Prerequisite: Biol. 262, 263.

304 IMMUNOHEMATOLOGY (2+3) 3 credits

Principles of immunology as applied to human blood group systems. Donor selection, typing antibody identification, and compatibility testing techniques are applied to transfusion of blood and other components. Prerequisite: Biol. 101.

305 URINALYSIS AND BODY FLUIDS (2+3) 3 credits

Chemical, physical, and microscopic analysis of urine and other body fluids. Correlation of laboratory findings with renal anatomy and physiology in health and disease. Prerequisite: Biol. 262, 263, B.Ch. 301, 302, 303, 304.

306 CLINICAL MICROBIOLOGY I (3+6) 5 credits

Study of bacteria and other microorganisms of medical significance to include infection, resistance, and antimicrobial therapy. Clinical microbiological techniques are applied to identify pathogenic microorganisms. Prerequisite: Biol. 306.

307 CLINICAL MICROBIOLOGY II (3+6) 5 credits

Application of microbiological techniques to the identification of fungal, viral, and parasitic disease and an introduction to clinical diagnostic serology. Prerequisite: Biol. 306.

309 MEDICAL LABORATORY CALCULATIONS (2+0) 2 credits

Introduction to statistics and statistical technics applicable to clinical laboratory quality control. Prerequisite: Chem. 101.

407-607 IMMUNOLOGY (3+0) 3 credits

Principles of cellular and humoral mechanisms of immunity including host-parasite interrelationships, antibody structure and function, hypersensitivity, tolerance, transplantation, immunity, and diseases of immune origins. Prerequisite or corequisite: B.Ch. 302 and knowledge of basic immunologic principles.

408-608 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: Med. T. 407.

409 CLINICAL CHEMISTRY (4+6) 6 credits

Quantitative analysis of blood, urine, and other body fluids with emphasis on manual methods, instrumentation, and quality assurance. Correlation of laboratory findings with biochemical physiology in health and disease. Prerequisite: B.Ch. 301, 302, 303, 304, Phys. 151-152, and Biol. 262, 263.

422 APPLIED CLINICAL MICROBIOLOGY (1+28) 5 credits*S/U only.*

Supervised practical experience in identification of bacteria, fungi, and parasites in a clinical laboratory setting. Prerequisite: satisfactory completion of Med. T. 306-307. Corequisite: Med. T. 423, 424, 425, 426, T.

423 APPLIED CLINICAL HEMATOLOGY (1+21) 4 credits. S/U only.

Supervised practical experience in methods in hematology, coagulation, and morphology of blood cells in clinical laboratory setting. Prerequisite: satisfactory completion of Med. T. 303. Corequisite: Med. 422, 424, 425, 426.

424 APPLIED CLINICAL CHEMISTRY (1+35) 6 credits. S/U only.

Supervised practical experience in manual and automated instrumental methods in routine and special clinical chemistry, toxicology, and radioisotopes in a clinical laboratory setting. Prerequisite: satisfactory completion of Med. T. 409. Corequisite: Med. T. 422, 423, 425, 426.

425 APPLIED CLINICAL URINALYSIS (1+7) 2 credits. S/U only.

Supervised practical experience in methods in urinalysis and analysis of other body fluids in a clinical laboratory setting. Prerequisite: satisfactory completion of Med. T. 305. Corequisite: Med. T. 422, 423, 424, 426.

426 APPLIED IMMUNOLOGY AND IMMUNOHEMATOLOGY(1+14) 3 credits. *S/U only.*

Supervised practical experience in methods for analyzing the immune reaction in blood and serum, with emphasis on procurement of blood for transfusion, in clinical laboratory setting. Prerequisite: satisfactory completion of Med. T. 304 and 307. Corequisite: Med. T. 422, 423, 424, 425, T.

MEDICINE (MEDI)*(see Medical Sciences)***METALLURGICAL ENGINEERING (Met.E.)****101 INDUSTRY ORIENTATION LECTURES (1+0) 1 credit***(See Min.E. 101 for description.)***102 INTRODUCTION TO METALLURGICAL AND CHEMICAL PROCESSES (2+0) 2 credits***(See Ch.E. 102 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. Corequisite: Math 215. (Same as Ch.E. 232.)

301 CHEMICAL OR METALLURGICAL INDUSTRY SEMINAR 1 credit*(See Ch.E. 301 for description.)***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+3) 4 credits

Principles and practices of mineral preparation and concentration. Field trip. Prerequisite: Geol. 211.

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.

350 ELEMENTS OF MATERIALS SCIENCE

(3+0 or 3) 3 or 4 credits

Study of the internal structure of materials, the dependence of properties upon these structures, and the behavior of materials in service.

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 Med.E. 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.

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 Met.E. 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: Met.E. 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.)

451, 651 PHYSICAL METALLURGY (2+3) 3 credits

Supplementary and advanced treatment of topics introduced in Met.E. 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.)

462 METALLURGICAL ENGINEERING DESIGN

(1+6) 3 credits

(See Ch.E. 462 for description.)

495, 695 SPECIAL PROBLEMS 1 to 3 credits

Individual research problems in metallurgy. Maximum of 6 credits.

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, (i) 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 elected more than once to pursue different studies.

762 STATISTICAL THERMODYNAMICS (3+0) 3 credits

Introduction to statistical thermodynamics with applications to metallurgy and chemical engineering. Prerequisite: Ch.E. 361.

91 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 or faculty standing. (Same as Geol. 791 and Min.E. 791.)

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

715 X-RAY DIFFRACTION (1+6) 3 credits

738 METALLURGY OF REFRACTORY METALS (2+0) 2 credits

751 PHYSICS OF METALS (3+0) 3 credits

752 MAGNETIC PROPERTIES OF SOLIDS (3+0) 3 credits

MILITARY SCIENCE (Mil.)**101 INTRODUCTION TO MILITARY SCIENCE (2+0) 2 credits**

The 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

Study of the fundamentals of good leadership to include different theories; fundamental organization and operation of the Army.

201 MILITARY TOPOGRAPHY AND ORIENTEERING

(2+0) 2 credits

Study of the 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 STUDY OF THE ART OF WAR (2+0) 2 credits

An analysis of the art of warfare, reviewing the doctrine and philosophy of Clausewitz, Jomini, Sun Tzu, Moltke. A review of U.S. military history from 1776 to the present.

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. Corequisite: Mil. 102, 201 or 202.

204 BASIC SUMMER CAMP 2 credits

A 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. May be repeated to a 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 logistical 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 (Min.E.)**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 INDUSTRY ORIENTATION (1+0) 1 credit

Introduction to the mining industry.

102 MINERAL MAP MAKING (1+3) 2 credits

Introduction to the basic principles of modern drawing and cartography as used in mineral engineering reports.

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.

241 UNDERGROUND MINING (3+0) 3 credits

Method of entry, development and all stoping methods. Techniques, equipment used, suitability of methods and equipment.

246 SURFACE MINING (3+0) 3 credits

Surface mine design, equipment and its use and application, economics of surface mining vs underground mining, financial analysis.

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. Prerequisites: Mine. E. 241 and 246.

316 STATISTICAL ANALYSIS IN THE EARTH SCIENCES

(2+0) 2 credits

Introduction to the principles and application of statistics in the earth sciences. Methods of sampling and ore reserve evaluation. Decision making under uncertainty.

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. Field trip required. Prerequisite: Min.E. 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: Min.E. 342.

344, 544 MINE ENVIRONMENTAL CONTROL (2+3) 3 credits

Theory and practice of creating safe, healthy, and efficient working environments underground. Includes a mine rescue and first aid course taught by MSHA. Prerequisite: Ch.E. 361 and C.E. 367.

351, 551 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, 561 OPERATIONS RESEARCH METHOD

(3+0) 3 credits

Introduction to the theory of Operations Research and its application in the mining industry. Prerequisite: Ag. 270 or equivalent.

400 MINING COMMUNICATION (1+0) 1 credit

Students prepare paper on an approved mineral industry topic which is orally presented to the class. Industry persons are invited to address the class.

406 SENIOR REPORT 1 to 3 credits

Formal, comprehensive report on a subject approved by the student's advisor and department chairman. Prerequisite: senior standing.

411, 611 MINE ECONOMICS (3+0) 3 credits

Introduction to the principles of ore reserve estimation procedures (including geostatistics), engineering economics and accounting in relation to the design and operation of a mine. Prerequisites: Min.E. 241, 246, 301; Ag. 270, or equivalent.

418, 618 MINE FEASIBILITY (1+6) 3 credits

Data, techniques, and layout required for a formal mine feasibility report to be prepared on a given mineral deposit. Prerequisite: Min.E. 411.

426, 626 MINE PLANT ENGINEERING (3+3) 4 credits

Selection, layout, and operation of mechanical, electrical, and hydraulic equipment in the design of underground mining systems. Prerequisite: senior standing.

445, 645 DRILLING AND BORING (2+3) 3 credits

Current theory and practice in drilling and boring.

446, 646 THEORY OF EXPLOSIVES (2+3) 3 credits

Thermodynamic theory and the blasting action of explosives.

446, 648 ROCK MECHANICS I (3+3) 4 credits

Study of the static and dynamic rock properties in the design of underground mine openings and mining plans. Prerequisite: Geol. 481.

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

Role of minerals in modern life. Interdependence of nations on minerals, and the economic and political problems arising out of their unequal geographic distribution and divided political control. (Same as Geog. 462.)

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, (i) 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 elected more than once to pursue different studies.

729 ADVANCED COMPUTER APPLICATIONS 1 to 3 credits

Study of computer systems, languages, and economics. Major individual earth science project on computer. Prerequisite: Min.E. 213 or 324.

745 ROCK MECHANICS II (2+3) 3 credits

Field and laboratory studies of applied rock mechanics. Prerequisite: Min.E. 448.

749 ADVANCED BLASTING METHODS DESIGN

1 to 3 credits

Modern theories in the use of explosives and the design of blasting systems. Prerequisite: Min.E. 446.

795 COMPREHENSIVE EXAMINATION 0 credit S/U only**797 THESIS 1 to 6 credits***Inactive Courses*

405 SENIOR REPORT 1 to 3 credits

482, 682 ECONOMICS OF THE BASE METALS (3+0) 3 credits

791 MINERAL INDUSTRY SEMINAR 1 to 3 credits

MUSIC (Mus.)

Music Theory

101 MUSIC FUNDAMENTALS AND EAR TRAINING (2+0) 2 credits

Notation, terminology, intervals, and scales. Learning to read music. Designed to furnish a foundation for musicianship and recommended for teachers in public schools.

102 SOLFEGE (SOLFEGGIO) (2+0) 2 credits
Course devoted to developing and mastering sight-reading as a tool for the vocal student and classroom teacher.

207-208 BASIC MUSICIANSHIP (5+0) 5 credits each
Unified study of music theory including solfège, harmony (written and keyboard), and composition.

301-302 ADVANCED HARMONY (3+0) 3 credits each
Continuation of first-year harmony, with study of secondary sevenths, irregular resolutions, chromatic devices employed by nineteenth century composers. Further ear training and original work. Prerequisite: Mus. 207-208 or equivalent.

303 KEYBOARD HARMONY (2+0) 2 credits
Keyboard approach to the study of chords, the realization of figured basses, and the harmonization of melodies and basses. Designed for piano and organ majors.

307-308 ADVANCED SOLFEGE (2+0) 2 credits each
Studies in rhythm and pitch discrimination. Developing the ability to read and transpose using the various clefs. Prerequisite: Mus. 207-208.

310 INSTRUMENTATION (3+0) 3 credits
Arranging for full band and orchestra as well as for smaller ensembles. Transposition, voicing, transcriptions from piano score. Prerequisite: Mus. 301-302.

337 STAGE BAND ARRANGING (2+0) 2 credits
Study and 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.

337 ADVANCED STAGE BAND ARRANGING (2+0) 2 credits
Further study and analysis of materials and techniques developed Mus. 337. Writing and performance of arrangements on professional level are required. Prerequisite: Mus. 337 or equivalent.

403 COUNTERPOINT (3+0) 3 credits
Counterpoint in the five species, creative application of strict and free counterpoint based upon models of the eighteenth and twentieth centuries. Prerequisite: Mus. 207-208.

408 FORM AND ANALYSIS (3+0) 3 credits
Analysis of song forms, variations, rondo, and sonata forms. Prerequisite: Mus. 301-302.

409-410, 809-810 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.

709-710 CONTEMPORARY THEORY AND PRACTICE (3+0) 3 credits each
Study of advanced harmonic practice and contemporary analytical procedures concentrating on music since 1900. Prerequisite: Mus. 301-302.

Music History and Literature

121 MUSIC APPRECIATION (2+0) 2 credits
Historical and cultural background of music. A general course in music appreciation open to all students. Representative works are heard and analyzed.

201-202 MUSIC HISTORY (3+0) 3 credits each
Chronological study of the composers and their works, using lecture demonstration and directed listening. Begins with Greek music and continues through contemporary music.

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.

406, 606 PERFORMANCE PRACTICE (2+0) 2 credits
Performance practices of various eras and their effect on presentation of representative works during the present and in their own time. Maximum of 6 credits.

407, 607 SYMPHONIC LITERATURE (2+0) 2 credits
Detailed study and analysis of the development of the symphony.

414, 614 CHORAL LITERATURE (2+0) 2 credits
History and analysis of representative choral works from 1600 to the present.

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 twentieth century music.

423, 623 CHAMBER MUSIC LITERATURE (2+0) 2 credits
Music written for small groups in Baroque, Classical, nineteenth century, and twentieth century periods.

424, 624 AMERICAN MUSIC (2+0) 2 credits
Detailed examination of the music of the United States from the Revolutionary War to the present.

426, 626 VOCAL LITERATURE (2+0) 2 credits
Solo and chamber vocal music from the Renaissance to the present.

428, 628 OPERA LITERATURE (2+0) 2 credits
Detailed consideration of selected operas of the various nationalities and periods in music history.

495, 695 INDEPENDENT STUDY 1 or 2 credits
Open to students specializing in music. Maximum of 4 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

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.

Applied Music

*Individual Instruction: Special fee \$75 per credit.**

151, 251, 351, 451, 751 PIANO (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each.

153, 253, 353, 453, 753 VOICE (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each.

155, 255, 355, 455, 755 BRASS INSTRUMENTS (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each.

157, 257, 357, 457, 757 WOODWIND INSTRUMENTS (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each.

*Individual instruction is provided on the basis of one-half period per credit. Students are required to attend all music department recitals as part of the course of study and participate at the discretion of the instructor.

159, 259, 359, 459, 759 STRINGS (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each.

161, 261, 361, 461, 761 PERCUSSION (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each.

163, 263, 363, 463, 763 ORGAN (½ or 1+0) 1 or 2 credits each
Maximum of 4 credits each. Prerequisite: functional piano capability.

Class Instruction

103 CLASS BRASS INSTRUCTION (2+0) 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 (2+0) 2 credits
Fundamental instruction in each of the instruments and in class teaching procedures. Simple selections, employing various keys and rhythms.

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.

123 CLASS STRING INSTRUCTION (2+0) 2 credits
Elementary instruction in violin, viola, cello, and bass.

124 CLASS PERCUSSION INSTRUCTION (2+0) 2 credits
Elementary instruction in the various percussion instruments.

181 BEGINNING CLASS PIANO INSTRUCTION I (0+2) 1 credit
For students with limited or no keyboard experience.

182 BEGINNING CLASS PIANO INSTRUCTION II (0+2) 1 credit
For students with limited or no keyboard experience. Prerequisite: Mus. 181.

218 VOCAL REPERTORY COACHING (1+0) 1 credit
Study and performance of simpler songs from the Italian, English, French, and German art song literature. Study of singing diction practices in the above languages. Open to vocalists and pianists. Maximum of 4 credits.

281 ELEMENTARY CLASS PIANO INSTRUCTION I (0+2) 1 credit
For students with minimal keyboard experience or as a continuation of Mus. 181, 182.

282 ELEMENTARY CLASS PIANO INSTRUCTION II (0+2) 1 credit
For students with minimal keyboard experience or as a continuation of Mus. 281.

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.

418 INTERMEDIATE VOCAL REPERTORY COACHING (2+0) 2 credits
Study and performance of more difficult art song literature including major song cycles of Schubert, Schumann, Brahms, Wolf, etc. Also study and performance of art songs of other national schools such as Russian, Spanish, etc. Open to vocalists and pianists. Prerequisite: Mus. 218.

483, 683 PIANO SEMINAR (0+2) 1 credit
Special problems in performance, literature, and pedagogy. Maximum of 4 credits.

718 ADVANCED VOCAL REPERTORY COACHING (2+0) 2 credits

Study and 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. Maximum of 4 credits.

721 ADVANCED CHORAL CONDUCTING (2+0) 2 credits
Continued study of 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.

Performance Organizations*

105, 205, 305, 405, 605 UNIVERSITY CHAMBER MUSIC ENSEMBLE (0+3) 1 credit each
Performance of chamber music literature. Prerequisite: membership in corresponding large group. Maximum of 4 credits each.

111, 211, 311, 411 UNIVERSITY SINGERS (0+3) 1 credit each
Study and performance of representative choral music of all periods. This group assists in the presentation of the symphonic choir and is featured in concerts locally and on tour. Required of all vocal music majors. Maximum of 4 credits each.

117, 217, 317, 417 UNIVERSITY BAND (0+3) 1 credit each
Select group of instrumentalists with previous high school or college band experience. Concerts are given in Reno and other cities. Maximum of 4 credits each.

119, 219, 319, 419 SYMPHONIC CHOIR (0+2) 1 credit each
This group specializes in the study and presentation of large-scale choral works in cooperation with University Symphony. Maximum of 4 credits each.

125, 225, 325, 425 UNIVERSITY OF NEVADA COMMUNITY SYMPHONY (0+3) 1 credit each
One or more concerts are given by the orchestra each semester, in addition to concerts in cooperation with the symphonic choir. Opportunity is also provided for students to be featured in solo appearance. Required of all string music majors. Maximum of 4 credits each.

215, 415, 615 BRASS QUINTET (0+2) 1 credit
Performing ensemble specializing in brass quintet literature. Maximum of 4 credits each.

220, 420, 620 BRASS ENSEMBLE (0+3) 1 credit
A performance organization specializing in brass ensemble literature from the Renaissance to the present. Maximum of 4 credits each.

230, 430, 630 UNR CONCERT JAZZ BAND (0+3) 1 credit
A performing ensemble specializing in jazz and rock literature and performance practices. Maximum of 4 credits each.

270 OPERA THEATER I (0+2) 1 credit
Beginning music theater techniques for singers, pianist-coaches, stage directors, including production and performance. Maximum of 4 credits.

470 OPERA THEATER II 1 to 3 credits
More advanced music theater 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.

705 ADVANCED OPERA PERFORMANCE 1 or 2 credits
Performance of major roles in University Opera productions. Maximum of 4 credits.

*A maximum total of 12 credits earned through participation in any and all authorized musical ensembles is allowed any student toward graduation requirements, to be distributed as the student prefers, with not more than 8 credits in any one organization. Students majoring in music are required to participate in one of the three major ensembles (band, orchestra, chorus) each semester until graduation.

711 ADVANCED CHORAL PERFORMANCE

(0+2) 1 credit

Study and performance of representative choral music of all periods, including major choral works. Appearance in concerts locally and on tour is required, and work beyond ensemble participation, such as that of assistant conductor, section leader, or soloist, is expected. Maximum of 2 credits.

717 ADVANCED INSTRUMENTAL PERFORMANCE

(0+3) 1 credit

Study, rehearsal, and performance of orchestral and band music. Includes responsibilities as section leader and assistant conductor. Prerequisite: prior college orchestra or band experience and superior ability as a performer. Maximum of 2 credits.

Music Education**324 TEACHING OF ELEMENTARY MUSIC**

(2+0) 2 credits

For the elementary teachers who teach their own music. Methods of presenting rote songs to primary grades and note songs and singing games, listening to music, rhythmic expression or creative effort, and the use of rhythm instruments. Prerequisite: Mus. 101 or equivalent.

349 TEACHING OF SECONDARY MUSIC (2+0) 2 credits

Organization of public school bands and choruses, techniques and problems of teaching music in junior and senior high schools. Prerequisite: Mus. 101, 107, 113, and active participation in University Band or University Singers. (Same as C.I. 349.)

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 musical program, and reviewing recent developments in the field. Prerequisite: teaching experience or exceptional background in the area.

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.

Inactive Courses

348 ADVANCED INSTRUMENTAL TECHNIQUES (2+0) 2 credits

427 MARCHING BAND PROBLEMS (2+0) 2 credits

446 PRECISION DRILL WORKSHOP (1+3) 1 credit

449, 649 CHORUS PROBLEMS (2+3) 2 credits

700-701 ADVANCED COMPOSITION (2+0) 2 credits each

702 THE AESTHETICS AND PHILOSOPHY OF MUSIC (2+0) 2 credits

716 STUDIES IN ELIZABETHAN AND TUDOR MUSIC (2+0) 2 credits

724 PHILOSOPHY OF MUSIC EDUCATION (2+0) 2 credits

NURSING (Nurs.)**301 SKILLS AND SELF-LEARNING LABORATORY**

(0+3 per credit) 1 to 2 credits S/U only

Principles, practice, and implementation of assessment skills required to provide primary health; experience in multimedia laboratory. Prerequisite: approval to progress to upper division nursing major.

302 SKILLS AND SELF-LEARNING LABORATORY

(0+3 per credit) 1 to 2 credits S/U only.

Principles, practice, and implementation of technical skills congruent with care of infants, developing families, maternal-newborn, children, and adolescents. Prerequisite: Nurs. 301.

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.

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 NURSING THEORY II (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 NURSING PRACTICE II (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, 315.

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.

393 PROFESSIONAL ASSESSMENT I 1 to 3 credits

Teacher-constructed written or clinical examination in a specified area of nursing content and/or practice. Prerequisite: registered nurse licensed in Nevada, completion of lower-division nursing requirements, currently enrolled in upper-division nursing courses. Maximum of 11 credits.

401 SKILLS AND SELF-LEARNING LABORATORY

(0+3 per credit) 1 or 2 credits S/U only.

Principles, practice, and implementation of technical skills necessary for providing care to the acutely ill adult. Prerequisite: Nurs. 301, 314, 315.

402 SKILLS AND SELF-LEARNING LABORATORY

(0+3 per credit) 1 or 2 credits S/U only

Development and practice of nursing skills necessary to implement tertiary care with patients/clients; development of nursing leadership. Prerequisite: Senior standing.

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 NURSING THEORY III (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 NURSING PRACTICE III (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, 315.

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. Prerequisite: Senior standing.

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: Senior standing.

444 FUNDAMENTALS OF NURSING RESEARCH

(2+3) 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.

490, 690 SPECIAL PROBLEMS AND PRACTICES IN NURSING

1 to 6 credits

Laboratory or investigative group work in areas not specifically provided for in other courses. Maximum of 6 credits.

491 INDEPENDENT STUDY 1 to 6 credits

(See Nurs. 391-392 for description.)

493 PROFESSIONAL ASSESSMENT II 1 to 3 credits

Teacher-constructed written or clinical examination in a specified area of nursing content and/or practice. Prerequisite: registered nurse licensed in Nevada, completion of lower-division nursing requirements, currently enrolled in upper-division nursing courses. Maximum of 12 credits.

700 HEALTH CARE DELIVERY SYSTEMS (3+0) 3 credits

Current systems for health care delivery. Nursing functions and relationships with other health professionals and consumers in such systems.

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. Prerequisite: Nurs. 700

702 PRACTICUM: NURSING LEADERSHIP IN HEALTH CARE ORGANIZATION (1+6) 3 credits

Identification and testing of a theory of organization within a health care setting. Analysis and discussion of questions and problems generated during field testing. Prerequisite: Nurs. 700, 701.

703 TEACHING OF NURSING (3+0) 3 credits

Curriculum theory and development as applied to nursing education. Teaching strategies are explored for relevancy to curriculum implementation. Evaluation process is studied. Prerequisite: Nurs. 700, 710, 790.

704 PRACTICUM: TEACHING OF NURSING (1+6) 3 credits

Clinical and classroom teaching experience in a baccalaureate or associate degree program in nursing. Evaluation as an inherent component of the teaching-learning process is addressed. Prerequisite: Nurs. 703, 711.

710 ADVANCED NURSING PRACTICE I (2+9) 5 credits

Introduction to role of family nurse clinician. Theory and interdisciplinary clinical practice in the delivery of primary health care to the family as a unit. Prerequisite or corequisite: Nurs. 700, 790.

711 ADVANCED NURSING PRACTICE II (2+9) 5 credits

Study of the nursing process as it relates to the delivery of tertiary health care for individuals and families. Skill development through clinical practicum. Prerequisite: Nurs. 710.

720 NURSING RESEARCH (2+3) 3 credits

Overview of research process applied to nursing. Identification and delineation of researchable problems, selection of appropriate methodology, data collection, analysis, and reporting.

790 ADVANCED SPECIAL PROBLEMS AND PRACTICE IN NURSING 1 to 6 credits

Laboratory or investigative work in areas not specifically provided for in other graduate courses.

791 INDEPENDENT STUDY (0+3 to 9) 1 to 3 credits

Opportunity for students to master areas of knowledge through independent organization and assimilation of materials with guidance. Prerequisite: Graduate Standing. Maximum of 6 credits.

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.

OBSTETRICS AND GYNECOLOGY (OBY)*(see Medical Sciences)***OFFICE ADMINISTRATION (O.A.)**

101 ELEMENTARY TYPEWRITING (1+2) 2 credits
Keyboard presentation. Touch system of operation. Skill development, speed building, business letters.

102 INTERMEDIATE TYPEWRITING (1+2) 2 credits
Skill development. Emphasis on production typing. Business letters, manuscript, tabulation, business forms. Prerequisite: O.A. 101 or ability to type thirty words per minute.

103 ADVANCED TYPEWRITING (1+2) 2 credits
Skill development. Specialized office typewriting problems. Prerequisite: O.A. 102 or equivalent.

111 ELEMENTARY STENOGRAPHY (3+0) 3 credits
Theory of Gregg shorthand. Speed development. Prerequisite: training in typewriting.

112 INTERMEDIATE STENOGRAPHY (3+0) 3 credits
Theory, review, speed development, dictation. Prerequisite: O.A. 111 or equivalent.

202 BUSINESS MACHINES (3+0) 3 credits
Theory of solving basic business mathematical problems by means of machine operation.

211 ADVANCED STENOGRAPHY (3+0) 3 credits
Speed dictation and transcription with stress on fluency and accuracy. Prerequisite: O.A. 112 or the ability to write from dictation at not less than sixty words per minute.

212 ADVANCED STENOGRAPHY (3+0) 3 credits
Rapid dictation and transcription. Prerequisite: O.A. 211 or the ability to write from dictation at not less than eighty words per minute.

300 OFFICE ORGANIZATION AND MANAGEMENT (3+0) 3 credits

Scientific management principles applicable to office organization.

302 SECRETARIAL PROCEDURES (3+0) 3 credits

Secretarial duties and responsibilities on the administrative level, including theory and practice. Prerequisite: O.A. 102 or equivalent.

404, 604 BUSINESS COMMUNICATIONS 3 credits
Problems and processes of business communication, verbal and nonverbal, and the conventions of business writing.

425 METHODS AND MATERIALS IN TEACHING BUSINESS EDUCATION SUBJECTS (3+0) 3 credits

Learning processes and their applications to the teaching of business subjects. Techniques and media for effective teaching of skill and nonskill areas. (Same as C.I. 425.)

490, 690 INDEPENDENT STUDY 1 to 3 credits
Independent study in selected topics. Maximum of 6 credits.

790 INDEPENDENT RESEARCH 1 to 3 credits
Advanced study and research in office organization and management. Prerequisite: Graduate Standing.

PEDIATRICS (PEDI)*(see Medical Sciences)***PHILOSOPHY (Phil.)**

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, Confucianism, Taoism, Islam, Judaism, and Christianity.

114 INTRODUCTION TO LOGIC (3+0) 3 credits
A study of principles of correct reasoning utilizing modern symbolic techniques.

201 INTRODUCTION TO ETHICAL THEORY (3+0) 3 credits
Representative classical ethical theories.

202 INTRODUCTION TO THE PHILOSOPHY OF THE ARTS (3+0) 3 credits
Topics include aesthetic standards, artistic creativity, 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."

204 INTRODUCTION TO METAPHYSICS (3+0) 3 credits
Nature and extent of our knowledge of reality. Readings from classical and contemporary philosophers.

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 the history of philosophy from the pre-Socratics through the early medieval thinkers.

213 MODERN PHILOSOPHY (3+0) 3 credits
Philosophy from the Renaissance through the eighteenth century. Readings from Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant.

308 INTRODUCTION TO FOUNDATIONS OF MATHEMATICS (3+0) 3 credits
(See Math. 308 for description.)

314 NINETEENTH CENTURY PHILOSOPHY (3+0) 3 credits
Readings from Hegel, Schopenhauer, Marx, Nietzsche, Bentham, Mill, Bradley, and others. Prerequisite: 3 credits in philosophy.

15 TWENTIETH CENTURY PHILOSOPHY (3+0) 3 credits
Significant movements in twentieth 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.

321 PHILOSOPHY OF EDUCATION (3+0) 3 credits
Consideration of basic philosophical issues relating to the values and aims of education. 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.

324 PHILOSOPHY OF SCIENCE (3+0) 3 credits
Analysis of basic characteristics of scientific methods as exemplified in the various sciences; philosophical implications of the sciences. 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 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 a 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.

785 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

212 MEDIEVAL PHILOSOPHY (3+0) 3 credits
714 INTERDEPARTMENTAL COLLOQUIUM (3+0) 3 credits

PHILOSOPHY OF INQUIRY (P.I.)

Interdisciplinary Courses

264 SCIENCE AND RELIGION (3+0) 3 credits
Scientific and religious modes of experience and views of the world. History of the conflict. Elements of modern theology and philosophy of science that bear on the relation of the two areas.

410, 610 SEMINAR IN SOCIAL ECONOMICS (3+0) 3 credits
(See Ec. 410 for description.)

465, 665 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3+0) 3 credits
(See Phil. 465 for description.)

708 PHILOSOPHICAL PSYCHOLOGY (3+0) 3 credits
(See Psy. 708 for description.)

713 PROBLEMS IN LANGUAGE (3+0) 3 credits
(See Engl. 713 for description.)

723 SEMINAR IN POLITICAL THEORY (3+0) 3 credits
(See P.Sc. 723 for description.)

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. A knowledge of elementary high school algebra and geometry is desirable.

103-104 PHYSICS FOR ENGINEERING TECHNOLOGY (3+3) 4 credits each
Introductory course providing an understanding of basic principles of physics. Includes a laboratory to illustrate these principles. Designed for engineering technology students only.

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.

108 INTRODUCTION TO SPACE SCIENCE (3+0) 3 credits
Description of recent discoveries and techniques in geophysics and space science. The geomagnetic field, properties of atmosphere and ionosphere, aurora, radiation belts, solar-terrestrial relationships. Prerequisite: elementary algebra is used as needed.

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
A 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 and recitations with experimental demonstrations and problem work. Prerequisite: elementary algebra and geometry. A knowledge of trigonometry is desirable.

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 and geometry. A knowledge of trigonometry is desirable.

201 ENGINEERING PHYSICS 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 ENGINEERING PHYSICS II (3+0) 3 credits
Discussions of electric charge, field, potential, current, dielectrics, circuit elements, magnetic fields and materials, electromagnetic oscillations, light, reflection, refraction, optical systems, interference, diffraction, and polarization. Prerequisite: Phys. 201. Corequisite: Math. 216.

203 ENGINEERING PHYSICS 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 ENGINEERING PHYSICS LABORATORY 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 ENGINEERING PHYSICS LABORATORY 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 ENGINEERING PHYSICS LABORATORY 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.

500-numbered courses in physics may be taken by non-physics majors providing prior permission is obtained from the department chairman. Graduate courses numbered 500 to 599 are not applicable toward an advanced degree in physics.

311, 511 ENVIRONMENTAL PHYSICS: THE OCEANS AND ATMOSPHERE (3+0) 3 credits
Introduction to the physical characteristics of the ocean and atmosphere and the processes which control their motion. Radiation balance of the earth, clouds and precipitation, diffusion and dispersal of pollution productions; fluid motions on the scale of the human environment. Application to problems of biology, engineering, and urban development. Prerequisite: Phys. 151-152 and Math. 215 or Phys. 201, 202, 203.

351, 551 MECHANICS (3+0) 3 credits

Newtonian mechanics. Mathematical formulation of the dynamics of a particle and systems of particles including applications to atomic physics. Prerequisite: general physics and calculus. Differential equations desirable.

352, 552 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, 555 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.

356, 556 ELECTRICAL MEASUREMENTS (2+3) 3 credits

Modern methods of measurement of electrical quantities important in research in the physical sciences, application of electronic methods to these measurements and to the control of specific physical quantities. Prerequisite: Phys. 355.

361-362, 561-562 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, 563-564 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.

391, 591 INTRODUCTION TO ASTROPHYSICS (3+0) 3 credits

Spectroscopy, distances, and types of stars, stellar energy, and modeling, HR diagram, mass luminosity, multiple and variable stars, star clouds, clusters, galaxies, exotic objects. Prerequisite: Phys. 351.

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 and 154, Math 310, 320.

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 and 206.

424, 624 ADVANCED LABORATORY TECHNIQUES II

(0+3) 1 credit

Continuation of Phys. 423. Prerequisite: Phys. 203 and 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.

455-456, 655-656 PHYSICS OF THE 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: Phys. 351 or equivalent.

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, Boltzmann, Chapman, Phase space, distribution functions, other elements of statistical mechanics. Prerequisites: general physics and calculus.

465, 665 PHILOSOPHY AND METHOD OF THE PHYSICAL SCIENCES (3+0) 3 credits

(See Phil. 465 for description.)

473-474, 673-674 ELECTRICITY AND MAGNETISM

(3+0) 3 credits each

Electrostatics, magnetic fields, and electromagnetism. Maxwell 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 incorporated in regular offerings. Prerequisite: Phys. 201 and 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 special 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 and Phys. 701.

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. Schrodinger 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

Perturbation 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 thermody-

namics. Distribution functions with application to cooperative phenomena, partition functions, and quantum statistics. Prerequisite: Graduate Standing in physics.

740 THEORETICAL FLUID DYNAMICS (3+0) 3 credits

Potential flow; vortex motion, gravity waves; Navier-Stokes equation; boundary layer theory; thermal convection and stability. 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 and 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 PHYSICS (3+0) 3 credits

Condensation nuclei and droplet growth; ice phase phenomena; cloud thermodynamics and chemistry; precipitation and electrification processes; methods of measurement. Prerequisite: Phys. 701 and 740.

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 instrument design. Prerequisite: an upper-division electronics course (Phys. 355 or equivalent) and a working knowledge of computer programming. Prerequisite or corequisite: Phys. 742 and 743.

749 PHYSICAL METEOROLOGY (3+0) 3 credits

Introduction of radiative computations and diagrams as related to the atmosphere. Interaction of electromagnetic radiation with atmospheric particulates and molecules. Prerequisite: Graduate Standing in physics.

751 GRADUATE SEMINAR (1+0) 1 credit

Recent developments in theoretical and experimental physics. Maximum of 6 credits.

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.

771-772 ADVANCED TOPICS IN THEORETICAL AND

EXPERIMENTAL PHYSICS (1 to 3+0) 1 to 3 credits

Consists of lectures dealing with various aspects of one of the fields listed. May be repeated for credit in different fields to a maximum of 12 credits: (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, (i) solid and/or liquid state, (k) cosmic rays, (m) relativity, (n) elementary particles, (p) astrophysics, (r) atmospheric physics, (s) geophysics, (t) unspecified (new field). Prerequisite: Phys. 701-702 or 711-712 or 721-722 or 701, 740.

777 ADVANCED 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*

451-452, 651-652 ACOUSTICS (2+0) 2 credits each
744 UPPER ATMOSPHERE (3+0) 3 credits
753-754 PHYSICS RESEARCH SEMINAR (1 or 2+0) 1 or 2 credits

PLANT, SOIL, AND WATER SCIENCE (P.S.W.)**General****100 PRINCIPLES OF PLANT-SOIL-WATER RESOURCE USE (3+0) 3 credits**

Introduction to the plant, soil, and water resources of the world. Use of these resources for the benefit of man.

304, 504 PRINCIPLES OF PLANT PRODUCTION (3+0) 3 credits

Principles underlying the creation and maintenance of a favorable environment for the efficient production of plants. Prerequisite: Biol. 202.

306, 506 PLANT PRODUCTION LABORATORY (0+3) 1 credit

Greenhouse or laboratory problems relating to the production of plants. Identification of important horticultural and agronomic plants. Corequisite: P.S.W. 304.

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.

400 UNDERGRADUATE SEMINAR (1+0) 1 credit

Research work and reports on topics of interest in plant, soil, and water science. Prerequisite: senior standing.

406, 606 PLANT BREEDING (2+3) 3 credits

Methods of plant breeding and their application to various crops. Prerequisite: Biol. 300. (Offered on demand.)

480 INDEPENDENT STUDY 1 to 3 credits

Intensive study of a special problem in: (a) bioclimatology, (b) crop science, (c) horticulture, (d) plant pathology, (e) soil science, (f) water science.

485, 685 SPECIAL TOPICS (1 to 3+0) 1 to 3 credits

Presentation and review of recent research, innovations, and developments in plant, soil, and water science. These may include the areas of plant, soil, and water science, bioclimatology, crop science, drainage, horticulture, irrigation, plant breeding, plant pathology, soil classification, and weed science. Maximum of 6 credits.

700 GRADUATE SEMINAR (1+0) 1 credit

Research work and reports on topics of interest in plant, soil, and water science.

710 SELECTED TOPICS 1 to 3 credits

Topics of current interest, selected according to student and staff interest: (a) plant, soil, and water science, (b) bioclimatology, (c) crop science, (d) drainage, (e) horticulture, (f) irrigation, (g) plant pathology, (h) soil classification, (i) soil mineralogy, (k) weed science. May be elected more than once to pursue different studies.

711 RESEARCH METHODOLOGY (2+3) 3 credits

Research principles applied to plant, soil, and water sciences. Research problem analysis, library materials, research equipment and procedures, data presentation.

712 ENVIRONMENT AND PLANT RESPONSE (2+3) 3 credits

Specific environmental factors which influence the growth and development of green plants. Emphasizes how to distinguish symptoms associated with mineral nutrients, air, soil, and water pollutants, temperature, and light. The causes and mechanisms by which symptoms develop and possible procedures to ameliorate these problems. Prerequisite: P.S.W. 327 and Biol. 355, 356. (Offered on demand.)

715 PLANT WATER RELATIONS (2+0) 2 credits
An 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 stresses. Prerequisite: Biol. 355.

780 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in (a) bioclimatology, (b) crop science, (c) horticulture, (d) plant pathology, (e) soil science, (f) water science. Prerequisite: Graduate Standing. Maximum of 6 credits in any area.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

796 PROFESSIONAL PAPER 1 or 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) bioclimatology, (b) crop science, (c) horticulture, (d) plant pathology, (e) soil science, (f) water science.

Bioclimatology

331, 531 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. (Same as Geog. 325.)

731 ADVANCED BIOCLIMATOLOGY (3+0) 3 credits
Detailed study of evapotranspiration. Theories and water vapor exchange between the soil-plant complex and the atmosphere. Methods of study and analysis of potential and actual evapotranspiration. Prerequisite: P.S.W. 331, Math. 182. (Same as Geog. 725.)

Crop Science

155, 555 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.

356, 556 WEEDS AND WEED CONTROL (2+3) 3 credits
Principles and practices of weed control. Recognition of important weed species. Prerequisite: Biol. 101 and Chem. 142. (Offered in even numbered years.)

412 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. Crops and cropping systems of major agricultural regions. Prerequisite: P.S.W. 304 and 306, Biol. 355, or B.Ch. 412.

758 HERBICIDES (3+0) 3 credits
Chemistry of herbicides, their entry, and movement; action in plants and their fate in the environment. Prerequisite: Biol. 355, 356; P.S.W. 356.

Horticulture

161 PRINCIPLES OF TURF MANAGEMENT (2+3) 3 credits
Environmental conditions that may affect the selection and maintenance of turf grasses. Management programs necessary to establish and maintain desirable turf.

162 GREENHOUSE AND NURSERY MANAGEMENT (2+6) 4 credits
Management practices in commercial greenhouses and nurseries in relation to plant growth and development.

163 LANDSCAPE DESIGN AND CONSTRUCTION (2+6) 4 credits
Design using plants to enhance man's environment with specific emphasis on single family dwellings and small public areas. (Offered in odd-numbered years.)

164 HORTICULTURAL SCIENCE (3+0) 3 credits
Introduction to horticulture, including a study of the basic principles of plant growth, utilization, and reproduction.

166 PARK MANAGEMENT AND ADMINISTRATION (3+0) 3 credits
Introduction to the organization, development, principles, and policies of public park management and administration. (Offered in even-numbered years.)

260 ORNAMENTAL PLANT MATERIALS (2+3) 3 credits
Identification, horticultural characteristics, and use in landscaping of shrubs, trees, and ground covers. Prerequisite: Biol. 202 or P.S.W. 164. (Offered in odd-numbered years.)

262 TURF MANAGEMENT PRACTICES (2+3) 3 credits
Construction, renovation, and management of both small lawns and park turf areas.

Plant Pathology

471, 671 PLANT PATHOLOGY (3+3) 4 credits
Nature, cause, and control of plant diseases. Prerequisite: Biol. 202.

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: P.S.W. 471, 671.

Soil Science

120 SOILS AND SOIL MANAGEMENT (2+3) 3 credits
Introduction to the nature and properties of soils, their formations and their management for production of field crops, lawns, and gardens. Does not serve as prerequisite for upper-division courses in soil science. Credit not allowed for both P.S.W. 120 and 222, nor for baccalaureate credit in the plant, soil, and water science major.

222 SOILS (3+3) 4 credits
Physical, chemical, and biological properties of soils, soil genesis and classification, plant-soil-water relations. Prerequisite: Chem. 101.

325, 525 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: P.S.W. 222; Geol. 101 recommended.

327, 527 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: P.S.W. 222 and Chem. 142.

421, 621 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: P.S.W. 327, Chem. 330.

422, 622 SOIL PHYSICS (2+3) 3 credits
Physical properties of soil components, soil structure, temperature, aeration, soil-water interactions; methods of measurement, application to tillage and soil management. (Offered in odd-numbered years.)

424, 624 SOIL MICROBIOLOGY AND POLLUTANT DECOMPOSITION (3+0) 3 credits
Fate and behavior of environmental pollutants added to the soil. Emphasizes the soil as an active means of solving the problems of environmental pollution by pesticides, animal wastes, and effluent components. Considers products, pathways, and rates of decomposition. Prerequisite: Biol. 101 and Chem. 101 or Chem. 171.

726 IRRIGATED SOIL MANAGEMENT (3+0) 3 credits
Management of soils for permanent irrigation agriculture with emphasis on the effects of irrigation water on soil physical and chemical properties. Prerequisite: P.S.W. 327, 344. (Offered in odd-numbered years.)

Water Science

344, 544 IRRIGATION PRINCIPLES AND PRACTICES (3+0 or 3) 3 or 4 credits
Principles and practices underlying efficient use of water in irrigation, irrigation methods, land preparation, salinity, etc. Laboratory optional. Prerequisite: P.S.W. 222.

441, 641 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 P.S.W. 222, Ag. 270 or their equivalents.

444, 644 IRRIGATION SYSTEM MANAGEMENT (3+0) 3 credits
Types of organizations, distribution of water to irrigators; system maintenance, water rights and their administration. Prerequisite: P.S.W. 344. (Offered on demand.)

445, 645 FARM IRRIGATION SYSTEM DESIGN (3+0) 3 credits
Selection and design of farm irrigation and conveyance systems; land preparation, diversion of water, wells, and pumping. Prerequisite: P.S.W. 344. (Offered on demand.)

446, 646 DRAINAGE OF AGRICULTURAL LANDS (2+3) 3 credits
Theory of drainage of agricultural lands; investigation techniques, solution of drainage problems, choices of systems. Prerequisite: Phys. 210. Corequisite: P.S.W. 422. (Offered on demand.)

Inactive Courses

261 PRODUCTION OF HORTICULTURAL MATERIALS (3+0) 3 credits

POLITICAL SCIENCE (P.Sc.)

General and Introductory

Political Science 103 is a prerequisite for all other political science courses except P.Sc. 100.

100 CONSTITUTION OF NEVADA (1+0) 1 credit
Study of the 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 History 102, 111, 217. (Offered through Independent Study Division only.)

103 PRINCIPLES OF AMERICAN CONSTITUTIONAL GOVERNMENT (3+0) 3 credits
Constitutions of the United States and Nevada with additional attention to various principles and current problems of government. Satisfies United States and Nevada Constitution requirements.

104 GREAT ISSUES OF POLITICS (3+0) 3 credits
Examination of and methods for systematic inquiry into selected issues in politics, such as liberty, authority, and the role of elites.

American Government and Politics

208 AMERICAN STATE AND LOCAL GOVERNMENTS (3+0) 3 credits
Organization, working principles, and functional processes of state and local governments in the United States (Satisfies the legislative requirement for the Nevada Constitution.)

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 units, including 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 units, including 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.

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-State relations, the executive and legislative branches, and contemporary social issues. Prerequisite: American national government course. (Satisfies the legislative requirement for the United States Constitution.)

404, 604 JURISPRUDENCE (3+0) 3 credits
Introduction to problems of legal theory from the analytical, philosophical, and sociological points of view. Particular attention to modern theories of law.

405, 605 JUDICIAL BEHAVIOR (3+0) 3 credits
Survey and analysis of quantitative research, focusing on predictive and explanatory tools for examining the behavior of judges and others performing judicial tasks. Prerequisite for 605: P.Sc. 481.

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 United States Constitution.)

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 PRESSURE GROUPS AND POLITICAL MOVEMENTS (3+0) 3 credits
Structure, operation, tactics, and techniques of pressure groups. Nature, formation, and impact of political movements.

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.

Political Theory**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.

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, post-industrialization 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.

481, 681 RESEARCH IN POLITICAL SCIENCE (3+0) 3 credits
Concepts and methods of political science research: includes legal research, information retrieval, interviews and surveys, and development of quantitative data.

723 SEMINAR IN POLITICAL THEORY (3+0) 3 credits
Maximum of 9 credits.

726 SEMINAR IN AMERICAN POLITICAL THEORY
(3+0) 3 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 (3+0) 3 credits
Techniques and methodologies currently employed in political science, including statistical measures, survey research, and the relating of research to theory. Prerequisite: Psy.-Soc. 210 or equivalent.

Comparative Politics

211 COMPARATIVE GOVERNMENT AND POLITICS
(3+0) 3 credits
Analysis of similarities and differences in the governing processes of different societies.

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
Comparative study 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.

711 SEMINAR IN COMPARATIVE POLITICS

(3+0) 3 credits
Maximum of 9 credits.

International Relations

231 WORLD POLITICS (3+0) 3 credits
Introduction to the study of international relations; stresses the principles of a systematic approach to world politics.

336 TRANSNATIONAL POLITICS (3+0) 3 credits
Economic, social, and physical-environment issues that transcend national boundaries and global and regional processes employed to manage them; politics of multinational integration.

431, 631 COMPARATIVE STUDY OF FOREIGN POLICY
(3+0) 3 credits
Factors, including ideology and national interest, which influence the formulation of foreign policy; objectives, instruments of policy of selected states. Prerequisite: P.Sc. 231.

432, 632 AMERICAN FOREIGN POLICY
(3+0) 3 credits
Environmental influences on United States 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.

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.

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.

731 SEMINAR IN INTERNATIONAL RELATIONS
(3+0) 3 credits
Maximum of 9 credits.

Public Administration

341 ELEMENTS OF PUBLIC ADMINISTRATION
(3+0) 3 credits
Introduction to administrative theory, politics, and responsibilities; bureaucracy; and public financial and personnel administration.

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, 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.

450, 650 PUBLIC SERVICE INTERNSHIP 1 to 6 credits
Students serve in Federal, State, or local government office. Prerequisite: P.Sc. 341. *S/U only for 450; regular grading for 650.*

741 SEMINAR IN PUBLIC ADMINISTRATION
(3+0) 3 credits
Maximum of 9 credits.

Public Policy

205 INTRODUCTION TO ETHNIC POLITICS
(3+0) 3 credits
Examination of the causes, content, and impact of ethnic politics, with emphasis on historical, analytical, and comparative perspectives.

210 AMERICAN PUBLIC POLICY (3+0) 3 credits
Analysis of the interplay of forces involved in policy-making at all levels of American government. Study of the impact of policy on individuals and institutions.

354 POLITICS AND WOMEN (3+0) 3 credits
Examination of women's political movements, differential political socialization processes, and the economic and legal status of women.

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.

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.

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.)

458, 658 PUBLIC POLICY: A GLOBAL PERSPECTIVE
(3+0) 3 credits
Causes and consequences of governmental domestic policy variations among nations, emphasizing Europe and America.

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.

Independent and Advanced Study

497, 697 INDEPENDENT STUDY 1 to 3 credits
Maximum of 6 credits.

710 ADVANCED STUDIES IN POLITICAL SCIENCE
1 to 3 credits
Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit *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
408, 608 POLITICS IN THE WESTERN STATES (3+0) 3 credits
412, 612 GOVERNMENT AND POLITICS IN AFRICA
(3+0) 3 credits
418, 618 PROBLEMS IN DEVELOPED POLITICAL SYSTEMS
(3+0) 3 credits
419, 619 PROBLEMS OF DEVELOPING POLITICAL SYSTEMS
(3+0) 3 credits
435, 635 INTERNATIONAL LAW (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)

(see *Medical Sciences*)

PSYCHOLOGY (Psy.)*

101 GENERAL PSYCHOLOGY (3+0) 3 credits
Principles of human 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.

203-204 ADVANCED GENERAL PSYCHOLOGY
(3+0) 3 credits each
Behavioral sciences, including perception, motivation, and learning the first semester to developmental, personality, and social psychology and sociology of institutions in the second semester. Approved for but not limited to those majoring in the health sciences fields. Prerequisite: Psy. 101, admission to honors program or status as health science student. (Same as Med.S. 203-204.)

205 ELEMENTARY ANALYSIS OF BEHAVIOR
(2+3) 3 credits
Survey of principles of reinforcement theory in the analysis of behavior. The principles of learning are demonstrated in the laboratory. Prerequisite: Psy. 101.

210 STATISTICAL METHODS (3+2) 4 credits
Study and practice with statistical methods especially useful in the presentation and interpretation of psychological, sociological, and educational data, including BASIC 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.)

231 PSYCHOLOGY OF ADOLESCENCE (2+0) 2 credits
Characteristics prominent in the adolescent, with special emphasis upon applications to the work of the high school teacher. Prerequisite: Psy. 101.

233 CHILD PSYCHOLOGY (3+0) 3 credits
Development of the normal child from conception to twelve years of age. Consideration is given to the elimination of undesirable personality traits. Prerequisite: Psy. 101.

261 SOCIAL PSYCHOLOGY I: SOCIAL INFLUENCE PROCESSES (3+0) 3 credits
Discussion of socialization processes and change in attitudes and behavior. Prerequisite: Psy. 101 or Soc. 101. (Same as Soc. 261.)

275 HONORS STUDY AND RESEARCH
(1 to 3+0) 1 to 3 credits
Independent study of research conducted under the supervision of a staff member. Maximum of 6 credits. Prerequisite: admission to honors work in psychology and sophomore standing.

*Graduate courses numbered 500 to 599 are not applicable toward an advanced degree in psychology.

299 SPECIAL PROBLEMS IN PSYCHOLOGY

(1 to 5+0) 1 to 5 credits
Research from any field of psychology in which the student is adequately prepared. May be repeated with research on a new problem to a maximum of 5 credits. Open to freshmen and sophomores only.

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, emotional, 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.

327, 527 COMPUTER APPLICATION IN THE SOCIAL SCIENCES (3+0) 3 credits

(See Soc. 327 for description.)

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 doctrines 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 HONORS STUDY AND RESEARCH

(1 to 3+0) 1 to 3 credits

Independent study or research conducted under the supervision of staff member. Maximum of 6 credits. Prerequisite: admission to honors work in psychology and junior standing.

392 RESEARCH METHODS (3+0) 3 credits

(See Soc. 392 for description.)

403, 603 PHYSIOLOGICAL PSYCHOLOGY (2+3) 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. (Same as Med.S. 406.)

408, 608 HISTORY OF PSYCHOLOGY (3+0) 3 credits

Historical background of psychology in philosophy and physiology until 1880; various schools of psychological thought until mid-century. Prerequisite: Psy. 101.

412 MENTAL TESTING (3+2) 4 credits

Theory of and practice with mental tests. Emphasis on standardization, administration, and interpretation of scales of intelligence. Prerequisite: Psy. 101, 210, and senior standing.

421, 621 CONDITIONING AND LEARNING (3+0) 3 credits

Factors and conditions which enhance or retard learning. A 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.)

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.

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 PSYCHOLOGICAL PRINCIPLES OF COUNSELING (3+0) 3 credits

Consideration of therapeutic techniques, with emphasis upon the client-centered approach. Some attention to tests, sound recordings, case materials, and other adjuncts to counseling. Prerequisite: Psy. 101.

483, 683 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 and Psy./Soc. 261 or Psy./Soc. 362. (Same as Soc. 463.) Psy. 663 not open to psychology majors.

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

Skinner's analysis of verbal and other intellectual behavior, especially as it pertains to 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 and senior standing.

480, 680 MOTIVATION (3+0) 3 credits

Basic motivation theory, including biological and cultural bases. Survey of contemporary research on major drives and needs with emphasis on human motives. 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 and Biol. 101. (Same as Biol. 481.)

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. 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 and Biol. 101.

499, 699 SPECIAL PROBLEMS IN PSYCHOLOGY

(1 to 5+0) 1 to 5 credits

Research from any field of psychology in which the student is adequately prepared. May be repeated with research on a new problem to a maximum of 9 credits.

Prerequisite for following 700-level courses: admission to Graduate Standing in the Department of Psychology.

701 INDIVIDUAL READING 1 to 5 credits

Supervised reading with regular conferences between student and instructor. Maximum of 9 credits.

702 GRADUATE RESEARCH 1 to 5 credits

Research projects in psychology carried out under supervision. Maximum of 6 credits.

703 RESEARCH PRACTICUM (1 to 3+0) 1 to 3 credits

Research apprenticeship in ongoing research projects. Familiarization with aims and methods of psychological research.

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.

706-707 INTERMEDIATE STATISTICS (3+0) 3 credits each

Theory and application of parametric and nonparametric statistical inference, including special correlation methods, and an introduction to simple and complex analysis of variance and trend analysis. Introductions to factor analysis, decision theory techniques of data analysis, sampling and scaling. Prerequisite: Psy. 210. (Same as Soc. 706-707.)

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.

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. 303.

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.

731-732 CONTEMPORARY ISSUES IN PSYCHOLOGY

(3+0) 3 credits each

Consideration in depth of selected topics of contemporary interest. Maximum of 6 credits each.

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. 204, 231, 233, or 444.

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 situations. 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.

741 CLINICAL PRACTICUM (1 to 3+0) 1 to 3 credits

Supervised experience in psychological assessment and psychological intervention with children and adults in a variety of clinical agencies and community settings. Maximum of 15 credits. Prerequisite: enrollment in clinical program.

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 contemporary theory, research, and practices in the field of clinical psychology.

752 CLINICAL ORIENTATION (1+0) 1 credit

Roles and responsibilities of the clinical psychologist. Ethical problems and standards. Professional trends and issues. Maximum of 3 credits. Prerequisite: enrollment in clinical program.

754-755 THEORIES OF LEARNING (3+0) 3 credits each

Examination of research on learning and of theories which attempt to explain the processes of learning. Prerequisite: Psy. 421.

757 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.

758 ADVANCED PSYCHOPHYSIOLOGY (3+0) 3 credits

Current developments and animal physiological research relating to general principles of sensation, perception, and behavior. Prerequisite: Psy. 403.

760 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.

761 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.

761 SPECIAL TOPICS IN EXPERIMENTAL PSYCHOLOGY (3+0) 3 credits

Consideration of selected current research problems and conceptual issues in experimental psychology.

762 SPECIAL TOPICS IN SOCIAL PSYCHOLOGY (3+0) 3 credits

Consideration of selected current research problems and conceptual issues in social psychology.

763 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 Soc. 783.)

764 INTERPERSONAL TRANSACTIONS (3+0) 3 credits

Basic processes of social interaction including person perception, communication, attraction, and power in social relationships. (Same as Soc. 784.)

765 GROUP BEHAVIOR (3+0) 3 credits

Analysis of behavior in small and intermediate size groups, including organizational behavior and intergroup relations. (Same as Soc. 785.)

766 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 Soc. 786.)

769 COMPREHENSIVE EXAMINATION 0 credit S/U only**767 THESIS 1 to 6 credits****769 DISSERTATION 1 to 24 credits****Inactive Courses**

- 7 PSYCHOLOGY OF MANAGEMENT (2+0) 2 credits
1 INDUSTRIAL AND PERSONNEL PSYCHOLOGY (2+0) 2 credits
0, 610 PHILOSOPHICAL CRITICISMS OF PSYCHOLOGICAL RESEARCH (3+0) 3 credits

RECREATION AND PHYSICAL EDUCATION (R.P.Ed.)

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**200-797 RECREATION-PHYSICAL EDUCATION THEORY 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. Except where noted, a student may enroll in the same class four times for credit.

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

DANCE

- 110 Modern Dance, Beginning*
111 Modern Dance, Intermediate
112 Modern Dance, Advanced
113 Dance, Ballet
114 Dance, Folk and Square
115 Dance, Social

GYMNASTICS

- 120 Gymnastics (Men) Beginning*
121 Gymnastics (Women) Beginning*
122 Gymnastics (Men) Inter.-Adv.
123 Gymnastics (Women) Inter.-Adv.
124 Trampoline, Beginning*
125 Trampoline, Inter.-Adv.

GAMES (COURT)

- 127 Team Handball
128 Badminton
129 Basketball and 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
164 Shooting, Recreational
168 Soccer
169 Yoga

CONDITIONING

- 170 Conditioning, Intercollegiate Baseball
171 Conditioning, Intercollegiate Basketball
172 Conditioning, Intercollegiate Football
173 Conditioning, Intercollegiate Gymnastics
174 Conditioning, Intercollegiate Skiing
175 Conditioning, Intercollegiate Softball
176 Conditioning, Intercollegiate Swimming
177 Conditioning, Intercollegiate Tennis
178 Conditioning, Intercollegiate Track and Field
179 Conditioning, Intercollegiate Volleyball
180 Conditioning and Body Building (men and women)
181 Conditioning, ROTC
182 Jogging
183 Weight Lifting

*Maximum of 2 credits

INTERCOLLEGIATE COMPETITIVE ACTIVITIES

- 184 Intercollegiate Baseball
185 Intercollegiate Basketball
186 Intercollegiate Boxing
187 Intercollegiate Cross Country
188 Intercollegiate Football
190 Intercollegiate Golf
191 Intercollegiate Gymnastics
192 Intercollegiate Rifle
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 R.P.Ed.; skill and proficiency tests required for all R.P.Ed. 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.

220 METHODS OF TEACHING AQUATICS AND GOLF (0+4) 2 credits

Designed for majors and minors in R.P.Ed.

221 METHODS OF TEACHING TENNIS, SOFTBALL, AND VOLLEYBALL (0+4) 2 credits

Designed for majors and minors in R.P.Ed.

222 METHODS OF TEACHING ARCHERY, BADMINTON, AND BOWLING (0+4) 2 credits

Designed for majors and minors in R.P.Ed.

223 METHODS OF TEACHING SOCCER, SPEEDBALL, AND TUMBLING (0+4) 2 credits

Designed for majors and minors in R.P.Ed.

224 METHODS OF TEACHING MODERN DANCE AND GYMNASTICS (Women's) (0+4) 2 credits

Designed for majors and minors in R.P.Ed.

225 METHODS OF TEACHING WRESTLING AND GYMNASTICS (Men's) (0+4) 2 credits

Designed for majors and minors in R.P.Ed.

227 METHODS OF TEACHING WATER SAFETY (1+2) 2 credits

Designed for majors and minors in R.P.Ed.

228 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.

229 METHODS OF TEACHING ROCK CLIMBING AND BACKPACKING (0+4) 2 credits.

Prerequisite: R.P.Ed. 146 or a proficiency test.

230 METHODS OF TEACHING FUNDAMENTAL RHYTHMIC ACTIVITIES (0+4) 2 credits

Elementary rhythmic activities including folk, square, and social dance.

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.

250 PHYSICAL EDUCATION ACTIVITIES FOR PRIMARY GRADES K-3 (1+2) 2 credits

Extensive and intensive study of games, rhythms, stunts, and tumbling.

251 PHYSICAL EDUCATION ACTIVITIES FOR INTERMEDIATE GRADES 4-8 (1+2) 2 credits.

Extensive and intensive study of games, rhythms, and dances, stunts, tumbling, and gymnastics.

252 PHYSICAL EDUCATION ACTIVITIES FOR MIDDLE SCHOOL GRADES 6-8 (1+2) 2 credits

Extensive and intensive study of games, rhythms, dances, stunts, tumbling, gymnastics, and team activities.

261 CHOREOGRAPHY (1+2) 2 credits

Principles of composition in modern dance, including experience in movement development, design, form, and participation in a stage production.

262 DANCE PRODUCTION (1+2) 2 credits

Experience in producing a modern dance recital in a theater environment.

270 DISASTER FIRST AID (1+2) 2 credits

Standard and advanced Red Cross first-aid emergency care for sick and/or injured in case of a disaster.

271 INSTRUCTOR'S FIRST AID (2+0) 2 credits

Regular Red Cross course. Those completing the course may be designated first-aid instructors. Prerequisite: R.P.Ed. 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: R.P.Ed. 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: R.P.Ed. 326.

323 THEORY OF BASEBALL (2+2) 3 credits

Lectures on theory of baseball; teaching techniques and practical demonstrations. 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. May be repeated to a 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. Prerequisite: R.P.Ed. 201 and 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.

350 TEACHING PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (2+0) 2 credits
Curriculum planning, lesson plans, and teaching methods for the classroom teacher.

360 COMPARATIVE DANCE STYLES I (1+2) 2 credits
Creative exploration of modern dance in relation to artistic trends from the beginnings of dance to the court period.

361 COMPARATIVE DANCE STYLES II (1+2) 2 credits
Creative exploration of modern dance in relation to artistic trends of nineteenth and twentieth centuries.

370 ATHLETIC INJURIES (1+2) 2 credits
Prevention and treatment of common athletic injuries, including practical application.

372 METHODS OF TEACHING PHYSICAL EDUCATION (3+0) 3 credits
Preparation for student teaching. (Same as C.I. 372).

373 FIELD EXPERIENCE IN RECREATIONAL CRAFTS (1+3) 2 credits
Instruction in 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 (1+2) 2 credits
Administering and interpreting tests; evaluating and reporting data collected. Prerequisite: R.P.Ed. 201 and 4 credits above 300 in R.P.Ed.

42, 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: R.P.Ed. 201 and 4 credits above 300 in R.P.Ed.

403 KINESIOLOGY (3+0) 3 credits
Mechanical and anatomical analysis of motion as a basis for the teaching of R.P.Ed. 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 R.P.Ed. 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.

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
The analyses, development, and maintenance of skills. Purchase and maintenance of equipment. Prerequisite: 4 credits from R.P.Ed. 220, 221, 222, 228, and 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: R.P.Ed. 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 R.P.Ed. or elementary school teaching certificate.

460, 660 HISTORY AND DEVELOPMENT OF THE DANCE (2+0) 2 credits
Study of dance and its relationship to other arts. Prerequisite: R.P.Ed. 261.

461, 661 WORKSHOP IN MODERN DANCE (1+2) 2 credits
Recent trends in modern dance techniques and compositions. Maximum of 4 credits.

462 PHYSICAL EDUCATION WORKSHOP (0+2) 1 credit
Recent trends, changes, and techniques in physical education activities.

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 R.P.Ed.

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
A detailed study of the application of anatomical, mechanical, and physiological principles to human motion and sports skill. Prerequisite: R.P.Ed. 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 R.P.Ed.

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 R.P.Ed.

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: R.P.Ed. 406.

794 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 R.P.Ed.

795 COMPREHENSIVE EXAMINATION 0 credit *S/U only*

797 THESIS 1 to 6 credits

Inactive Courses

100 CANOEING
149 FOIL FENCING
150 BEGINNING SABRE FENCING
151 INTERMEDIATE AND ADVANCED SABRE FENCING
163 HANG GLIDING GROUND SCHOOL
165 SKATING, ICE
166 SKATING, ROLLER
167 SPORT PARACHUTE GROUND SCHOOL
189 INTERCOLLEGIATE FIELD HOCKEY
199 INTERCOLLEGIATE WRESTLING

RENEWABLE NATURAL RESOURCES (R.N.R.)

A number of courses require field trips and laboratory exercises that involve additional student expense. Consult with the department prior to registration.

100 CONCEPTS IN RENEWABLE NATURAL RESOURCES MANAGEMENT (3+0) 3 credits
Scientific and managerial principles applied for forest, range, recreation, wildlife, and watershed resources.

280 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) gamelife management, (c) range science, (d) recreation, (e) watershed management, (f) wildland conservation.

292 RESOURCE MAPS AND LAND MEASUREMENTS (2+3) 3 credits
Kinds of maps, mapping techniques, and instruments used in resource management. Explanation of techniques, instruments, and maps. Encourages students to develop solutions to field problems. Field trips required. Prerequisite: trigonometry.

301, 501 SILVICULTURE (3+3) 4 credits
Foundations and practice of silviculture, including tree physiology, tree improvements, silvics, forest ecology, and control of forest establishment, composition, and growth. Field trips required. Prerequisite: R.N.R. 293, Biol. 212.

302, 502 QUANTITATIVE RESOURCE ANALYSIS (4+3) 5 credits
Statistical techniques used in quantifying renewable resources. Planning and execution of surveys, sampling systems, data analysis, and presentation. Field trips required. Prerequisite: Ag. 270, R.N.R. 100 and 292.

303, 503 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. Advance approval required. Prerequisite: R.N.R. 301, 302.

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.

335, 535 CONSERVATION OF NATURAL RESOURCES (3+0) 3 credits
(See Geog. 335 for description.)

341, 541 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. (Offered in even numbered years.)

345 RANGE PLANTS (2+6) 3 credits
Identification, distribution, and management of the major range plants occurring in the nine grazing regions of the United States.

346, 546 RANGE 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 and 334 or R.N.R. 341, 393.

348, 548 RANGE IMPROVEMENTS (2+3) 3 credits
Artificial revegetation, fencing, water development; manipulation of vegetation (controlling) mechanically, chemically, and by fire. Field trips required. Prerequisite: R.N.R. 341.

351 AERIAL PHOTOGRAMMETRY (2+3) 3 credits
Practical approach to the use of aerial photographs for evaluating renewable resources. Emphasizes forest mensuration, watershed analysis, recreation habitat surveys for wildlife and range management.

361, 561 WILDLAND RECREATION MANAGEMENT (3+0) 3 credits
Consideration of wildland recreation resource management. Emphasis on site selection, design, and operation, as well as the interrelationships between recreational land use and other resource functions. Prerequisite: R.N.R. 100.

362, 562 ADVANCED WILDLAND RECREATION MANAGEMENT (2+2) 3 credits
Recreation area development, policy, and administration. Studies include carrying capacity of resources, user preference, quality of developments, and elements of design. Field trips required. Prerequisite: R.N.R. 361.

391 WILDLAND PROTECTION (2+3) 3 credits
Recognition of insect and disease damage, identification of causal agents, and concepts of prevention and control. Fire prevention suppression and use, including fire behavior. Fire weather and development of fire control organizations. Prerequisite: Biol. 212, Phys. 101 or equivalent.

393 DENDROLOGY (2+3) 3 credits
Identification, taxonomy, distribution, and management implications of forest trees of the United States and Canada. Emphasizes commercial species. Prerequisite: Biol. 101 or 202.

401, 601 LOGGING SYSTEMS (2+6) 4 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. Advance approval required. Prerequisite: R.N.R. 301, 302.

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: R.N.R. 301 and 302.

404, 604 INTRODUCTION TO REMOTE SENSING (3+0) 3 credits
(See Geol. 404 for description.)

420, 620 INTEGRATED NATURAL RESOURCE MANAGEMENT (2+3) 3 credits
Coordinated approach to resource management to include the application of policy guidelines. Recognition is made of the diverse values that any particular land type might provide for various segments of the population, including quantitative analytical techniques. Field trips required. Prerequisite: senior standing.

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.

423, 623 FISHERIES MANAGEMENT (2+3) 3 credits
Fish ecology, habitat requirements, distribution, and techniques as applied to modern gamefish management. Field trips required. Prerequisite: Biol. 212, 372, 373.

425, 625 BIG GAME MANAGEMENT (3+0) 3 credits
Big game ranges and populations and their management. Prerequisite: Biol. 212, 378.

427, 627 FISH AND WILDLIFE HABITAT MANAGEMENT (2+3) 3 credits
Cultural practices, including mechanical, chemical, and biological techniques to manipulate both aquatic and terrestrial environments, meeting specific habitat objectives. Field trips required. Prerequisite: Biol. 212, R.N.R. 302.

441, 641 RANGE AGROSTOLOGY (1+3) 2 credits
Taxonomy of grasses. Natural and artificial systems of classification, cytology and evolution, ecotypic variations, internal and external morphology. Description, identification, and habitat of grasses. Prerequisite: RNR 345.

442, 642 REMOTE SENSING OF RENEWABLE NATURAL RESOURCES (2+3) 3 credits
Applied interpretation of remote sensing imagery for the inventory of renewable natural resources and the solution of wildlife management problems. Conventional aerial photography, high flight photography, multiband and ERTS imagery emphasized. Prerequisite: R.N.R. 292.

462, 662 NATURAL RESOURCES INTERPRETATION AND COMMUNICATION (2+3) 3 credits
Techniques in interpretation of natural history and resource management elements, systems, and programs. Communication and public relations aspects of resource management are studied. Prerequisite: Biol. 212 or R.N.R./Geog. 335.

464, 664 RECREATIONAL LAND USE PLANNING (3+2) 4 credits
Planning process necessary for municipal, State, and Federal recreation areas. Includes planning philosophy, information sources, growth and development patterns, estimation methods, regional influences, political realities, and behavioral survey methods. Field trips required. Prerequisite: R.N.R. 362 or equivalent.

480 INDEPENDENT STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range science, (d) recreation, (e) watershed management, (f) wildland conservation.

482, 682 WATERSHED MANAGEMENT (2+3) 3 credits
Management of upland watershed for soil and water conservation. Use of mechanical and vegetative techniques and storage facilities for conservation practice. Field trips required. Prerequisite: P.S.W. 22; 441 recommended.

484, 684 WATERSHED ANALYSIS (3+0) 3 credits
Detailed development and analysis of streamflow, surface water quality, and land use parameters leading to a comprehensive report on the environment, resources, and pollution problems of a small watershed. Field trips required. Prerequisite: R.N.R. 482. (Offered in alternate years.)

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. (Same as Geog. 431-432, 631-632.)

493, 693 RANGE AND FOREST ECOLOGY (2+3) 3 credits
Ecologic and economic interpretations of major range and forest communities. The application of autecological and synecological principles to range and forest ecosystems. Ecosystem influences and modeling. Field trips required. Prerequisite: Biol. 212 or equivalent.

494, 694 ADMINISTRATION AND POLICY (3+0) 3 credits
Public administration applied to environmental management. Developmental 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. Prerequisite: R.N.R. 100, 101. (Same as Geog. 434.)

736 PERSPECTIVES IN RENEWABLE NATURAL RESOURCES (3+0) 3 credits
Man's influence on and use of renewable natural resources in a physical and social context. Case histories and field trips. Prerequisite: undergraduate degree in some phase of natural resources and/or biological science. (Same as Geog. 736.)

780 INDIVIDUAL STUDY 1 to 3 credits
Intensive study of a special problem in (a) forestry, (b) wildlife management, (c) range science, (d) recreation, (e) watershed management, (f) wildland conservation. Prerequisite: Graduate Standing. Maximum of 6 credits in any area.

785 ADVANCED RESOURCE MANAGEMENT 1 to 3 credits
Special advanced course work in (a) forestry, (b) wildlife, (c) range science, (d) recreation, (e) watershed management, (f) wildland conservation. Prerequisite: Graduate Standing. Maximum of 6 credits.

786 ADVANCED RESEARCH CONCEPTS (3+0) 3 credits
Analysis of theories, techniques, and applications, drawn from any discipline, that have present or potential utility in resource management.

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 science, (d) recreation, (e) watershed management.

Inactive Courses

101 RENEWABLE NATURAL RESOURCES LABORATORY (2+3) 1 credit
271 WILDERNESS SURVIVAL (3+0) 3 credits
291 FUNDAMENTALS OF FOREST AND RANGE FIRE CONTROL (1+0) 1 credit
321 WILDLIFE CONSERVATION (3+0) 3 credits
403, 603 ADVANCED PRINCIPLES OF FOREST MEASUREMENT AND MANAGEMENT (2+3) 3 credits
426, 626 GAME MAMMAL POPULATIONS (3+0) 3 credits
463, 663 RECREATION RESOURCE SEMINAR (3+0) 3 credits
465, 665 POLLUTION AND AESTHETIC VALUES (3+0) 3 credits
490, 690 SEMINAR ON ENVIRONMENTAL ISSUES (3+0) 3 credits
496, 696 LEGAL PROBLEMS IN LAND AND WATER (3+0) 3 credits
743 RANGE AND PASTURE LITERATURE 1 or 2 credits
760 RANGE ECOSYSTEM ANALYSIS (1+3) 2 credits
794 ECOLOGICAL IMPACT OF WATER RESOURCE PROJECTS (3+0) 3 credits

SOCIAL SERVICES AND CORRECTIONS (S.Sv.C.)

101 SOCIAL ISSUES AND POLICIES (3+0) 3 credits
Introduction to theories, methods, policies, and programs of problem-solving in human service professions. Emphasis on interrelatedness of problems and need for interprofessional approaches.

220 INTRODUCTION TO THE SOCIAL SERVICES (3+0) 3 credits
Overview of public and private social services and profession of social work, and analysis of their functions as modes of social problem-solving and social control.

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 or S.Sv.C. 101.

280-281 COMMUNITY OBSERVATION (2+3) 3 credits
Analysis of community needs and problems and processes or services to meet them. Combines regular planned visits to agencies, institutions, courts, etc., with a two-hour classroom seminar. Prerequisite: S.Sv.C. 220.

320, 520 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. Open for credit to majors in the health sciences. Prerequisite: S.Sv.C. 220.

330, 530 METHODS OF THE SOCIAL SERVICES I (3+0) 3 credits
Survey of principles of casework, group work, and community organization. Intervention at individual, family, peer group, and community levels. Prerequisite: S.Sv.C. 220

331, 531 METHODS OF THE SOCIAL SERVICES II (3+0) 3 credits
Continuation of S.Sv.C. 330. To be taken concurrently with S.Sv.C. 480. Prerequisite: S.Sv.C. 330.

337, 537 VOCATIONAL REHABILITATION (2+0) 2 credits
Analysis of the problems, policies, and methods of rehabilitating educationally, physically, or mentally-handicapped persons to socially constructive roles. Use of case studies. Prerequisite: S.Sv.C. 220.

352 JUVENILE DELINQUENCY (3+0) 3 credits
(See Soc. 352 for description.)

360, 560 THE LAW AND SOCIAL SERVICES (2+0) 2 credits
Legal foundations and structures of practice and administration in social services. Legal aspects of all modes of intervention in social problems. Prerequisite: S.Sv.C. 101, 220.

366 CRIMINOLOGY (3+0) 3 credits
(See Soc. 366 for description.)

367 PENOLOGY (3+0) 3 credits
(See Soc. 367 for description.)

368, 568 CORRECTIONS (3+0) 3 credits
Analysis of the theory and methods of probation, parole, and prison treatment, with special attention to the role of the social worker. Prerequisite: S.Sv.C. 330.

370, 570 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.

372, 572 SOCIAL SERVICES, ETHNIC MINORITIES, AND WOMEN (2+0) 2 credits
Consideration of the provision of social services in American society for ethnic minorities and women. Understanding the various minority groups' social needs and attitudes.

374, 574 SOCIAL INTERVENTION IN ALCOHOL AND DRUG ABUSE (3+0) 3 credits
Identification, treatment, prevention, and control of drug addiction and alcoholism.

376, 576 SOCIAL SERVICES FOR THE AGING IN AMERICAN SOCIETY (2+0) 2 credits
Knowledge, methods and skills, policies, and programs pertinent to social services delivery systems for the aged.

378, 578 CONTEMPORARY ISSUES IN SOCIAL WELFARE (2+0) 2 credits
Analysis of current social welfare trends. Possible topics: guaranteed income, health care, processes in social legislation, family and group therapy, etc. Maximum of 4 credits.

380 INTRODUCTION TO RESEARCH AND STATISTICS (3+0) 3 credits
Methods, interpretation, and evaluation of research and statistical analysis for practitioners, community organizers, and other professionals in the social services.

430, 630 SOCIAL SERVICES IN DEATH AND DYING (2+0) 2 credits
Examines attitudes on death and associated grief processes. Prerequisite: one of the following: S.Sv.C. 230, 320, or 376.

450, 650 SOCIAL WELFARE INSTITUTIONS (2+0) 2 credits
Sociological analysis of the development of social welfare policies and programs in society with respect to their social and cultural context. Prerequisite: S.Sv.C. 220.

480-481 FIELD EXPERIENCE IN SOCIAL SERVICE (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: S.Sv.C. 330.

486, 686 SUPERVISION AND ADMINISTRATION IN THE SOCIAL SERVICES (2+0) 2 credits
Analysis of the theory and methods of supervision and administration in social service and correctional settings. Emphasis on case studies. Prerequisite: S.Sv.C. 480-481.

497, 697 SPECIAL PROBLEMS IN CORRECTIONS 1 to 3 credits
Maximum of 6 credits. Prerequisite: Soc. 366, 367 or S.Sv.C. 368.

498, 698 SPECIAL PROBLEMS IN SOCIAL SERVICES 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.

Inactive Course

260 THE VOLUNTEER IN COURTS AND CORRECTIONS (4+0) 4 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.

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 United States. Prerequisite: Soc. 101.

210 STATISTICAL METHODS (3+2) 4 credits
(See Psy. 210 for description.)

261 SOCIAL PSYCHOLOGY I: SOCIAL INFLUENCE PROCESSES (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.

327, 527 COMPUTER APPLICATIONS IN THE SOCIAL SCIENCES (3+0) 3 credits
Role of the computer and its application to a variety of contemporary problems in the social sciences. Prerequisite: Soc. 210 or Psy. 210, Soc. 101 or Psy. 101. (Same as Psy. 327.)

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.

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. (Same as S.Sv.C. 352.)

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. (Same as S.Sv.C. 366.)

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 S.Sv.C. 367.)

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
Political theories and concepts brought to bear on various aspects of political theory and behavior. Prerequisite: Soc. 101.

375 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.

381 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 socio-economic 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. Emphasis is placed upon classical studies and the developmental trends which led to current perspectives in social psychology. Prerequisite: Soc. 101 or Psy. 101.

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 non-normative 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. Not applicable toward an advanced degree in sociology.

485, 685 SOCIOLOGY OF KNOWLEDGE (3+0) 3 credits
Reciprocal influence of social structure on personal perception and values. Prerequisite: Soc. 101.

487, 687 SOCIAL MOVEMENTS AND COLLECTIVE BEHAVIOR (3+0) 3 credits
Processes involved in collective behavior and social movements; includes such topics as rumor, panic, riots, disasters, and social movement organizations. 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 and 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 IN SOCIOLOGY (3+0) 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.

706-707 INTERMEDIATE STATISTICS (3+0) 3 credits each
(See Psy. 706 for description.)

718 RESEARCH METHODS IN SOCIAL PSYCHOLOGY (3+0) 3 credits
(See Psy. 718 for description.)

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.)

783 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. 783).

784 INTERPERSONAL TRANSACTIONS (3+0) 3 credits
Basic processes of social interaction including person perception, communication, attraction, and power in social relationships. (Same as Psy. 784).

785 GROUP BEHAVIOR (3+0) 3 credits
Analysis of behavior in small and intermediate size groups, including organizational behavior and intergroup relations. (Same as Psy. 785.)

786 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. 786).

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 AND THEATRE (Sp.Th.)

Speech 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 COMMUNICATION THEORY (3+0) 3 credits
Survey of theories of human communication; 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.

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
Study and practice of argumentation theory in law, utilizing legal research, writing, and speaking; designed especially for the prelaw student.

320 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. Prerequisite: Sp.Th. 113.

329 BUSINESS AND PROFESSIONAL SPEAKING (3+0) 3 credits

Study and 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
Role of communication in social change, including protest movements, political campaigns, and advertising strategies.

428, 628 ORGANIZATIONAL COMMUNICATION (3+0) 3 credits
Analysis of communication functions and networks in organizational settings. Study of organizational structures and dynamics and their effect upon the communication process.

433, 633 COMPARATIVE THEORIES OF HUMAN COMMUNICATION (3+0) 3 credits
Review and comparative analysis of contemporary behavioral theories of human communication.

434, 634 COMMUNICATION: CONFLICT AND NEGOTIATION (3+0) 3 credits
Role of communication in conflict and negotiation with special emphasis on business, governmental, and educational organizations.

435, 635 PERSUASION (3+0) 3 credits
Review of contemporary theory and research in persuasive communication; the 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 credits.

495, 695 INDEPENDENT STUDY 1 to 3 credits
Open to juniors and seniors specializing in speech communication and theatre. Maximum of 8 credits.

700 RESEARCH METHODS (3+0) 3 credits
Research methodologies in the areas of speech communication and theatre arts. Required of all M.A. candidates in speech and theatre.

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
Critical review of the literature in human relations within the small group.

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

Review of the literature on strategies and techniques of persuasive discourse.

760 SEMINAR: COMMUNICATION THEORY

(3+0) 3 credits
Study of communication theory as it applies to the design, research, and management of communication systems.

780 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.

785 INDEPENDENT STUDY 1 to 3 credits

Maximum of 6 credits.

795 COMPREHENSIVE EXAMINATION 0 credit S/U only.**797 THESIS 1 to 6 credits****Theatre and Interpretation**

100 INTRODUCTION TO THE THEATRE (3+0) 3 credits
Survey of the art and craft of theatre including a study of 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.

ive plays. Lecture and discussion.

3, 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 for each course.

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: Sp.Th. 119.

221 INTERPRETATION (3+0) 3 credits

Oral interpretation of the forms of literature. Lectures and performance.

250-251, 350-351 LABORATORY THEATRE: ACTING

(2+3) 3 credits each
Lectures and discussion providing fundamentals for laboratory workshops. Prerequisite: Sp.Th. 118.

260 THEATRE SPEECH (3+0) 3 credits

Study of and practice in using the actor's voice.

321 ADVANCED INTERPRETATION (3+0) 3 credits

Advanced techniques of oral expression. Prerequisite: Sp.Th. 221.

330 STAGE LIGHTING (3+0) 3 credits

Theory and practice of lighting design and control. Prerequisite: Sp.Th. 119.

340 STAGE COSTUMING (3+0) 3 credits

Theory and practice of costume design.

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.

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: Sp.Th. 119.

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.

450, 650 THEORIES AND STYLES OF ACTING (3+0) 3 credits

Study and practice in period acting styles. Prerequisite: Sp.Th. 118.

452-453, 652-653 LABORATORY THEATRE: PLAYWRITING

(2+3) 3 credits each
Lectures and discussion to provide fundamentals for the laboratory workshop.

454-455, 645-655 LABORATORY THEATRE: DIRECTING

(2+3) 3 credits each
Lectures and discussion providing fundamentals for laboratory workshops. Prerequisite: Two 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 the 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.

719 SEMINAR: TECHNICAL THEATRE (3+0) 3 credits

Intensive study of specialized techniques of stagecraft.

721 SEMINAR: ORAL INTERPRETATION (3+0) 3 credits

Study of history and theories of the oral interpretation of literature from the Greeks to the present.

729 THEATRE CRITICISM AND AESTHETICS

(3+0) 3 credits
Historical study of theories of theatre criticism and their relationship to modern aesthetic theories.

790 SPECIAL PROJECTS IN THEATRE (3+0) 3 credits

Enrollment with approval of advisory committee as supplement to existing curriculum. Variety of options, i.e., design project, directed research, performance, recital, etc. Maximum of 6 credits.

Inactive Courses**105-106, 205-206, 305-306, 405-406 INTERCOLLEGIATE FORENSICS**

(0+3) 1 credit each
430, 630 MODERN THEORIES OF PUBLIC COMMUNICATION
(3+0) 3 credits

SPEECH PATHOLOGY AND AUDIOLOGY (S.P.A.)**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: S.P.A. 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

(3+0) 3 credits
Developmental, environmental, organic, and psychogenic bases of disorders of speech and voice. Prerequisite: S.P.A. 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: S.P.A. 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: S.P.A. 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: S.P.A. 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.

483, 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: S.P.A. 362, 365.

485, 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: S.P.A. 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: S.P.A. 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.

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: S.P.A. 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.

780 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. May be repeated to a maximum of 8 credits.

795 COMPREHENSIVE EXAMINATION 0 credit S/U only.**797 THESIS 1 to 6 credits**

SURGERY (Surg)*(see Medical Sciences)***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. 306 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 large, primarily



domestic, animals. Prerequisite: A.Sc. 204 or Biol. 101.

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: Graduate Standing, Bio. 306 or equivalent, Biol. 366 or V.M. 413, V.M. 408-608. Offered in odd-numbered years.

WOMEN'S STUDIES BOARD (WS)

101 INTRODUCTION TO WOMEN'S STUDIES (3+0) 3 credits
Interdisciplinary introduction to the methods and concerns of Women's Studies.

ZOOLOGY*(See Biology)***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

Donald H. Baepler, Ph.D.
B.A., Carleton College, 1954; M.S., University of Oklahoma, 1956; Ph.D., 1960.

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. (1966-1978)

Retired

Archie R. Albright, B.S., Area Extension Agent, Cooperative Extension Service.
Bernard A. Anderson, Ph.D., Professor of Speech, Emeritus.
Fred C. Batchelder, M.S., Extension Agent, Lyon County, Cooperative Extension Service, Emeritus.
Lena H. Berry, B.S., Home Agent, Churchill County, Emeritus.
Enrico U. Bertalot, Ph.D., Associate Professor of Foreign Languages and Literature, Emeritus.
Harold N. Brown, Ed.D., Professor of Education, Emeritus.
Russell Wilfrid Brown, Ph.D., Distinguished Professor of Microbiology, Assistant to the Dean.
Ferre W. Bunker, B.S., County Extension Agent in Charge, Cooperative Extension Service, Emeritus.
Eleanore Bushnell, Professor of Political Science, Emeritus.
John N. Butler, M.S., Professor of Metallurgy, Emeritus.
Clayton Carpenter, P.E.E., Physical Plant Engineer, Emeritus.
Howard H. Christensen, Ph.D., Associate Professor of Industrial Mechanics, Emeritus.
Raymond C. Cox, M.S., State Management and Operations Officer, Emeritus.
J. Kirk Day, B.S., County Extension Agent in Charge, Humboldt and Northern Lander Counties, Emeritus.
Meryl William Deming, Ph.D., Professor of Chemistry, Emeritus.
Alene R. Dickinson, Ed.D., Professor of Nursing, Emeritus.
David F. Dickinson, Ph.D., P.E., Professor of Electrical Engineering, Emeritus.
Kathryn H. Duffy, S.J.D., Professor of Managerial Sciences, Emeritus.
Laraine E. Dunn, Ph.D., Associate Professor of Biochemistry and Soil Science, and Associate Research Chemist, Emeritus.
Russell R. Elliott, Ph.D., Professor of History, Emeritus.
Marjorie J. Elmore, Ed.D., Professor of Nursing, Emeritus.
Charles F. Fell, M.S., P.E., Professor of Electrical Engineering, Emeritus.
Georgia N. Felts, B.S., Home Agent, Eureka and White Pine Counties.
Reynold Clayton Fuson, Ph.D., Distinguished Visiting Professor of Chemistry, Emeritus.
Louie A. Gardella, B.S., Extension Agent, Washoe County, Emeritus.
Vincent P. Gianella, Ph.D., Professor of Geology, Emeritus.
John Gottardi, M.A., Professor of Foreign Languages, Emeritus.
Robert S. Griffin, Ph.D., Professor of Speech and Drama, Emeritus.
Cyrus O. Guss, Ph.D., Professor of Chemistry, Emeritus.
Andrew A. Halacsy, Ph.D., P.E., Professor of Electrical Engineering, Emeritus.

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Mabel L. Hartley, B.A., Assistant Agricultural and Resource Economist, Emeritus.
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George Herman, A.M., Lecturer in English, Emeritus.
Edith J. Holmes, B.A., Order Librarian, Emeritus.
Robert A. Hume, Ph.D., Professor of English, Emeritus.
Austin E. Hutcheson, Ph.D., Professor of History and Political Science.
Ralph A. Irwin, Ph.D., Administrative Vice President and Professor of Psychology, Emeritus.
James G. Jensen, B.S., Extension Agent, Esmeralda, Southern Lander and Nye Counties, Emeritus.
Austin E. Jones, M.S., Research Associate in Seismology.
Winthrop G. Jones, M.S.E.E., Assistant Professor of Engineering Technologies.
Helen Joslin, Lecturer in Art, Emeritus.
Lawton B. Kline, Ph.D., Associate Professor of Foreign Languages, Emeritus.
Charlton G. Laird, Ph.D., Professor of English, Emeritus.
Glenn J. Lawlor, B.A., Professor of Physical Education and Athletics, Emeritus.
Sigmund W. Leifson, Ph.D., Professor of Physics, Emeritus.
C. Robert Locke, M.D., Director of Student Health Service, Emeritus.
Kenneth D. Loeffler, J.D., Associate Professor of Managerial Sciences.
Catherine C. Loughlin, M.A., Associate Professor and Extension Specialist of Home Economics, Emeritus.
Alice B. Marsh, M.S., Associate Professor of Home Economics, Emeritus.
John Edward Martie, M.P.E., Professor of Health, Physical Education, and Recreation, Emeritus.
Wayne S. Martin, Ed.D., Director, Continuing Education, Emeritus.
Lon S. McGirk, Jr., Ph.D., Associate Professor of Geology.
Christian W.F. Meiz, Ph.D., Professor of Foreign Languages, Emeritus.
Mark W. Menke, B.S., Extension Agent, Elko County, Emeritus.
Melvin P. Miller, B.S., County Extension Agent in Charge, Lincoln County.
William C. Miller, Ph.D., Professor of Speech and Drama, Emeritus.
Joe Eugene Moose, Ph.D., Professor of Chemistry; Dean of the Graduate School; Director of Research, Emeritus.
Z. Iona Mowrer, M.S., Associate Professor of Recreation and Physical Education, Emeritus.
Harve P. Nelson, Ph.D., Professor of Mining Engineering, Emeritus.
Chauncey W. Oakley, M.Ed., Lecturer in Mathematics, Emeritus.
Thomas D. O'Brien, Ph.D., Dean of the Graduate School and Professor of Chemistry, Emeritus.
Edward A. Olsen, Director of Information, Emeritus.
Maurica G. Osborne, M.L.S., Life and Health Science Librarian, Emeritus.
Ray K. Petersen, M.S., Associate Agronomist, Experiment Station, Emeritus.
Alden J. Plumley, M.A., Professor of Economics, Emeritus.
R. Borden Reams, Director of Development and Ambassador in Residence, Emeritus.
Albert J. Reed, M.S., Animal Husbandman, Agricultural Extension Service, Emeritus.
Joseph H. Robertson, Ph.D., Professor of Range Ecology, Emeritus.
Robert T. Roelofs, Ph.D., Professor of Philosophy, Emeritus.
John Torney Ryan, Shop Superintendent and Instructor, Engineering Shops, Emeritus.
Elsa Sameth, M.S., Professor of Physical Education for Women, Emeritus.
Irving Jesse Sandorf, M.S., Professor of Electrical Engineering, Emeritus.

- Vernon E. Scheid, Ph.D., Professor of Mineral Sciences; Dean of the Mackay School of Mines; Director of the Nevada Bureau of Mines and Geology and Nevada Mining Analytical Laboratory, Emeritus.
- Otto R. Schult, B.S., Agronomist, Cooperative Extension Service, Emeritus.
- C. Eugene Shepherd, Lecturer in Physics, Emeritus.
- William I. Smyth, E.M., Professor of Metallurgy and Mining, Emeritus.
- Victor E. Spencer, M.S., Soils Research Chemist, Experiment Station.
- Joseph F. Stein, Ph.D., Associate Director, Cooperative Extension Service; Professor of Animal Science, Emeritus.
- Lloyd L. Stitt, M.S., Associate Pesticide Specialist, Biochemistry, Emeritus.
- Mildred Swift, M.S., Professor of Home Economics, Emeritus.
- Edward M. Vieltl, Ph.D., Professor of Accounting and Information Systems, Emeritus.
- Walter H. Voskull, Ph.D., Distinguished Visiting Professor of Mineral Economics, Emeritus.
- Robert C. Weems, Jr., Ph.D., Professor and Dean of the College of Business Administration; Director of the Bureau of Business and Economic Research, Emeritus.
- Loring R. Williams, Ph.D., Professor of Chemistry, Emeritus.
- John S. Winston, M.Sc., Professor of Metallurgy, Emeritus.
- John H. Wittwer, B.S., Agricultural Agent, Emeritus.
- Benjamin M. Wofford, Ph.D., Associate Dean and Professor of Economics, Emeritus.
- R. Edwin Worley, Ph.D., Professor of Physics, Emeritus.
- Charles R. York, Sr., B.S., County Extension Agent in Charge, Churchill County, Emeritus.

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- Jack Robert Abbott, M.S.W., Adjunct Instructor of Social Services and Corrections.
B.A., Whitman College, 1950; M.S.W., University of Washington, 1956. (1970)
- Margaret E. Adams, M.Ed., Counselor/Field Coordinator, Student Services.
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- David L. Adkisson, M.D., Clinical Assistant Professor
D.O., Colorado Osteopathic Physicians & Surgeons, 1954; M.D., California College of Medicine, 1962; M.D., Central University, Facultad de Ciencias, 1963. (1978)
- Ilm Akhtar, Ph.D., Associate Professor of Chemical and Metallurgical and Associate Metallurgist, Nevada Bureau of Mines and Geology.
B.S., University of Punjab, 1958; M.S., Montana School of Mines, 1963; Ph.D., Stanford University, 1968. (1969-1971)
- Elisabeth Constantino Albertino, M.A., Lecturer in Mathematics.
B.A., Sterling College, 1945; M.A., University of Illinois, 1971. (1981)
- Ben Aleck, B.F.A., Upward Bound Counselor, Student Services.
B.F.A., California College of Arts & Crafts, 1972. (1977)
- Brock Alexander, M.S.W., Clinical Instructor of Psychiatric Social Work.
B.A., Agnes Scott, 1961; M.S.W., Catholic University, 1969. (1978)
- J. Richard Alldredge, M.S., Assistant Professor and Agriculture Experiment Station Statistician.
B.A., Oakland University, 1969; M.S., Colorado State University, 1971. (1973-1976)
- Daniel R. Allen, B.S., Coordinator, Health Careers for American Indians.
B.S., University of Nevada, 1974. (1975)
- R. James Allred, M.D., Clinical Assistant Professor.
M.D., University of Utah, 1971. (1975)
- Ivan G. Althouse, Jr., M.D., Clinical Assistant Professor.
M.D., University of Nebraska College of Medicine, 1964. (1975)
- Phillip L. Altick, Ph.D., Professor of Physics.
B.S., Stanford University, 1955; M.A., University of California, Berkeley, 1960; Ph.D., 1963. (1963-1975)
- John C. Altocchi, Ph.D., Professor of Behavioral Science and Psychology.
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- Loretta A. Amaral, M.L.S., Librarian.
B.A., University of California, Berkeley, 1952; M.L.S., 1963. (1972)
- Shrikant D. Anagol, M.D., Clinical Assistant Professor.
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- James T. Anderson, Ph.D., P.E., Professor of Mechanical Engineering.
B.S., Michigan State College, 1943; M.S., 1948; D.I.C., Ph.D., University of London, 1952. (1963-1976)
- Katherine Klaich Anderson, M.N., Instructor of Nursing.
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- Robert J. Andrew, M.D., Clinical Assistant Professor.
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- Allen R. Anes, M.D., Clinical Assistant Professor.
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- Mary B. Ansari, M.B.A., Mines Librarian.
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- Nazir Ahmad Ansari, Ph.D., Professor of Managerial Sciences.
B.S., Banaras University, India, 1955; M.C., 1957; Ph.D., University of Illinois, 1964. (1967-1973)
- Michael Apicella, M.D., Clinical Professor of Internal Medicine.
A.B., Holy Cross, 1959; M.D., State University of New York, 1963. (1979)
- William G. Arbonies, M.D., Clinical Assistant Professor.
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- William H. Arnett, Ph.D., Professor of Entomology; Entomologist, Biochemistry.
B.S., Mississippi State University, 1955; M.S., 1957; Ph.D., Kansas State University, 1960. (1960-1974)
- John L. Artz, M.S., Professor, Range Science, Extension Range Specialist, Renewable Natural Resources.
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- James B. Atcheson, M.D., Clinical Assistant Professor.
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- Glendel W. Atkinson, Ph.D., Associate Dean and Professor of Economics.
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- L. Matthew N. Bach, Ph.D., Professor of Physiology.
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- Carl W. Backman, Ph.D., Professor of Sociology.
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- Donald H. Baepfler, Cooperating Professor of Biology.
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- Frank Gelle Baglin, Ph.D., Associate Professor of Chemistry.
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- Curtiss M. Bailey, Ph.D., Professor and Geneticist, Animal Science.
B.S., University of Wisconsin, 1952; M.S., Texas Agricultural and Mechanical College, 1954; Ph.D., University of Wisconsin, 1960. (1960-1971)
- John A. Bailey, Ed.D., Professor of Counseling and Guidance Personnel Services.
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- Ronald G. Bailey, M.A., Lecturer-Recreation and Athletic Trainer, Department of Recreation and Physical Education; Intercollegiate Athletics.
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- Arthur Baker III, Ph.D., Dean, Mackay School of Mines.
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- William W. Baker, M.S., P.E., Assistant Professor of Engineering Technologies.
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- Dewitt C. Baldwin, Jr., M.D., Professor of Psychiatry and Director, Health Sciences.
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- Michele A. Baldwin, M.S.W., Assistant Professor in Behavioral Sciences.
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- Edmund R. Barmettler, Ph.D., Assistant to the Dean and Director for Management Services, College of Agriculture.
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- Theodore B. Barndt, M.D., Clinical Assistant Professor.
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- Mauvine R. Barnes, M.D., Clinical Assistant Professor.
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- Roberta J. Barnes, Ph.D., Dean of Students.
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- Robert J. Barnet, M.D., Professor of Internal Medicine.
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- Earl S. Barnhill, J.D., Associate Professor of Criminal Justice.
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- Samuel M. Basta, Ed.D., Professor and Director of External Relations, College of Education.
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- John W. Batdorf, M.D., Clinical Assistant Professor.
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- Claude M. Belcourt, M.D., Clinical Assistant Professor.
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- Dennis A. Biasi, B.A., Graphic Artist, Audio Visual Communications.
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- Jo Laverne Bible, B.S., Clinical Instructor of Nursing.
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- Juan Bilbao, M.A., Basque Studies Bibliographer.
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- John W. Bird, Ph.D., P.E., Associate Professor of Civil Engineering.
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- Franklin R. Black, M.D., Clinical Associate Professor.
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- Bruce E. Blackadar, Ph.D., Assistant Professor of Mathematics.
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- Gordon I. Zimmerman, Jr., Ph.D., Associate Professor of Speech and Theatre. B.S., University of Oregon, 1965; M.A., University of Arizona, 1968; Ph.D., University of Minnesota, 1972. (1967-1977)
- Roslyn M. Zimmerman, M.A., Instructor of Medical Sciences. B.A., University of Florida, 1965; M.A., University of Arizona, 1967. (1976)
- Reuben Zucker, M.D., Clinical Associate Professor. B.A., Yale University, 1941; M.D., Yale School of Medicine, 1944. (1976)

Who Are They?

Campus Buildings and Names

ANDERSON Medical Sciences.

Fred M. Anderson, M.D., (1906—), Reno physician and surgeon, member of the Board of Regents, 1956—.

CHURCH Fine Arts

James Edward Church (1869—1959), professor of Latin, German, classical art, and history, 1892—1959. Developed the first 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 University of Nevada.

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 before the move to Getchell in 1962.

FLEISCHMANN Agriculture (Fleischmann College of Agriculture) . . .

FLEISCHMANN Greenhouses . . .

FLEISCHMANN Life Science

(See also: Fleischmann Atmospherium/Planetarium, Fleischmann Home Economics)

Max C. Fleischmann (1877—1951), Nevada philanthropist, food industry millionaire (Standard Brands), benefactor of the University with gifts of land, scholarships, 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 has contributed further millions to the University in gifts, scholarships, and assistance in establishing the Computing Center, Laboratory of Environmental Patho-Physiology, Atmospherium/Planetarium, Desert Research Institute, the Water Resources Building, and the Judicial College Building.

FLEISCHMANN Atmospherium/Planetarium (Charles and Henriette Fleischmann Atmospherium/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.

FRANSEN HUMANITIES (formerly Agriculture Building) *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.

JOT TRAVIS Student Union

Ezra ("Jot") Travis, early Western stage-coach-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.

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 United States.

LOMBARDI Recreation

Louis E. Lombardi, M.D. (1907—), Reno physician and surgeon; member of the Board of Regents, 1951—.

MACK Social Science

Effie Mona Mack (1888—1969), Nevada historian and educator; University benefactor.

MACKAY School of Mines . . .

MACKAY Stadium . . .

MACKAY Stadium Field House

John W. Mackay (1831–1902), one of the “Big Four” successful mining men of 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–), industrialist, philanthropist, civic leader. Benefactor and Chairman of the Advisory Board of the School of Medical Sciences.

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 Business Administration

Silas E. Ross (1887–1975), professor of chemistry, 1909–1914; Reno mortician; member of the Board of Regents, 1932–1956.

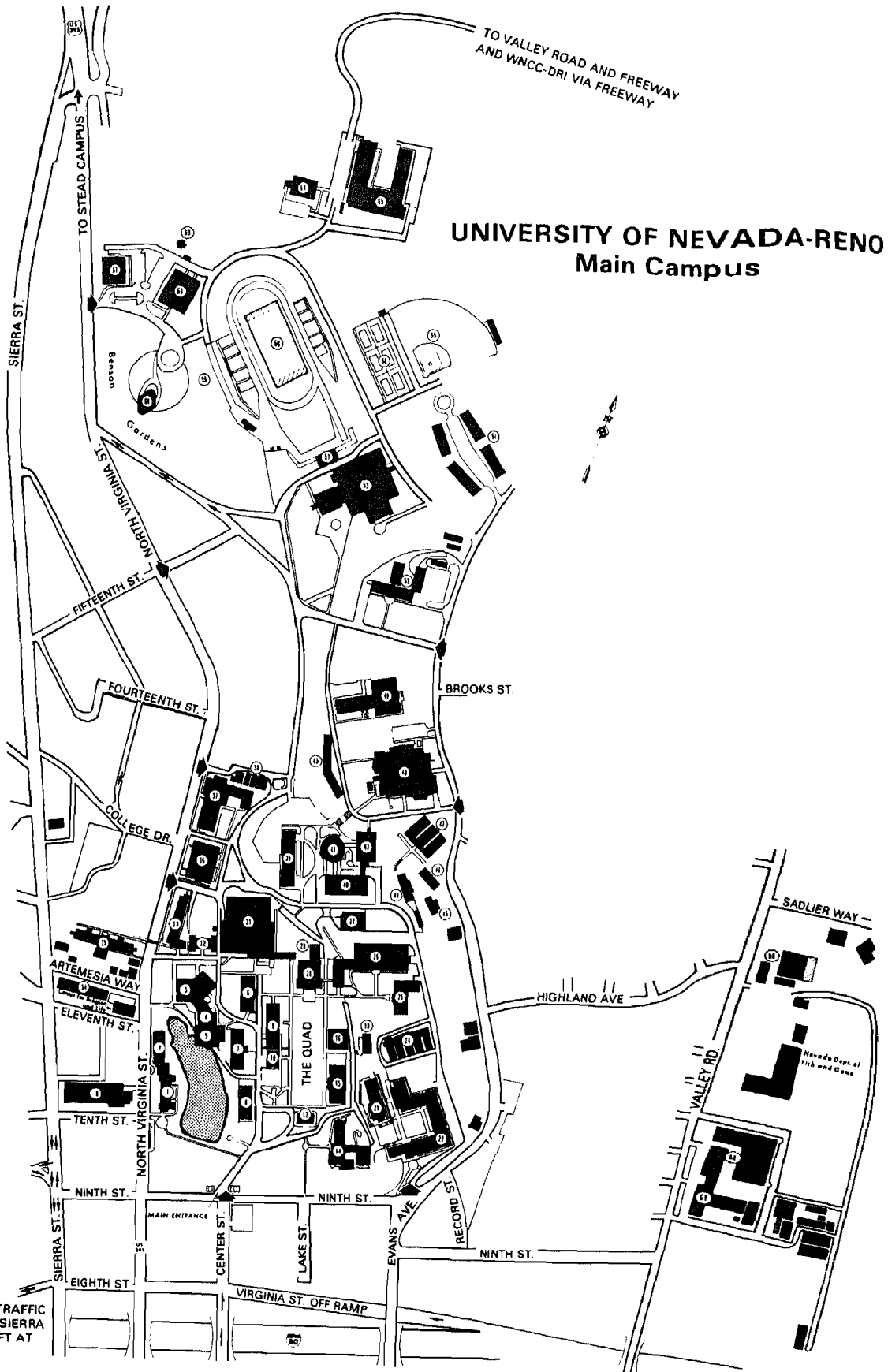
SCRUGHAM Engineering – Mines

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
AA	38	Art Annex
	55	Baseball Field
B	3	Bookstore
	45	Buildings & Grounds Garage and Storage
BG	47	Buildings & Grounds Office and Shops
	44	Buildings & Grounds Repair Garage and Shops
BR	10	Business Research
CHP	27	Central Heating Plant
	46	Central Stores
CB	40	Chemistry Building
CFA	37	Church Fine Arts
CA	8	Clark Administration
CC	62	Computing Center
DC	5	Dining Commons
EB	48	Education Building
ERF	63	Environmental Research Facility
EC	69	Equestrian Center
FA	22	Fleischmann Agriculture
FAP	60	Fleischmann Atmospherium/Planetarium
	24	Fleischmann Greenhouses
FG	24	Fleischmann Greenhouses
FHE	14	Fleischmann Home Economics
FH	7	Frandsen Humanities
GL	31	Getchell Library
G	36	Gymnasium
HH	43	Hartman Hall
	64	Health Lab., State of Nevada
HS	2	Health Service
JTU	4	Jot Travis Student Union
JC	49	Judicial College
JH	2	Juniper Hall
LB	41	Lecture Building
LP	42	Leifson Physics
LH	32	Lincoln Hall
LR	53	Lombardi Recreation
MSS	39	Mack Social Science
MSM	28	Mackay School of Mines
MS	15	Mackay Science
S	58	Mackay Stadium
	57	Mackay Stadium Field House
MAH	1	Manzanita Hall
M	65	Medical Sciences
MH	12	Morrill Hall
	61	Nevada Historical Society
NH	35	Nye Hall
OSN	21	Orvis School of Nursing
PE	25	Palmer Engineering
PP	29	Physical Plant
PO	5	Post Office
RRC	68	Renewable Resources Center
RBA	9	Ross Business Administration
SEM	26	Scrugham Engineering-Mines
	59	Soccer Field
	56	Tennis Courts
TSS	6	Thompson Student Services Center
UP	46	University Police
UR	16	University Relations
USC	34	University Services Center
UV	54	University Village
	52	U.S. Bureau of Mines
V	19	Veterinary Sciences
WPH	33	White Pine Hall

NUMERICAL LEGEND

0.	College Inn
1.	Manzanita Hall
2.	Juniper Hall
2.	Health Service
3.	Bookstore
4.	Jot Travis Student Union
5.	Dining Commons
5.	Post Office
6.	Thompson Student Services Center
7.	Frandsen Humanities
8.	Clark Administration
9.	Ross Business Administration
10.	Business Research
12.	Morrill Hall
14.	Fleischmann Home Economics
15.	Mackay Science
16.	University Relations
19.	Veterinary Science
21.	Orvis School of Nursing
22.	Fleischmann Agriculture
24.	Fleischmann Greenhouses
25.	Palmer Engineering
26.	Scrugham Engineering-Mines
27.	Central Heating Plant
28.	Mackay School of Mines
29.	Physical Plant
31.	Getchell Library
32.	Lincoln Hall
33.	White Pine Hall
34.	University Services Center
35.	Nye Hall
36.	Gymnasium
37.	Church Fine Arts
38.	Art Annex
39.	Mack Social Science
40.	Chemistry Building
41.	Lecture Building
42.	Leifson Physics
43.	Hartman Hall
44.	Buildings & Grounds Repair Garage and Shops
45.	Buildings & Grounds Garage and Storage
46.	University Police
46.	Central Stores
47.	Buildings & Grounds Office and Shops
48.	Education Building
49.	Judicial College
52.	U.S. Bureau of Mines
53.	Lombardi Recreation
54.	University Village
55.	Baseball Field
56.	Tennis Courts
57.	Mackay Stadium Field House
58.	Mackay Stadium
59.	Soccer Field
60.	Fleischmann Atmospherium/Planetarium
61.	Nevada Historical Society
62.	Computing Center
63.	Environmental Research Facility
64.	Health Lab., State of Nevada
65.	Medical Sciences Anderson Health Phase III Manville Health
67.	Agricultural & Industrial Mechanics
68.	Renewable Resources Center
69.	Equestrian Center

EASTBOUND TRAFFIC USE EXIT 13 (SIERRA ST.), TURN LEFT AT CENTER ST.

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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